This is to certify that the

thesis entitled

AGRAMMATISM IN SPANISH

presented by

Karen Lynn Miller

has been accepted towards fulfillment
of the requirements for

MA degree in Linguistics

A. Beretta
Major professor

Date May 29, 2001

AGRAMMATISM IN SPANISH

BY

Karen Lynn Miller

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS IN LINGUISTICS

Department of Linguistics and Germanic, Slavic, Asian, and African Languages

2001

ABSTRACT

AGRAMMATISM IN SPANISH

BY

Karen Lynn Miller

This study aims to provide a descriptive overview of the linguistic characteristics of agrammatic production in Spanish. Methods for data collection and analysis follow those employed by Menn and Obler (1990) and Halliwell (1998). Four spoken narratives were collected from two Spanish-speaking agrammatics in Chile. The *Tree-pruning Hypothesis* (Friedmann and Grodzinsky, 1997) and the *Competition Model* as presented by Benedet et al. (1998) are reviewed in light of the data.

Overall, the Spanish-speaking agrammatics patterned with the agrammatics in previous cross-language studies. The Spanish-speaking agrammatics had most difficulty producing prepositions, articles and verbal inflections. Syntactic structure was simplified and production rate and phrase length was short. On the reading task, substitution errors were generally on grammatical morphemes. The Spanish-speaking agrammatics differed in that they had little difficulty producing strong and weak pronouns and had higher token/type ratios than their controls for nouns.

To Rodrigo

ACKNOWLEDGMENTS

Many people have contributed to the successful completion of this thesis. I would like to begin by especially thanking my graduate committee: Professor Alan Beretta, Professor Cristina Schmitt and Professor Alan Munn for offering specific suggestions to improve this thesis and valuable advice for carrying out the study. I would also like to extend my appreciation to Professor Rafael Gonzalez at the *Hospital Clínico de la Universidad de Chile* for his time and effort in locating subjects and discussing my project with me. His extensive knowledge in the field of Audiology and Speech Sciences was extremely beneficial. Special thanks goes to the four subjects who participated in the study for their patience and willingness to meet with me on a variety of occasions. I would like to express my gratitude to Dr. Violeta Díaz for taking interest in the study right from the beginning and for all the time and energy she spent preparing for my stay in Chile. I am very grateful to Paula Vicencio and Nelson Saa for contacting patients and allowing me to use their facilities. I am also very grateful to Lilian Toledo Rodriguez and Alicia Villar Moya for their helpful suggestions, their assistance in collecting data and for their friendship. I would like to thank Rodrigo Cárdenas, who spent several hours helping me with the transcriptions and formatting of the manuscript. Finally, I would like to thank my family for their continual love, encouragement, and support. This work was supported by a grant from the College of Arts and Letters at Michigan State University.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF SYMBOLS AND ABBREVIATIONS

adv	adverb	pro	personal pronoun
adj	adjectives	cli	clitic pronoun
art	article	dem	demonstrative pronoun
aux	auxiliary	poss	possessive pronoun
comp	complementizer	rel	relative pronoun
conj	coordinating conjunction	quant	quantifier
det	determiners	qwh	wh-question word
exclm	exclamation	rfl	reflexive
fill	filler	subconj	subordinating conjunction
N	noun	v	have/be main verb
neg	negative	V	lexical verb
num	number	Vinf	infinitive
prep	preposition		

PAST	past tense	[ ]	omission
PL	plural	/??/	uninterpretable string
PRES	present tense	(...)	pause of 2 seconds or more
SG	singular	(.)	pause of less than 2 seconds

Introduction

Neurolinguistics aims to show how language is supported in the normal brain. By examining acquired language disorders, neurolinguists hope to find out how lesions in the brain relate to language breakdown. Lesser (1989) pointed out that the study of how brain damage can disrupt the use of language offers a unique opportunity to find out more about the organization of the human brain and provides a testing ground for current linguistic theory.

Crosslinguistic comparison of agrammatism is essential for providing accurate generalizations of the disorder. By examining language breakdown in a variety of languages, it is possible to separate those characteristics that seem to be language/patient specific from those that are universal. Secondly, because languages vary, cross-linguistic analysis of agrammatism can bring to light deficits that may have been hidden due to the nature of the particular language under study. For example, because of the almost complete lack of subject-verb agreement in English but the abundant presence of it in Spanish, subject-verb agreement marking errors by agrammatics are more easily observable in highly inflected languages like Spanish.

Few studies have focused on the language production of Spanish-speaking aphasics. Benedet et al. (1998) pointed out that "no studies of agrammatism in Spanish speakers have been included in either of the recent large-scale cross-language studies (Bates et al., 1991; Menn and Obler, 1990)." The goal of this thesis is to provide a general overview of the characteristics of production in Spanish agrammatsim. In order to facilitate cross-language comparison, the methods for data collection and analysis follow those employed by Menn and Obler (1990).

This thesis examines the speech production of 2 Spanish-speaking agrammatics with Broca's aphasia: JTF and LTL. The first chapter provides general background on previous research on agrammatic aphasia and several theoretical accounts of the disorder are reviewed. Chapter 2 provides background information on the patients and controls selected for the study and outlines the tasks they performed. Moreover, it explains how the data was analyzed. Chapter 3 presents the results for each patient compared to his control. Both the results of the speech and reading tasks are presented here. Chapter 4 compares Spanish agrammatism cross-linguistically and examines the results in light of current theoretical accounts of agrammatism. Chapter 5 concludes the thesis by summarizing the overall findings.

Chapter 1

Background

This chapter provides general background information about Broca's aphasia and agrammatism, presents previous work on agrammatic production, and reviews theoretical accounts of the disorder.

1.1 Review of Literature

1.1.1 Broca's Aphasia and Agrammatism

Broca's aphasia results from brain lesions involving the lower left posterior frontal lobe, or Broadmann's areas 44 and 45 (Rosenbek et al., 1989). Lesions resulting in Broca's aphasia are most commonly caused by a cerebro-vascular accident (stroke), head injury from external trauma, intracranial hemorrhage, or surgery required to remove a tumor. Common characteristics of Broca's aphasia are severely impaired fluency or agrammatic speech, phonological deficits, difficulty in repeating words and phrases, and right-sided hemiplegia.

The first person credited for attributing language breakdown to the left hemisphere was Paul Broca. In 1863, Broca described over 25 patients with aphèmie (loss of articulate speech) and in 1865 he concluded that true aphèmie is "the loss of speech without the paralysis of the organs of articulation and without the destruction of the intellect" and is linked to the third frontal convolution of the left hemisphere.

Agrammatism is a linguistic aspect of Broca's Aphasia and is generally characterized by slow and halting speech, short and unfinished sentences, and impairment of the syntactic and morphological resources of language. One of the earliest accounts of agrammatic speech was made by Johannes Jakob Wepfer (1690) in "*Observationes*

medico-practicae de affectionis capitis iternis & externis." Here, he described a 53 year-old patient who produced word order and inflectional morphology errors (cited in Whitaker, 1998). Another early account of agrammatic speech was by Giovanni Battista Vico (1744), who reported a patient that had suffered from a stroke and could produce nouns but not verbs (cited in Whitaker, 1998). This dissociation between nouns and verbs has been reported for agrammatics in modern day studies as well (Miceli and Mazzucchi, 1990; Bates et al., 1991). Later in 1819, Deleuze observed a French aphasic who could only produce the infinitive form of verbs and could not produce pronouns (cited in Goodglass and Menn, 1985) and in 1871 Steinthal refers to a patient who was incapable of building sentences (cited in Kolk et al., (1985).

Arnold Pick wrote the first document devoted entirely to agrammatism in 1913. Pick is credited for coining the term 'agrammatism', which he used to refer to a speech disorder characterized by "disturbance in the use of auxiliary words, incorrect word inflections, and erroneous prefixes and suffixes" (cited in Whitaker, 1998). He noted that although patients knew the intended meaning they wanted to produce, they were unable to construct the sentences.

1.1.2 Linguistic Descriptions of Agrammatic Production

Goodglass and Kaplan (1983)

Goodglass and Kaplan (1983) devised the Boston Diagnostic Aphasia Examination (BDAE). The BDAE aims to diagnose the presence and type of an aphasia syndrome and also measure the level of performance on a number of linguistic and nonlinguistic tasks in order to provide a better guide for therapy. Severity level is ranked from "0 – 5", "0" being the most severe. A score of "0" means that communication (production and comprehension) is impossible while a score of "5" means that the patient

has a minimally perceptible speech handicap. Scores on the BDAE are often used as a criterion for selecting patients for studies on agrammatism. Tasks on the BDAE involve picture description, free narratives, recitation/singing, word/phrase/sentence repetition, word/sentence reading, writing, mathematics, and drawing. One task carried out by patients is the description of the "Cookie Theft" picture[1], which was also used to elicit speech in many of the studies discussed in this thesis.

Menn and Obler (1990)

Researchers in Menn and Obler (1990) examined agrammatic production in 14 different languages. Although they found deficits were often language/patient specific, they concluded that some cross-language generalizations could be made. Characteristics of agrammatism in all 14 languages involved: (1) simplified syntactic structure, (2) morphological errors, (3) lexical errors and (4) heavy reliance on canonical word order.

At the sentence level, embedded clauses were almost always absent except for quoted discourse. Within the clause, NPs were simplified and the use of noun modifiers was reduced. Specifically, reduction of content-word modifiers (Adj. + N, N + N) was more common than reduction of function-word modifiers (Art. + N). VP was simplified because the use of optional elements, like those that express mood or modality, whether indicated by free or bound morphemes, was absent. Patients generally produced only VPs with subject and object and had difficulty producing indirect objects. Finally, the omission of auxiliary verbs was extremely common.

Overall, morphological errors consisted of omission of free grammatical morphemes and substitution of bound grammatical morphemes. Substitution errors were often only off-target by one feature and were not random but rather instances of

[1] See Appendix B of this thesis.

morphologically grammatical forms. In other words, patients did not produce non-words. Free morpheme omission rates tabulated by Menn and Obler (1990) were highest for auxiliaries and empty main verbs followed by pre/postpositions, personal pronouns (strong and weak), articles, and coordinating conjunctions and certain non-lexical morphemes like fillers and conjunctions were often overused.

Finally, patients omitted more main lexical verbs than nouns, which might be the result of an inability to combine the correct grammatical morpheme with the appropriate verb stem. However, supplementary tasks indicated that retrieval of lexical main verbs was more difficult than retrieval of nouns. Two oral Object vs. Action Naming tests were administered and two Italian patients correctly produced more objects (71.4% and 79.3%) than actions (51% and 71.6%) (Miceli and Mazzucchi, 1990). This suggests that retrieval of main verbs from the lexicon was disrupted.

Bates et al. (1991)

Bates et al. (1991) provided a cross-linguistic overview of aphasia by reviewing the findings of 9 papers. Although these studies indicated that aphasia varies from one language to another, some general cross-language characteristics were found. Agrammatics had a preference for canonical word order and grammatical inflections and function words were selectively impaired across all languages. Moreover, patients tended to avoid contexts that required production of difficult morphosyntactic structure. When they made mistakes, they substituted the correct form for a simpler, more frequent and less marked form. Like Miceli and Mazzucchi (1990), they reported that action naming, not object naming, was impaired. They pointed out that the hypothesis linking difficulty in verb production to the amount of grammatical markings that verbs carry is

incorrect because they find that although Chinese has no verb or noun inflections, Chinese agrammatics still had more difficulty naming actions than naming objects.

Benedet et al. (1998)

Benedet et al. (1998) compared Spanish and English agrammatic production. They claimed that Spanish agrammatics outperformed their English counterparts on subject-verb agreement because it is a stronger cue[2] in Spanish. However, they failed to take into consideration differences in severity rates of the patients tested. Spanish agrammatics received higher scores on the BDAE[3], which indicates that they were not as severe as the English subjects with whom they were compared. Patient 6 is the only exception. This patient received a high score on the BDAE yet scored lower than most on all other elicited tasks; however, this patient was classified as a crossed aphasic and overall his description of the 'Cookie Theft[4]' was strange. For example, he used proper names in his description and seemed to be talking about someone he knew rather than the picture itself. If we reanalyze their results (leaving out patient 6) based on severity rate rather than language type, we find that patient 5, who performed best on the BDAE, also outperformed the rest in almost all other tasks. Patient 4, who performed second best on the BDAE, generally outperformed the rest. Moreover, it no longer appears that the ability to correctly produce subject-verb agreement is dependent on one's native language but rather on the severity of one's language deficit because those who scored highest on the BDAE, namely Patients 5, 4, 1, D, performed best on subject-verb agreement[5].

---

[2] See Section 1.1.3: *The Competition Model* for a explanation of 'cue'.
[3] Boston Diagnostic Aphasia Examination. See Section 1.1.2: Goodglass and Kaplan (1983)
[4] The 'Cookie Theft' is part of the BDAE. See Appendix B.
[5] The only exception to this would be Patient 2 who scored a 1 on the BDAE and scored between 50% - 59% on S-V Agreement compared to Patients B, C, and G, who scored a 2 on the BDAE and scored between 30% - 39% on S-V Agreement. However, this exception is small compared to the rest of the evidence that credits severity as determiner of S-V Agreement score.

(1)

Severity Rate	Patient	S-V Agreement Score
4	(5)	80% - 89%
3	(4)	80% - 89%
3	(1) **(D)**	60% - 69%
2	(3) **(E)**	60% - 69%
2	**(B)(C)(G)**	30% - 39%
1.5	**(F)**	10% - 19%

*Spanish patients are represented by numerals and English patients are represented by letters.

It appears that severity rate can explain many of the differences found between these English and Spanish agrammatics. Spanish subjects were less severe and therefore outperformed English subjects.

The conclusions about agrammatic differences based on language type seem questionable. Fortunately, the Spanish attempt at the 'Cookie Theft' narrative was published in Benedet et al. (1998) and could be examined independently. The data found in these narratives paralleled the overall findings in Menn and Obler (1990). Syntactic simplification, omission of auxiliaries and lexical empty verbs, omission and substitution of morphemes, overuse of non-lexical morphemes (fillers) and preference for canonical word order were characteristic of the Spanish data. Although Benedet et al.'s attempt at comparing Spanish and English agrammatism is problematic, the Spanish data does predict possible results of this thesis.

Although the previously mentioned studies focused on both comprehension and production abilities of agrammatics, only the results of the production tasks are relevant to this study. Moreover, studies only dealing with comprehension of Spanish agrammatics will not be reviewed because of the variation that is found between grammatical comprehension and production by agrammatics. Many have indicated that

comprehension and production do not pattern after each other and many times contradict each other (Benedet et al., 1998; Friedmann and Grodzinsky, 1997; Grodzinsky, 2000). Benedet et al. (1998) found patients had more difficulty with tense than with subject-verb agreement on comprehension tasks while the opposite was found on production tasks.

1.1.3 Theoretical Accounts of Agrammatic Production

Jakobson (1963) & Luria (1970)

Jakobson's (1941) book linking the loss of phonemes in aphasic language to the acquisition of phonemes in child language development is widely accepted as the first true linguistic study of aphasia. During the 1960's and 1970's both Jakobson and Luria turned toward morphosyntax to account for language impairment in agrammatism. Jakobson (1963) argued that agrammatism resulted from a loss of verbal language while nominative language remained intact. He also noted that the disturbance was not random but obeyed a set of rules. Referring to the aphasia-classification work of Luria (1970), Jakobson (1963) proposed a process of *encoding*. He argued that the process of *encoding* starts with a selection of constituents, which are then combined and integrated into a context. The process breaks down in agrammatic Broca's aphasia because the procedure of combining constituents is impaired. In other words, the linguistic elements that encode relationships between content words tend to disappear from speech. Jakobson (1963) asserts, "the little tools of language—connectives, articles, pronouns which serve to cement the grammatical context are the first to be suppressed in the efferent disorder [Broca's aphasia]." Unlike the proposals that follow, Jakobson's proposal does not account for selective impairment of certain functional morphemes over others.

Kean (1977)

Kean (1977) explained agrammatism under a phonological account. She proposed that non-phonological words are omitted in agrammatic speech. Non-phonological words in English are function words and affixes that are not stress sensitive, in other words, affixes that do not change the stress of the stem to which they attach. Kean pointed out that both inflectional affixes and function words do not affect stress in English and for this reason they are omitted in agrammatic speech. Therefore, she concluded that there is no syntactic deficit in agrammatic Broca's aphasia rather there is a phonological deficit.

One obvious problem is that if inflectional and function words are deleted in English because they are not sensitive to stress and hence not phonological words, how do we account for languages where inflectional affixes are stress sensitive? Spanish is one such language. The past tense affixes of Spanish regular verbs are stressed (*pensó*, *escuché*). Kean pointed out this fact for Russian and stated that although stress is a factor for determining a non-phonological word in English, it apparently is not a factor for determining non-phonological words in Russian and other highly inflected languages like Spanish. The problem is that both Russian- and Spanish-speaking agrammatics, like English-speaking agrammatics, also make mistakes producing function words and inflectional affixes (Luria, 1970; Benedet et al., 1998). Kean would have to argue that this parallelism in error type between highly inflected languages and English is merely coincidental. The fact that inflectional morphemes and function words are compromised in English is due to their lack of stress but the fact that they are compromised in Russian and Spanish is due to some other factor.

Another problem with Kean's proposal was pointed out by Halliwell (1998). He noted that Kean's theory does not account for why function words are not always omitted

nor does it explain why inflectional affixes are substituted rather than omitted in highly inflected languages. Although Kean indicated that affixes attached to stems that cannot stand alone as words are not omitted, it is not clear why, under her theory, they would be substituted. Grodzinsky (1990) states that Kean's account "is wrong because it is based on one type of error—omission—where as in reality both omission and substitution errors are observed."

Lapointe (1983)

In response to Kean's phonological account, Lapointe (1983) attempted to capture the same range of data under a morphological account of agrammatism. He argued that the retained elements in agrammatism are generally those stem-level items (of major categories) that are inserted into morpho-syntactic structures during lexical insertion. His account viewed derivational and inflectional affixes differently from the way Kean (1977) viewed them. Lapointe argued that both derivational and inflectional affixes are lexically generated while Kean (1977) argued that inflectional affixes are derived by syntactic transformations and only derivational affixes are generated lexically. Lapointe argued that Kean's proposal would need to maintain that certain generalizations discovered across the class of derivational and inflectional morphemes would have to be purely accidental while under his own account these generalizations would be expected. Lapointe's analysis would then account for the overall loss of grammatical affixes. Grodzinsky (1990) declared Kean's (1977) and Lapointe's (1983) accounts of agrammatism to be essentially the same and emphasized that Lapointes analysis, like Kean's, fails because it does not account for substitution errors.

Hagiwara (1995)

Hagiwara (1995) accounted for the selective breakdown of functional categories in agrammatism under a hierarchical approach. She argued that in the hierarchical structure of a noun phrase or clause, the lower the position of the functional head and its projection, the more available it is to the agrammatic patient. Adopting Chomsky's Minimalist program (1992), she argued that at the clausal level Neg (negation) is more accessible than T (tense) and both are more accessible than C (operators, complementizers). In other words, Hagiwara (1995) suggests that C tends to be impaired in agrammatism while functional categories in IP tend to be retained. She also proposed that at the NP level P (pre-postpositions) is more accessible than D (determiners). Hagiwara predicted that if a particular node is impaired all nodes above it should also be impaired. She also predicted that the more nodes that are impaired, the more severe the agrammatism of the patient will be.

To support her hypothesis Hagiwara turned to spontaneous speech data of 4 Japanese agrammatic patients, one of whom was a crossed-aphasic. Upon examining the data she found that patients never omitted negatives (Neg) or postpositions (P); however, they did omit complementizers (C) and case-markers (D). Hagiwara also administered a grammaticality judgment task to two agrammatic Broca's aphasic patients (crossed-aphasic was not included). The results indicated that elements lower in the tree are spared while those higher in the tree are impaired.

Reznik (1995) revealed several problems with Hagiwara's proposal, one of which is related to verbal morphology. Reznik showed that tense was compromised (both substitutions and omissions) in the speech of two Spanish-speaking agrammatics. As noted above, Hagiwara (1995) proposed that C is impaired in agrammatism while

functional categories in IP tend to be retained. So, it is predicted that tense markings on verbs will be accessible to the agrammatic because tense is checked in IP. However, Reznik (1995) shows that tense is not retained. Likewise, Halliwell (1998) pointed out that Friedmann and Grodzinsky (1997) provided evidence of impaired tense but not impaired subject-verb agreement, which indicated that IP was impaired in their Hebrew patient. Even though Hagiwara did state that all positions could possibly be impaired if the disorder was severe enough, she cannot account for Friedmann and Grodzinsky's (1997) data because AgrS (agreement on subject) is higher than T (tense) in the syntactic tree that she bases her proposal on; yet in Friedmann and Grodzinsky (1997) AgrS is spared and T is impaired.

Friedmann and Grodzinsky (1997)

Friedmann and Grodzinsky also proposed that impairment of inflectional morphemes (like those that indicate verbal tense and agreement) is not random but rather is based on the hierarchical position of functional categories within the syntactic tree (Hagiwara, 1995; Friedmann and Grodzinsky, 1997; Grodzinksy, 2000). Friedmann and Grodzinsky (1997) introduced the *Tree-pruning Hypothesis*, which predicts that if a functional category in the tree is impaired then all functional categories positioned higher will also be impaired. Their proposal differs from Hagiwara's (1995) proposal in that they assume Pollock's (1989) representation of IP and not Chomsky's (1992) representation of IP. Moreover, Hagiwara (1995) focuses on impairment of CP as compared to IP while Friedmann and Grodzinsky (1997) look at the distribution of impairment within IP as well.

The general framework under which Friedmann and Grodzinsky are working is that of split inflection (Pollock, 1989) and the Checking Theory (Chomsky, 1992).

Pollock (1989) proposed that IP is split into two separate projections: Agreement and Tense (and negation). According to Pollock, verbs start out in the nonfinite form and raise to acquire agreement and tense inflectional markings. According to Chomsky (1992), verbs start out inflected and raise to check these features. The inflectional nodes must match the verb in tense and agreement. Under Pollock's account, an impaired node would block the verb from raising to acquire inflection while under Chomsky's account, an impaired node would block the verb from raising to check its inflectional features. Pollock's representation of IP positions T higher than Agr.

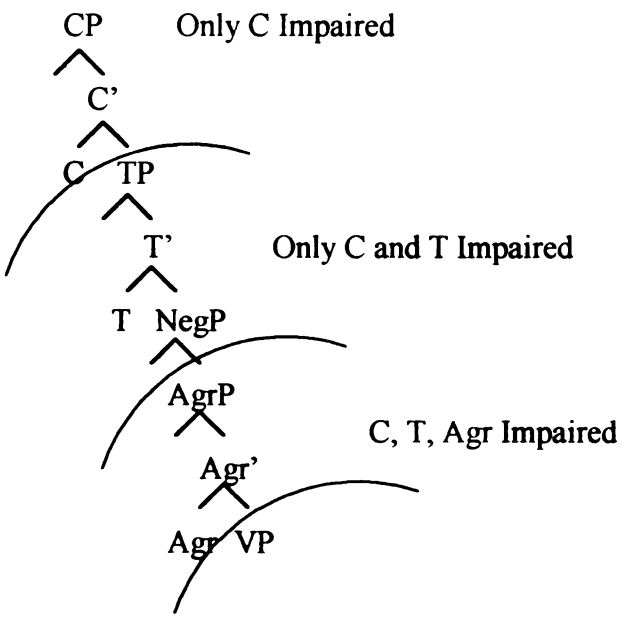


Figure 1. Tree-pruning Hypothesis based on Pollock (1989)

Basing the *Tree-pruning Hypothesis* on Pollock's representation of IP, Friedmann and Grodzinksy (1997) show a Hebrew agrammatic who failed to produce correct tense markings yet almost never failed to produce correct subject-verb agreement markings. Moreover, their patient was unable to produce Wh-questions and embedded clauses.

They argued that Agr was intact while T and C were impaired. The *Tree-pruning Hypothesis* based on Pollock's representation of IP is formally stated in (2).

(2) The Tree-pruning Hypothesis (Pollock's tree):
i) C, T, or Agr is underspecified in agrammatism.
ii) An underspecified node cannot project any higher.

Friedmann and Grodzinsky (1997) based the Tree-pruning Hypothesis on Pollock's (1989) representation of IP because previous studies have assumed this representation for Hebrew; however, other representations of IP exist. Chomsky (1992) adds AgrS to Pollock's representation of IP. AgrS dominates T, which in turn dominates AgrO. Turning to Baker's (1985) Mirror Principle[6], Belletti (1990) argued for Chomsky's (1992) representation of IP in Italian. After examining the future tense in Italian, Belletti (1990) concluded that inflectional markings for tense precede inflectional markings for subject-verb agreement, which indicates that the AgrS dominates T in Italian. The Tree-pruning Hypothesis based on Chomsky's (1992) representation of IP is shown in Figure 2.

[6] Baker's Mirror Principle is as follows: "Morphological derivations must directly reflect syntactic derivations (and viceversa)."

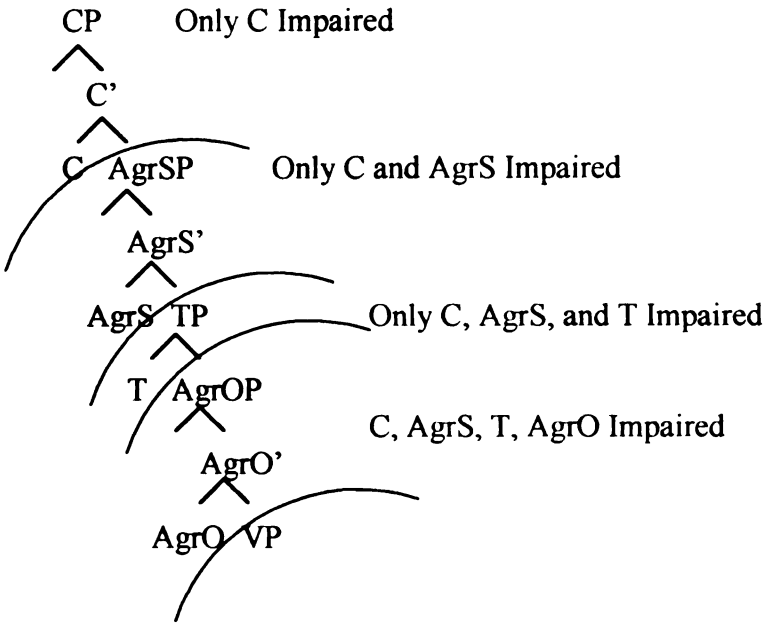


Figure 2. The Tree-pruning Hypothesis based on Chomsky (1992)

Chomsky's (1992) representation of IP is widely assumed to be the correct representation for Spanish (Demonte, 1991; Bianchi and Silva, 1993; Mendikoetxea, 1993) and is formally stated in (3).

(3) The Tree-pruning Hypothesis (Chomsky's tree):
i) C, AgrS, T, or AgrO is underspecified in agrammatism.
ii) An underspecified node cannot project any higher.

The Tree-pruning Hypothesis according to (2) and (3) predicts different results for Hebrew and Spanish agrammatism. In Hebrew agrammatism (based of Pollock's representation of IP) if subject-verb agreement is impaired, tense must also be impaired. However, in Spanish agrammatism (based on Chomsky's representation of IP) if subject-verb agreement is impaired, tense may or may not be impaired. However, if tense is impaired, subject-verb agreement must also be impaired.

Finally, the Tree-pruning Hypothesis predicts variation in agrammatic severity across patients. The level of severity is related to the level of impairment in the syntactic tree. That is, the lower the impaired node is on the syntactic tree, the more severe the impairment is.

The Competition Model

The *Competition Model* has been used to account for language breakdown in a variety of languages (Bates et al., 1991). Researchers working within the *Competition Model* have shown that speakers rely on the cues (the most frequent and reliable sources of information) in their language in order to determine meaning. For example, it is said that an important cue for determining subject in Spanish is not word order (like English) because Spanish allows the subject to precede and follow the verb in declarative sentences. Rather an important cue for subject in Spanish would be morphological agreement between the verb and subject (Benedet et al., 1998). The effect of relying on the most valid cues in one's particular language is termed cue validity.

There are two components that determine the cue validity of a morpheme: cue reliability and cue availability. Cue reliability is the correlation between a particular morpheme and information that it provides. A morpheme that has only one meaning or grammatical function is high in cue reliability. A morpheme that is used for several different grammatical functions or meanings would be low in cue reliability. Cue availability refers to the presence of a particular morpheme whenever a particular meaning is present. A morpheme that is consistently present whenever a particular meaning is conveyed is high in cue availability. Bates et al. (1999) stated that the "different sources of information (cues) converge, compete and/or conspire to determine the outcome of sentence processing, with the different outcomes depending on the

relation of strengths of cues from one language to another." This competition between two cues is termed conflict validity.

Although the cue strengths of a particular language are the same for production and comprehension, cue costs can vary. Two types of cue costs are perceivability costs and assignability costs. A morpheme that is difficult to perceive, because it is not stressed or has a small number of syllables, is high in perceivability costs. Assignability costs refer to the amount of information that must be held in working memory in order to utilize a particular structure or morpheme. Constructions that involve dependencies across more than one constituent are high in assignability costs. Cue validity minus the cue costs determines the availability of a particular construction in a language. Bates et al. (1999) stated that the most valid cues are those that tend to be the first ones used by children, the most prone to transfer during second language learning, and the most resistant to loss following brain damage.

1.2 Spanish Agrammatism

1.2.1 Spanish Grammatical Sketch

This section is not intended to cover all aspects of Spanish grammar but rather to provide some background information for better understanding types of errors made by patients.

Verbs

The nonfinite form of regular and irregular Spanish verbs always ends in *-ar*, *-er*, or *-ir*. Removal of an ending from a regular verb yields the verb stem. This stem alone is not a word; rather, affixes marked for tense, aspect, mood, person and number must be attached stem-finally. Affixes on finite forms vary according to whether the nonfinite verb ends in *-ar*, *-er*, or *-ir*.

(4) Stems with Affixes

Nonfinite Verb Types

Finite Verb Endings with Stems		-ar verbs hablar *to speak*	-er verbs comer *to eat*	-ir verbs vivir *to live*
	1/SG	habl + **o**	com + **o**	viv + **o**
	2/SG	habl + **as**	com + **es**	viv + **es**
	3/SG	habl + **a**	com + **e**	viv + **e**
	1/PL	habl + **amos**	com + **imos**	viv + **imos**
	3/PL	habl + **an**	com + **en**	viv + **en**

Affixes also attach to stems of irregular verbs; however, simply removing the stem-final endings (*-ar*, *-er*, *-ir*) from the nonfinite irregular verb form does not always provide the appropriate verb stem. Rather, irregular verb stems vary.

(5)	dar *to give*	ser *to be*	ir *to go*
PRES:1/SG	doy	soy	voy
PRES:3/SG	da	es	va
PRES:3/PL	dan	son	van
PRES:SBJV:1/SG	de	sea	vaya
PAST:1/SG	di	fui	fui
PAST:IMPF:1/SG	daba	era	iba
FUT:1/SG	daré	seré	iré

The participle is created by attaching *-ado* or *-ido* to the end of *-ar* or *-er*/*-ir* stems, respectively. It is combined with the verb *haber* to form the perfect tenses and does not agree in number and gender with the subject. When a participle is combined with *estar*, it acts as an adjective and agrees in number and gender with the subject. The participle follows *ser* to form a passive. In a passive, the participle agrees in number and

gender with the passive subject. *Ser* passives are rare in spoken language but are often found in formal writing (Solé et al. 1977). The gerund form of the verb is created by attaching *-ando* or *-iendo* to the end of *-ar* or *-er -ir* stems, respectively. A gerund is combined with the verb *estar* to create progressives.

(6)

Present Perfect (Aux. + Verb)	Estar + Adj. (V + Adj.)
Ella ha comido *She has eaten*	Ella está enojada *She is mad*
Passive (Aux. + Verb)	Present Progressive (Aux. + Verb)
Ella fue expulsada *She was expelled*	Ella está hablando *She is talking*

Verbal periphrasis will be distinguished from nonperiphrastic verbs in this paper. Verbal periphrasis takes place when two verbs are combined to form one predicate unit. The first of the two verbs acts an auxiliary and is marked for agreement and tense while the second of the two verbs acts as the main verb and must be an infinitive, gerund or participle. Periphrastic verbs behave like the compound verbs mentioned above and will be transcribed as "auxiliary + gerund/participle/Vinf" (Torrego, 1999). Nonperiphrastic complex verbs are formed by combining two verbs that do not form one predicate unit. Rather one of the two verbs forms the predicate of the main clause and the other verb forms the predicate of the subordinate clause.

(7)

Verbal Periphrasis	Nonperiphrastic Complex Verbs
acabar + de + Vinf. *to have just finished + gerund*	necesitar + Vinf. *to need + Vinf.*
ir + **a** + Vinf. *to be going + Vinf.*	desear + Vinf. *to want + Vinf.*
tener + que + Vinf. *to have + Vinf.*	prefiero + Vinf. *to prefer + Vinf.*
poder + Vinf. *to be able + Vinf.*	temo + Vinf. *to be afraid + Vinf.*
andar + gerund *to go + gerund*	caminar + gerund *to walk + gerund*

The auxiliary and verb in verbal periphrasis can be directly connected (*poder + Vinf.*) or indirectly connected by a preposition or complementizer. Torrego (1999) suggests that *que* in *tener + que* and *haber + que* appears to have come from the complementizer *que* in sentences like *Tengo cosas que hacer* (*Tengo que hacer cosas*). However, since the construction is viewed as one predicate unit rather than two, *que* in this construction will not be counted as a complementizer.

Nouns

Most Spanish nouns are marked for gender and number. Masculine nouns generally end in *-o*, but may end with a consonant or *-e*. Feminine nouns generally end in *-a*, but may end with a consonant or *-e*. Plural nouns end in *-es* when the noun is consonant-final and *-s* in all other environments.

Determiners

Spanish definite articles are marked for gender and number and agree with the noun they modify. However, singular nouns that are vowel-initial are usually preceded

by the masculine definite article *el*, as in *el agua*, *el hacha*, and *el alma*. Moreover, the same noun may follow a masculine definite article to create one meaning and a feminine definite article to create another, as with *el policía* (the policeman) vs. *la policía* (the police in general).

(8) Definite Articles

	Masculine	*Feminine*	*Neutral*
Singular	el	la	lo
Plural	los	las	lo

Unlike English, Spanish definite articles are required on plural subjects (9), days of the week (10) and they combine with the prepositions *a* (to) and *de* (from) to form *al* (to the) and *del* (from the) (11).

(9) a. Los gatos son pequeños.
b. *Gatos son pequeños.
c. *Cats are small.*

(10) a. El Martes voy al cine.
b. *Martes voy al cine.
c. *Tuesday I am going to the movies.*

(11) a. Fui al (a + el) cine.
b. *I went to the cinema.*

a. Volví del (de + el) campo.
b. *I returned from the country.*

Demonstratives agree in number and gender with the noun they modify and possessives always agree in number but not always in gender with the noun they modify. Only the 1st and 2nd person plural forms agree in gender with the noun they modify.

(12) Demonstratives

Masculine	*Feminine*	*Neutral*
este/estos	esta/estas	esto
ese/esos	esa/esas	eso
aquel/aquellos	aquella/aquellas	aquello

(13) Possessives

1st person sing.	yo	mi/mis
2nd person sing.	tu	tu/tus
3rd person sing.	él, ella, usted	su/sus
1st person plur.	nosotros, nosotras	nuestro(s)/nuestra(s)
2nd person plur.	vosotros, vosotras	vuestro(s)/vuestra(s)
3rd person plur.	ellos, ellas	su/sus

Indefinite articles in Spanish are marked for gender and number and agree with the noun that they modify. However, singular nouns that are vowel-initial are usually preceded by the masculine indefinite article *un*, as in *un alma* and *un hacha*. There is no neutral form of the indefinite article in Spanish.

(14) Indefinite Articles

	Masculine	*Feminine*
Singular	un	una
Plural	unos	unas

Finally, quantifiers also agree in both gender and number with the noun they precede.

(15) Quantifiers

Masculine	*Feminine*	*English*
algún/algunos	alguna/algunas	some
ningún/ningunos	ninguna/ningunas	none
demasiado(s)	demasiada(s)	too much
mucho(s)	mucha(s)	a lot
otro(s)	otra(s)	other
poco(s)	poca(s)	few
vario(s)	varia(s)	several

Adjectives

Adjectives are marked for number and gender and agree with the nouns they modify. They can follow or precede nouns.

Pronouns

Personal pronouns in Spanish are shown in (16).

(16) Personal Pronouns

	Sing.	*Plur.*
1st	yo	nosotros/as
2nd	tú, usted (formal)	vosotros/as, ustedes (formal)
3rd	él, ella,	ellos, ellas

Subject pronouns are generally omitted. Chilean speakers of Spanish rarely use the informal form of the 2nd person plural. Instead they use *ustedes* both in formal and informal contexts. However, they do use both the formal and informal forms of the 2nd person singular. The 2nd person formal forms (*usted ustedes*) are grammatically 3rd person. The 1st and 2nd person singular forms change to *mí* and *tí* when preceded by a preposition. However, the preposition *con* combines with the 1st and 2nd person singular forms to create *conmigo* and *contigo*.

Clitic pronouns can be used as direct and indirect objects. The direct and indirect object clitics are the same for 1st and 2nd person but are different for 3rd person. Moreover, when both direct and indirect object clitics are used within the same sentence, the 3rd person indirect object clitic changes to *se*.

(17)

	Direct Object	*Indirect Object*
1st sing.	me	me
1st plur.	nos	nos
2nd sing.	te	te
3rd sing.	lo, la, le	le (se)
3rd plur.	los, las, les	les (se)

Clitic pronouns precede finite verbs and follow nonfinite (gerunds and infinitives) and positive imperative verbs. In the latter cases, the clitic attaches to the end of the verb to form one word.

Spanish reflexive pronouns are *me*, *te*, *se*, and *nos*. Like direct and indirect object clitics, reflexives precede finite verbs and follow nonfinite (gerunds and infinitives) and positive imperative verbs. In the latter cases, the clitic attaches verb-finally to form one word.

Fillers

The phrase "*así que...*" will be considered a filler because it is often used in Chilean Spanish and tends to have the meaning "and so...". Other fillers are "*a ver*" ("let's see") and "*entonces*" ("so").

1.2.2 Need for Further Research

This study seeks to investigate the nature of agrammatic aphasia in Spanish. Currently, very little is known about Spanish agrammatic production because research has failed to focus on the Spanish-speaking population (Benedet et al., 1998). Yet today this population continues to grow in the U.S. There are well over 12 million Spanish-speakers in the U.S. today (over 137,000 in Michigan), making it the 2nd largest language group in the U.S. (U.S. Bureau of the Census, 1990).

The goal of this study is to provide a descriptive overview of the linguistic characteristics of Spanish agrammatic production. An overview of this nature is valuable because it allows linguists to test current theories of agrammatic production and it allows medical professionals to better evaluate patients. As Benedet et al. (1998) pointed out, "...the study of language breakdown in Spanish is important for the treatment of thousands of Spanish-speaking aphasic patients [and] placed within the framework of comparative aphasiology, it can enhance our scientific knowledge of language processing."

1.2.3 Predictions for Spanish Agrammatism

Morphological Patterns

Bound morphemes were substituted rather than omitted in Menn and Obler (1990). Substitutions of bound grammatical morphemes were not random but rather instances of morphologically legal forms. Spanish has two types of bound morphemes: verb stems and clitics attached to the end of a gerund, nonfinite verb, or positive imperative. It is predicted that Spanish agrammatics will rarely, if ever, omit bound morphemes. Instead, verb stem and enclitic errors will involve substitution; moreover, patients will not produce any morphologically ungrammatical forms (non-words).

Free grammatical morphemes were generally omitted in Menn and Obler (1990). Omission of free morphemes was highest for auxiliaries, empty main verbs, prepositions, personal pronouns (strong and weak), articles and coordinating conjunctions. All of these morphemes, with the exception of some weak pronouns (enclitics), are free in Spanish as well. On the other hand, patients overused sentence initial conjunctions. It is predicted that Spanish agrammatics will also omit free morphemes but overuse fillers and sentence-initial conjunctions.

Distribution of Grammatical Categories and Major Class Lexical Items

The distribution of actual morpheme production was compared with the distribution of context production ("Actual" vs. "Context"). The score under "Actual" refers to every instance that the subject produced a particular morpheme while the score under "Context" refers to every instance that a particular morpheme was expected to occur. In other words, "Context" scores will include all instances that the morpheme was expected to be produced and was either produced correctly or omitted/substituted.

Menn and Obler (1990) did not provide a summary of the distribution of grammatical and lexical categories across all 14 languages. For this reason, the results of the Italian data in Menn and Obler (1990) were examined. Miceli and Mazzucchi (1990) found that the production of morphemes ("Actual") and production of contexts ("Context") patterned after each other. It might be concluded that patients generally do not produce contexts for morphemes that cause them difficulty. Therefore, in order to see whether patients were avoiding certain morphemes, they were compared to their controls. Both patients set up more contexts for Have/Be main verbs and fewer contexts for complementizers than their matched controls. Agrammatics also showed similar token/type ratios as their controls on nouns, verbs, and adjectives. However, the

noun/adjective ratio of patients was much higher. Moreover, one patient showed a much higher ratio for noun/verbs than his matched control. This seems reasonable since, as mentioned earlier, their patients were able to name more objects than actions in the two oral Object vs. Action Naming tests that were administered. Finally, patients had a tendency of omitting more lexical verbs than nouns. Based on their study, Spanish agrammatics are predicted to show the same patterns.

Syntactic Patterns and Word Order Preference

Menn and Obler (1990) reported syntactic simplification across all languages. At the sentence level, embedded clauses were almost completely absent, except for quoted discourse. Specifically, relative clauses were almost never produced and subordinate clauses were never correctly produced. Clauses were simplified and canonical word order was preferred across all languages. It is predicted that Spanish agrammatics will rely on simple syntactic structures and SVO word order, even though Spanish allows the verb to precede the subject.

Production Patterns

In all 14 languages presented in Menn and Obler (1990) rate of production was slow and phrase length was short. This is predicted for Spanish agrammatism as well.

Chapter 2

Methods and Materials

Chapter 2 provides background information on all subjects who participated in this study, a description of the tasks they performed and an explanation of the data analysis that was carried out.

2.1. Subjects

2.1.1 Patients

Background and Neurological Status

Patient JTF is a 48 year old, right-handed, Spanish-speaking male who has had 13 years of formal education. Before onset, he worked as a mechanic in a factory in Chile. He has been clinically diagnosed agrammatic and scored a severity rate of 2-3 on a Spanish version of the BDAE (Garcia-Albea et al., 1986). He has demonstrated no significant comprehension, hearing or vision disabilities and has no history of drug/alcohol abuse. Two years before he was interviewed, JTF suffered from an ischemic CVA (stroke). CT-Scans confirmed a unilateral, left-sided lesion that involved the left frontal Lateral Fissure and Broca's Area. At the time of the interview, Patient JTF suffered from mild hemiplegia of his right side.

Table 1. Neurological Status of Patients

	JTF	*LTL*
Aphasia Type	Broca's	Broca's
Motor Deficit	mild hemiplegia	mild hemiplegia
Visual Deficit	no visual defect	no visual defect

Patient LTL is a 57 year old, right-handed, Spanish-speaking male who has had 18 years of formal education. Before onset, he worked as a dentist in Chile. He was clinically diagnosed as agrammatic with a severity rate of "2". He has demonstrated no significant comprehension, hearing or vision disabilities and has no history of drug/alcohol abuse. Fourteen months before he was interviewed, LTL suffered from an ischemic CVA (stroke). Medical records and speech pathologist confirmed unilateral, left-sided lesions to the Middle Cerebral Artery, including Broca's Area, and the enlargement of the left Lateral Ventricle. At the time of the interview, Patient JTF suffered from mild hemiplegia of his right side.

2.1.2 Controls

Background and Neurological Status

Controls were matched for age, sex, education level and region of Chile. Control DVT is a 47 year old, right-handed, Spanish-speaking male who has had 12 years of formal education. He works as a secretary in a university in Chile. He demonstrates no significant cognitive, comprehension, hearing or vision disabilities and has no history of drug/alcohol abuse. Control DVT is matched with Patient JTF.

Control AYI is a 51 year old, right-handed, Spanish-speaking male who has had 19 years of formal education. He works as a doctor in a hospital in Chile. He demonstrates no significant cognitive, comprehension, hearing or vision disabilities and has no history of drug/alcohol abuse. Control AYI is matched with Patient LTL.

Table 2. Patient Background Information

	Patients		Controls	
	JTF	*LTL*	*DVT*	*AYI*
Age	48	57	47	51
Years of Education	13	18	12	19
Occupation	mechanic	dentist	secretary	doctor
Etiology	Ischemic CVA	Ischemic CVA	-	-
Time Post-onset	24 months	14 months	-	-

2.2 Methods

2.2.1 Tasks

Formerly, research was generally carried out only on English-speaking patients and large samples of agrammatic speech in other languages were rare and generally not comparable. Using methods employed by researchers in Menn and Obler (1990), Halliwell (1998) examined the nature of Korean agrammatic aphasia. Because of uniformity of data collection and analysis by Menn and Obler (1990) and Halliwell (1998), their studies have been fundamental for determining deficits that are universal from those that are language specific and for bringing to light agrammatic characteristics that do not surface in English. Spanish agrammatism must also be fully examined. In order to facilitate cross-language comparison, methods for collection and analysis of Spanish data followed those employed by the above researchers.

Four types of spoken narratives were obtained from patients: (1) *description of a complex action picture* (Appendix B), (2) *description of a sequence of pictures* (Appendix B), (3) *description of accident*, and (4) *telling of the story "Little Read Riding*

Hood". Although one patient was unable to carry out task (4), both patients were able to produce spoken narratives for tasks (1) - (3). Both patients also read aloud the story "Little Red Riding Hood" (Appendix A). The same data from controls matched for age, sex, occupation, and region was also collected. All spoken narratives were audio-recorded.

2.2.2. Analysis

The data was transcribed under the conventions used in Menn and Obler (1990). The Primary and Interlinear Morphemic Transcriptions for all patients are located in Appendices C1 – C4. Data was examined in the following four areas: (1) *morphological patterns* (substitution and omission of bound and free morphemes), (2) *distribution of grammatical categories/major class lexical categories*, (3) *syntactic patterns* and (4) *production parameters* (tabulation of phrase length and speech rate). All results were tabulated and compared to controls. Results for (1) – (3) were based on the Interlinear Morphemic Transcriptions, not the Primary Transcriptions. Results for (4) were based on the Primary Transcriptions. Finally, because normal controls rarely made mistakes, error rates of 10% or higher indicated impairment.

Chapter 3

Results

Chapter 3 presents the results of this study. Section 3.1 outlines the morphological patterns by examining morphological errors and distribution. Section 3.2 summarizes the token/type ratios of the major class lexical items. Sections 3.3 and 3.4 review the syntactic and production patterns, respectively. Finally, Section 3.5 provides the results of the LRRH reading task.

3.1 Morphological Patterns

3.1.1 Morpheme Errors and Distributions

The Interlinear Morphemic Transcriptions were examined and the substitution and omission errors of both patients are presented in this section. It must be noted that although most morphological errors could be clearly determined, it was sometimes difficult to establish what exactly the patient intended to say. For this reason, the transcription line number for each error is given so that the reader can examine the errors more carefully. Patients are then compared to each other and also to their controls in the summary that follows. Appendices D1 – D4 show the omission and substitution errors for all subjects while Appendices E1 – E2 show the distribution of morphemes in the text.

Case 1. JTF

Articles

JTF produced 50 contexts for articles and correctly produced 42. Of these 42, only 2 (4%) were indefinite articles. He omitted 3 articles (12, 12b, 44a) and substituted 6. Substitution errors consisted of providing the wrong gender on the definite article (12

12b, 20a, 25a, 26). JTF also supplied the wrong gender on the definite article in (35); however, the context required the preposition *de*, not a definite article.

Table 3. JTF: Determiner Errors and Distribution

	I Correctly Supplied	%	II Substitutions	%	III Omissions	%	Total
Articles	42	84	6	12	3	6	50
Other Determiners	2	100	-	-	-	-	2

Other Determiners

JTF supplied one indefinite determiner (41) and one possessive determiner (28b).

Prepositions

There were 13 contexts present for prepositions. JTF correctly supplied 9 prepositions, omitted 3 (19a, 29a, 34) and substituted 1 (35). As mentioned above, in (35) the patient replaced the preposition *de* with the definite article *el*. He provided no contexts for "preposition + definite article".

Adjectives

JTF correctly produced 7 adjectives (20a, 27a, 28b, 30, 45, 50, 50) and omitted one (31). It is unclear whether the patient had trouble producing the omitted adjective or whether he just decided not to finish the sentence due to the seriousness of the topic.

Pronouns

JTF produced 5 strong pronouns correctly. Two (36, 46) were personal pronouns and three (11, 31, 37a) were demonstratives. JTF did not produce any relative pronouns.

Table 4. JTF: Pronoun Errors and Distribution

	I Correctly Supplied	%	II Substitutions	%	III Omissions	%	Total
Personal	2	100	-	-	-	-	2
DO/IO Clitic	9	90	1	10	-	-	10
Reflexives	6	100	-	-	-	-	6
Demonstrative	3	100	-	-	-	-	3
Possessive	-	-	-	-	-	-	-
Relative	-	-	-	-	-	-	-

Clitic Pronouns

JTF correctly produced 9 direct object clitics and incorrectly substituted 1 direct object clitic (41). Six of the object clitics (11, 22, 40, 42, 44a, 45) occurred in the form of, "*me dio....*". Of these 6, four were indirect object clitics (41, 42, 44a, 45). He correctly produced 6 reflexives. Four of the 6 reflexives occurred in the question, "*Cómo se llama*".

Auxiliary Verbs

JTF produced 22 contexts for auxiliary verbs in which he correctly supplied 16 auxiliaries and omitted 2 auxiliaries (2, 9). He provided the wrong tense (32, 33a) twice and wrong number (16, 26) twice. Of the 6 errors made, 3 were self-corrected in (16a), (32a) and (33a).

Have/Be Main Verbs

The Have/Be main verbs used by JTF were *estar*, *ser*, *tener*, and *haber*. Out of 22 obligatory contexts, JTF correctly supplied 17 Have/Be main verbs and substituted 5. Substitution errors involved providing the wrong tense (33, 35) and wrong number (19, 19a, 28).

Table 5. JTF: Verb/Auxiliary Morpheme Errors and Distribution

	I Correctly Supplied	%	II Substitutions	%	III Omissions	%	Total
Auxiliaries	16	73	4	18	2	9	22
Have/Be Main Verbs	17	77	5	23	-	-	22
Main Lexical Verbs	33	87	3	8	2	5	38

Lexical Verbs

JTF produced 38 contexts for lexical verbs. He correctly produced 33, omitted 2 and substituted 3. Of the 33 correct lexical verbs 10 were gerunds and 8 were infinitives. JTF used the idiomatic expressions "*Me dio ...* " 7 times and "*Como se llama*" 4 times, which accounts for 11 of the 33 correct lexical verbs. All substitution errors were a result of providing the incorrect lexical verb.

Complementizers

Although it appears that JTF produced 3 complementizers, it was noted in the grammatical sketch that instances of "*que*" inside of the periphrastic verb "*tener + que + Vinf*" was not counted as a complementizer. Therefore, he correctly produced only one complementizer (49).

Subordinate Conjunctions

JTF produced 1 subordinate conjunction (22) correctly; however, it was part of the unfinished idiomatic phrase "*chuta que me dio...*".

Coordinating Conjunctions

Fourteen coordinating conjunctions were correctly used sentence-initially (5, 19, 27, 28, 29, 40, 42, 44, 46, 47), to connect noun phrases (20a, 41), and to connect adverbs (35). JTF did not omit nor substitute any coordinating conjunctions.

Case 2. LTL

Articles

LTL correctly supplied 48 articles but should have produced 67 articles in context. Of the 48 articles he correctly produced, only 5 (7%) were indefinite articles. He omitted 17 articles (7, 7, 7a, 8, 10, 12, 13, 14, 14, 14, 14, 14a, 14b, 19, 27a, 29c, 40a) and incorrectly substituted articles twice (5, 18). In (5) he incorrectly used an indefinite article and in (18) he supplied the incorrect gender of the definite article.

Table 6. LTL: Determiner Errors and Distribution

	I Correctly Supplied	%	II Substitutions	%	III Omissions	%	Total
Articles	48	72	2	3	17	25	67
Other Determiners	4	100	-	-	-	-	4

Other Determiners

Like JTF, LTL did not produce many contexts for other determiners. All other determiners used by LTL were possessives. He correctly supplied four instances of the possessive determiner *mi* (21, 23, 25, 26).

Prepositions

LTL produced contexts for a total of 35 prepositions but omitted 16. Of the 16 prepositions omitted, 4 were part of verbal periphrasis (7, 7a, 20b, 40a), 2 were case-marking (10, 40a) and 2 were selected for by the verb (7a, 14b). Of the 35 overall contexts for prepositions, 24 were contexts for lexical prepositions while 11 were contexts for grammatical prepositions. Of the 24 contexts for lexical prepositions, LTL omitted 6 (25%). Of the 11 contexts for grammatical prepositions, LTL omitted 10

(91%). Two prepositions were used where no preposition should have occurred (4, 14b). There was 1 context where a "preposition + definite article" was expected, but it was omitted (14b). There were no substitution errors.

Adjectives

LTL correctly produced 3 adjectives (25, 26, 35).

Pronouns

LTL correctly produced 4 strong pronouns. Three (21, 27, 29) were personal pronouns and 1 (29b) was a demonstrative. LTL did not produce any contexts for possessive or relative pronouns.

Table 7. LTL: Pronoun Errors and Distribution

	I Correctly Supplied	%	II Substitutions	%	III Omissions	%	Total
Personal	3	100	-	-	-	-	3
DO/IO Clitic	5	100	-	-	-	-	5
Reflexives	13	100	-	-	-	-	13
Demonstrative	1	100	-	-	-	-	1
Possessive	-	-	-	-	-	-	-
Relative	-	-	-	-	-	-	-

Clitic Pronouns

LTL produced 4 contexts for DO clitics (26, 37, 37a, 38) and 1 context for an IO clitic (7). He also supplied 13 contexts for reflexive pronouns (5, 7, 8, 9, 13, 24, 25, 27a, 27b, 29b, 35, 36, 36a). In all contexts the correct form was supplied. Although it appears that most clitics and reflexives produced by JTF were actually part of idiomatic expressions, this was not the case for LTL.

Auxiliary Verbs

LTL produced 13 contexts for auxiliary verbs in which he omitted the auxiliary twice and incorrectly substituted the auxiliary 3 times. Substitution errors involved supplying incorrect tense (2, 4b, 25) while omission errors involved dropping the third person singular form of *haber* (5, 8). Auxiliaries used by LTL were *estar*, *haber*, and *ir*.

Have/Be Main Verbs

LTL produced 8 contexts for the main verbs *estar* and *tener*. He made two errors by providing the wrong tense once (8) and omitting the verb once (31).

Lexical Verbs

LTL produced 48 contexts for lexical verbs in which he omitted 3 (4b, 7a, 23) and substituted 6. Substitution errors involved leaving the verb in the infinitive form (9), providing the incorrect tense (23, 24, 25, 30a) and attempting to regularize an irregular verb (30). Of the 45 actually produced lexical verbs, 5 were gerunds, 4 were participles and 8 were infinitives.

Table 8. LTL: Verb/Auxiliary Morpheme Errors and Distribution

	I Correctly Supplied	%	II Substitutions	%	III Omissions	%	Total
Auxiliaries	8	62	3	23	2	15	13
Have/Be MVs	6	75	1	13	1	13	8
Main Lexical Verbs	39	81	6	13	3	6	48

Complementizers

LTL did not produce any complementizers.

Subordinate Conjunctions

Five contexts for subordinate conjunctions were produced. Four were correctly supplied using *que* (7, 8, 18) and *cuando* (21). The subordinate conjunction *que* was omitted once (26).

Coordinating Conjunctions

Eleven coordinating conjunctions were correctly supplied and used to begin sentences (40, 20b), connect sentences (7, 14, 29, 35, 36, 40a,) and nouns (19, 20a).

Summary of Morpheme Errors and Distributions

The morphological patterns of JTF and LTL were similar throughout. Both patients produced few indefinite articles. Moreover, both patients omitted definite articles and prepositions, provided incorrect inflectional markings on verbs and auxiliaries, never used relative pronouns and almost never produced complementizers[7]. Both patients were successful in producing strong and weak pronouns, reflexives and coordinating conjunctions. There were some differences between patients. JTF and LTL differed in the types of errors they made on inflectional affixes and the number of omissions they made on definite articles and prepositions. Although JTF overused sentence initial conjunctions, LTL did not. Finally, most clitics and reflexives used by JTF were part of idiomatic expressions and this was not the case for LTL.

Both JTF and LTL substituted and omitted articles while their controls made no mistakes on articles. Substitution errors for both patients consisted of providing the wrong gender. Omission rates of articles were much higher for LTL. He omitted 25% of all articles while JTF omitted only 6%.

[7] The reason patients never used relative pronouns and almost never used complementizers is because they produced almost no embedded clauses.

JTF supplied 13 contexts for prepositions and omitted 3 (23%) while his control DVT supplied 22 contexts and omitted none. LTL provided 35 contexts for prepositions and omitted 16 (46%) while his control AYI provided 95 contexts for prepositions and omitted none. Again patient LTL had a higher omission rate than patient JTF.

Auxiliaries were substituted and omitted by both patients. JTF substituted 18% and omitted 9% of all possible auxiliaries. Substitution errors involved incorrect tense and number. LTL substituted 23% and omitted 15% of all possible auxiliaries. Substitution errors involved incorrect tense. Have/Be main verbs were substituted and omitted by both patients. JTF substituted and/or omitted 23% of all Have/Be main verbs while LTL substituted and/or omitted 26%. Main lexical verbs were also substituted and omitted by both patients. JTF substituted and/or omitted 13% of all main lexical verbs while LTL substituted and/or omitted 19%. Substitution errors on verbs involved incorrect number and tense for JTF but only incorrect tense for LTL. Although both patients had difficulty producing the correct inflectional marking on auxiliaries and verbs, they differed in that JTF made mistakes on both agreement and tense while LTL only made mistakes on tense.

Table 9. JTF: Substitutions

	Gender	Number	Person	Tense
Articles	5	-	-	-
Other Determiners	-	-	-	-
Nouns	-	-	-	-
Adjective	-	-	-	-
Auxiliaries	-	2	-	2
Have/Be Main Verbs	-	3	-	2
Main Lexical Verbs	-	-	-	-

Table 10. LTL: Substitutions

	Gender	Number	Person	Tense
Articles	1	-	-	-
Other Determiners	-	-	-	-
Nouns	-	-	-	-
Adjective	-	-	-	-
Auxiliaries	-	-	-	3
Have/Be Main Verbs	-	-	-	1
Main Lexical Verbs	-	-	-	3

Both JTF and LTL had little difficulty producing strong and weak pronouns, reflexives and coordinating conjunctions. Like their controls, they almost never omitted or substituted these morphemes in the speech production tasks. Moreover, the distribution of these three categories was similar for both patients and controls. The only difference was that JTF overused sentence-initial conjunctions while the other three subjects did not.

3.1.2 Distribution of Morphemes in Text

This section examines the distribution of morphemes in the text to see if patients avoided or overused any categories. Overall, morphological distribution for patients and controls was similar. Patients are first compared to their controls and then to each other. Appendices E1 and E2 show the results for all morphemes examined.

Patient: JTF vs. Control: DVT

The distribution of adjectives, strong pronouns, and coordinating conjunctions was similar for both JTF and DVT. Distribution of articles was similar for both control and patient. However, as noted earlier, DVT actually produced many more indefinite articles than JTF. Out of all the articles actually produced by JTF, 2 (4%) were indefinite while 46 (96%) were definite. Out of all the articles actually produced by his control

DVT, 20 (45%) were indefinite and 24 (55%) were definite. DVT also provided more contexts for prepositions and complementizers.

Table 11. JTF/DVT: Distribution of Grammatical Morphemes

	JTF				DVT			
	actual		context		actual		context	
	N	%	N	%	N	%	N	%
Articles	48	18	50	19	44	19	44	19
Prepositions	9	3.4	13	5	22	9	22	9
Comp.	1	0.4	1	0.4	6	3	6	3

JTF seemed to produce just as many contexts as DVT for nouns and lexical verbs; however, these numbers may be misleading. The token/type ratio for nouns and verbs was much higher for JTF than for DVT. JTF had a token/type ratio of 2.1 for nouns and 2.4 for verbs while DVT had a token/type ratio of 1.3 for nouns and 1.1 for verbs. This indicates that the verbs and nouns used by JTF were often instances of the same type. Finally, although JTF did set up more contexts and actually produced more clitics than DVT, as noted earlier, the clitics used by JTF were generally part of idiomatic expressions.

Patient: LTL vs. Control: AYI

AYI produced many more indefinite articles than LTL. Out of all the articles that LTL actually produced, 5 (7%) were indefinite while 44 (93%) were definite. Out of all the articles that his control AYI actually produced, 73 (67%) were definite while 36 (33%) were indefinite. AYI also produced a higher percentage of contexts and actually produced more complementizers and subordinate conjunctions than LTL. Although AYI produced twice as many prepositions as LTL, the distribution of prepositions in the text was only slightly higher for AYI.

Table 12. LTL/AYI: Distribution of Grammatical Morphemes

	LTL				AYI			
	actual		context		actual		context	
	N	%	N	%	N	%	N	%
Articles	50	18	67	21	109	15	109	15
Prepositions	21	8	35	11	95	13	95	13
Comp.	-	-	-	-	19	3	19	3
Sub. Conj.	4	1	5	2	29	4	29	4

Out of all morphemes examined, it appears that LTL had a higher percentage of nouns than AYI. However, it must be noted that LTL had a much higher token/type ratio for nouns. LTL had a token/type ratio of 2.1 for nouns while AYI had a token/type ratio of 1.4. This indicates that although nouns made up a large portion of the morphemes produced by LTL, they were often repetitions of the same type. AYI supplied more contexts and actually produced a higher percentage of auxiliaries and verbs than LTL.

Although AYI produced 23 clitics while LTL produced only 5, the percentage of clitics produced out of all morphemes examined is similar for both. For LTL 2% of all morphemes produced were clitics and for his control AYI 3% of all morphemes produced were clitics. Similar distribution was also found for reflexives. Unlike JTF, the clitics produced by LTL were not generally part of idiomatic expressions. It was predicted that Spanish agrammatics would have difficulty with clitics. Reznik (1995) provided data from two Spanish-speaking agrammatic patients who generally substituted or omitted clitic pronouns. Menn and Obler (1990) found that overall error rates were high for personal pronouns (strong and weak). For this reason, it is unclear why LTL does not present more difficulty in producing them.

Patient: JTF vs. Patient: LTL

LTL produced a higher percentage of prepositions than JTF. Out of all the actually produced morphemes examined for JTF, only 3% were prepositions while 8% were prepositions for LTL. LTL also produced more contexts for prepositions. It should be noted that the percentage of contexts for prepositions that LTL produced, patterned with the percentages of both controls. This is not true for JTF. On the other hand, LTL made more mistakes than JTF on prepositions. It could be concluded that JTF did not make many mistakes on prepositions because he avoided them. LTL, on the other hand, did not avoid prepositions; hence, his deficit was more observable.

Although JTF had a higher percentage rate for clitic pronouns, it was noted earlier that these were mostly part of idiomatic expressions. On the other hand, the clitic pronouns produced by LTL were not. Moreover, LTL had a higher percentage than JTF for reflexives. The percentage for Have/Be main verbs was higher for JTF while percentages for auxiliaries and lexical verbs were similar for both.

Table 13. JTF/LTL: Distribution of Grammatical Morphemes

	JTF				LTL			
	actual		context		actual		context	
	N	%	N	%	N	%	N	%
Prepositions	9	3.4	13	5	21	8	35	11
Clitics	10	4	10	4	5	2	5	2
Reflexives	6	2	6	2	13	5	13	4
Have/Be MV	22	8	22	8	7	3	9	3

3.2 Major Class Lexical Items

The results of this analysis are reported in the Appendix F. Patients JTF and LTL showed much higher overall token/type ratios for nouns than their respective controls.

Also, the overall token/type ratio for verbs was higher for JTF (1.8) than for his control DVT (1.1). This is not the case for LTL (1.5) and his control AYI (1.6).

Table 14. All Subjects: Summary of Token/Type Ratios

	Nouns Token/Type Ratio	Verbs Token/Type Ratio	Adjective Token/Type Ratio
JTF	2.1	1.8	1.75
DVT	1.3	1.1	1.5
LTL	2.1	1.5	1
AYI	1.4	1.6	1.2

The noun/verb ratio of both patients patterned with that of their controls. The noun/adjective ratio was higher for both patients than for their controls.

Table 15. Noun/Verb and Noun/Adjective Ratio

	Noun/Verb		Noun/Adjective	
	Token	Type	Token	Type
JTF	1.6	1.9	7.7	6.5
DVT	1.5	1.3	5.3	5.7
LTL	1.5	1.1	25.0	11.7
AYI	1.3	1.5	5.2	4.5

3.3 Syntactic Patterns

Noun Phrase Level

Modification of noun phrases (NP) by adjectives, prepositional phrases (PP), and relative clauses (CP) was examined in order to determine the level of noun phrase complexity for each subject. In this analysis, all modified and unmodified NPs were counted even when they were produced with grammatical error. However, if the noun inside the NP was omitted, then the NP was not counted. Moreover, NPs headed by

proper nouns, pronouns and number were not counted, for example, "*el 21 de mayo.*" The number of NPs modified by agrammatic patients is presented in Table 16.

Table 16. JTF/LTL: Modification of Noun Phrases

	NP + Adj.	NP + PP	NP + CP	Unmodified NPs	Total NPs
JTF	10 (20%)	-	-	39 (80%)	49
DVT	9 (19%)	5 (10%)	6 (13%)	28 (58%)	48
LTL	3 (5%)	-	-	61 (95%)	64
AYI	24 (20%)	27 (22%)	19 (16%)	51 (42%)	121

Clearly both agrammatic patients produced much simpler NPs than their controls. Neither agrammatic patient modified NPs with a CP or a PP. Instead, adjectival modification accounted for the few number of modified NPs they produced. JTF left 39 NPs unmodified (80%). Ten NPs were modified with adjectives (20%). LTL modified 3 NPs with adjectives (5%) and left 61 NPs unmodified (95%). On the other hand, both controls modified NPs with CPs and PPs and adjectives. As the data show, the ability to create complex NPs has been compromised for both agrammatic patients.

Verb Phrase Level

The complexity of syntactic structures at the verb phrase (VP) level was evaluated by examining the number of prepositional phrases attached to verbs and the number of subordinate clauses produced. All VPs were counted except for those where the main verb was omitted. The total number of "verbs" was compared to the total number of "verbs + prepositional phrases". VPs were not counted if they were idiomatic expressions or repetitions in an attempt to self-correct.

Of 45 VPs produced by JTF, only 3 (7%) were followed by a PP (19a, 29a, 33) but the preposition was missing in two of the PPs and the third PP was left unfinished. Of the 41 VPs that his control DVT produced, 15 (37%) were followed by a PP. Of 50 VPs that LTL produced, 16 (32%) were followed by PPs but the preposition was missing in 7 of the PPs and 1 PP was left unfinished. Of the 117 VPs his control AYI produced, 54 (46%) were followed by a PP. The results indicate that the ability to form "VP + PP" constructions was impaired for both agrammatics.

In order to examine patient ability to form subordinate clauses, a main clause/subordinate clause ratio was calculated for both agrammatic patients and then compared to the ratio for their controls. Clauses were only counted if the main verb was present. JTF produced 46 main clauses and 2 subordinate clauses, giving him a ratio of 23. Of the 2 subordinate clauses he produced, 1 had an uninterpretable string between the main clause and the subordinate clause (47). His control DVT produced 35 main clauses and 3 subordinate clauses, giving him a ratio of 11.7. LTL produced 39 main clauses and 5 subordinate clauses, giving him a ratio of 7.8. Of the 5 subordinate clauses he formed, 2 were left unfinished (7, 8), 1 lacked the subordinate conjunction (26), and the fourth one had *la* inserted ungrammatically. His control AYI produced 61 main clauses and 28 subordinate clauses, giving him a ratio of 2.17. Both agrammatic patients had a much higher ratio than their respective controls. Although LTL (7.8) had a lower ratio than JTF's control DVT (11.7), only one of the subordinate clauses produced by LTL was actually completely correct. Therefore, it appears that both agrammatics were impaired in their ability to produce subordinate clauses. The results clearly indicate that syntax was simplified at the VP level.

3.4 Production Patterns

The primary transcriptions were used to count words/minute, phrases/minute and phrase length. Except in the case of self-correction, repetitions of single words were counted as one instance of that word due to the fact that both patients, especially JTF, repeated one word several times whenever they were stuck. Words that were not phonologically clear enough to understand were not counted. Also, enclitics and reflexives that were attached to an infinitive, gerund, or imperative were not counted separately while those clitics and reflexives that were free and preceded a finite verb were counted separately as a single word. Appendix G has the rate of production results and phrase length results for all subjects.

Rate of Production

Agrammatics produced far less words/minute than their controls. On all spontaneous speech tasks combined JTF produced at total of 38.8 words/minute while his control DVT produced 107.2 words/minute. LTL produced 38.2 words/minute while his control AYI produced 134.8 words/minute.

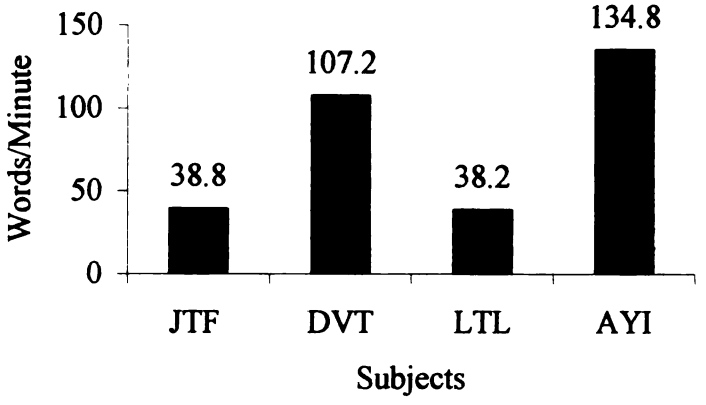


Figure 3. Summary of Rate of Production

The number or syntactically continuous phrases/minute for agrammatics and controls was similar. The criteria for a syntactically-continuous phrase follows the standards used in Menn and Obler (1990); a string of words bounded by a pause of at least 2 seconds, by falling intonation contour, by the beginning of a parenthetical remark, or by the omission of a major class lexical item. Retracing of two or more words and self-correction, which attempted to produce a different target word, were considered boundaries. On all spontaneous speech tasks combined JTF produced 10.3 phrases/minute while his control DVT produced 14.6 phrases/minute. LTL produced 11.3 phrases/minute while his control AYI produced 10.8 phrases/minute. Although the number of phrases/minute was similar between both groups, the length of the phrases differed. Phrases were much shorter for agrammatics than for their controls.

Phrase Length

The mean number of words/syntactically-continuous phrase was calculated and Appendix G shows the results for each patient for each individual task. The number of words/syntactically-continuous phrase was substantially lower for both agrammatic patients. On all spontaneous speech tasks combined, the mean number of words/phrase for JTF was 3.87 while the mean number for his control DVT was 7.36. The mean number of words/phrase for LTL was 3.47 while the number for his control AYI was 12.86.

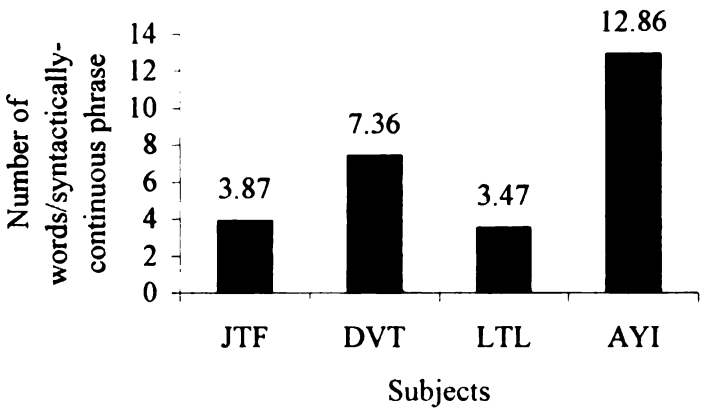


Figure 4. Summary of Phrase Length

3.5 Supplementary Language Materials

Each subject was asked to read aloud the story "Little Red Riding Hood" (Appendix A). Transcriptions of readings are located in Appendices C1 – C4. Reading errors are listed in Appendices H1 - H4. Note that not all reading errors resulted in ungrammatical constructions. All subjects tended to switch back and forth between a noun and its diminutive form. Also, all subjects tended to add the definite article before proper names even though it was not written this way in the story. For this reason, definite articles before proper names and diminutive forms of nouns or omission of the diminutive on a noun will not be counted as reading errors. All other reading errors whether resulting in ungrammatical or grammatical constructions were tabulated and then those errors that resulted in ungrammatical constructions were separated and reported in the paragraphs that follow.

3.5.1 Morpheme Errors and Reading Rate in LRRH Reading Task

Oral Reading of LRRH

Although both agrammatic patients were able to read the entire story, they read much slower that their controls. It took JTF 3:41 minutes to read the story while it took his control DVT only 2:18. It took LTL 7:21 minutes to read the story while it took his control AYI only 2:03. It is clear that LTL had the most difficulty on the reading task. Not only does it take him much longer to read the story but he also makes more mistakes than all other subjects, including JTF.

Both agrammatic patients made more mistakes than their controls on the reading task. Of the 21 reading errors reported for JTF, 16 resulted in ungrammatical sentences. The main errors for JTF were replacing subordinate conjunctions with the preposition "*de*" 3 times and pluralizing singular nouns 6 times. The 6 instances of making singular nouns plural were counted as substitution errors. Of the 5 reading errors reported for his control DVT, only 1 resulted in an ungrammatical sentence. There are 60 reading errors reported for LTL. Of these 60, 28 resulted in ungrammatical sentences. The main errors for LTL consisted of substituting and omitting prepositions, agreement errors on verbs, and omitting coordinating conjunctions. LTL also substituted lexical verbs for others that were semantically similar. He read *preguntarle* (21) although *hablarle* was written and *dijo* (23) although *preguntó* was written in the story. AYI made no errors that resulted in ungrammatical sentences. He inserted an extra clitic once and a complementizer once, both of which resulted in grammatical sentences.

Table 17 shows the reading error distribution for free and bound grammatical morphemes and content words. Note that clitics and reflexives are bound if they occur with infinitives, gerunds or positive imperatives and are free elsewhere. Other bound

morphemes examined were inflectional affixes on verbs, auxiliaries, nouns and adjectives.

Table 17. JTF/LTL: Reading Errors

	JTF			LTL		
	Free Gram. morphemes	Bd. Gram. morphemes	Content words	Free Gram. morphemes	Bd. Gram. morphemes	Cont. words
Omissions	2	-	-	19	-	2
Substitutions	6	8	-	16	8	3
Correct	160	155	152	128	155	147
Total in text	173	163	152	173	163	152
Additions	5	-	-	10	2	-

Overall, both patients were able to read the story without too much difficulty. However, LTL produced many more reading errors than JTF. Out of all the morphemes examined, about 9.8% were either substituted or omitted by LTL but only 3.3% were substituted or omitted by JTF. Both patients had more difficulty reading functional morphemes than content words. All reading errors made by JTF were on functional morphemes while LTL had 43 reading errors on functional morphemes but only 5 on content words. Neither patient omitted bound grammatical morphemes. Instead, all reading errors on bound grammatical morphemes were due to substitution. Finally, patients sometimes added morphemes to the text that were not written in the story. Most additions resulted from the patient adding clitics.

Chapter 4

Discussion

The goal of this thesis was to present an overview of the general characteristics of Spanish agrammatic production that could be compared cross-linguistically. Chapter 1 outlined the general characteristics of agrammatic production reported in earlier studies and made a number of predictions for Spanish agrammatism. Chapter 2 described the methods for collecting and analyzing data and Chapter 3 presented the results. These results are discussed further in this chapter by comparing them to the predictions made in Chapter 1 and by determining what consequences they have on current theoretical accounts of agrammatic production.

4.1 Spanish Agrammatism Compared Crosslinguistically

Free Grammatical Morphemes

Much of the Spanish agrammatic data presented in this paper patterned with agrammatic data from other languages. Based on previous studies, it was predicted that Spanish agrammatics would have difficulty producing free grammatical morphemes and would most likely omit them. Although both agrammatics showed difficulty in producing articles in the spontaneous speech tasks, only LTL had a high omission rate (25%). On the other hand, JTF had a high substitution rate (12%). Substitution errors generally resulted from changing the gender on the article. Agrammatic patients rarely produced indefinite articles during the spontaneous speech tasks. On the LRRH reading task, only LTL had difficulty reading definite articles. He omitted and substituted 13% of all definite articles written.

Both patients had high omission and low substitution rates for prepositions in the spontaneous speech tasks. JTF omitted 23% while LTL omitted 46%. LTL also showed great difficulty in reading prepositions in the LRRH reading task, where he omitted 17% and substituted 20% of all prepositions.

Omission rates for auxiliaries were rather high in previous studies and this was predicted to be true of Spanish agrammatism as well. Although both patients omitted auxiliaries, only LTL had an omission rate above 10%. He omitted 15% of all auxiliaries while JTF omitted 9%. Finally, although patients did not omit nor substitute coordinating conjunctions in the spontaneous speech tasks, LTL did omit 16% of all coordinating conjunctions in the LRRH reading task.

The agrammatic patients presented in this study did not make errors on all free grammatical morphemes. Neither JTF nor LTL seemed to have difficulty producing or reading strong pronouns, clitics, and reflexives. As noted earlier, most of the clitics and reflexives supplied by JTF in the spontaneous speech tasks belonged to idiomatic expressions. Since his control DVT only used 6 clitics/reflexives in all of the spontaneous speech tasks, it appears that JTF's performance on clitcs and reflexives was normal. Moreover, he made no mistakes reading clitics and reflexives in the LRRH reading task. LTL made no mistakes on clitics, reflexives, or strong pronouns in spontaneous speech; however, he substituted 2 clitics and omitted 1 clitic in the LRRH reading task. He also added 4 clitics and 4 reflexives in the LRRH reading task that were not written in the text; however, only 2 resulted in ungrammatical sentences. Reznik (1995) pointed out that her Spanish agrammatic patients avoided clitics and Menn and Obler (1990) stated that clitics were often omitted when free. It is not clear then why patients in the present study did so well on producing and reading clitics.

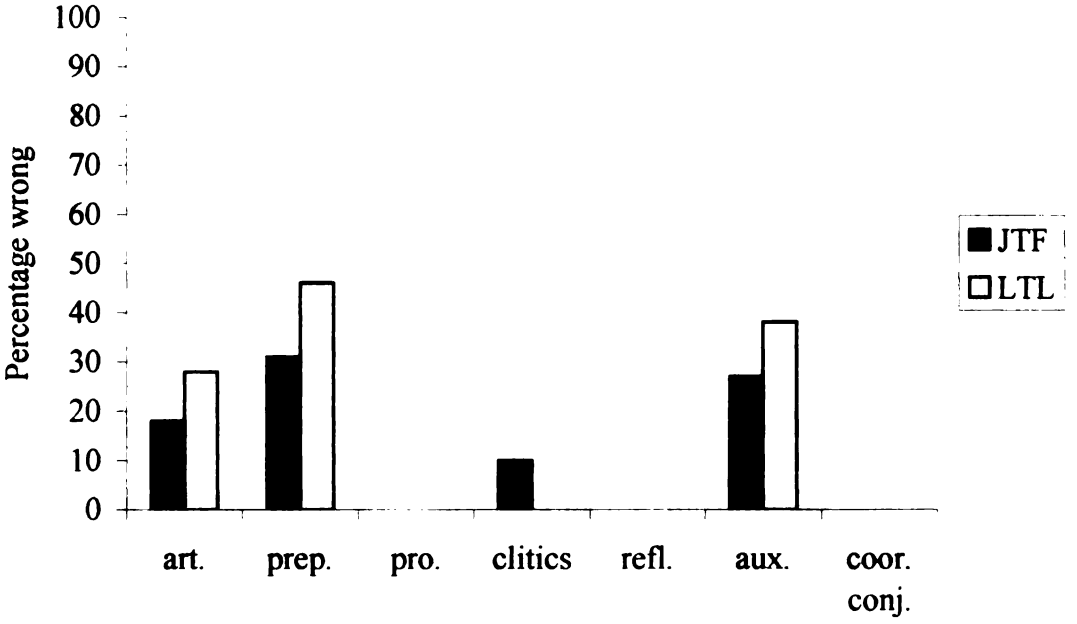


Figure 5. Free Grammatical Morpheme Errors in Spontaneous Speech

Bound Grammatical Morphemes

Based on previous studies, it was predicted that Spanish agrammatic patients would not omit but rather substitute bound grammatical morphemes. Both patients substituted inflection on auxiliaries and verbs. JTF substituted tense or number on 18% of Have/Be main verbs and 23% of auxiliaries. LTL substituted tense on 10% of main lexical verbs, auxiliaries and Have/Be main verbs. Notice that although JTF made errors on both tense and number, LTL made only errors on tense, except in (30a) where the form of the verb "*venir*" is wrong on both tense and person. On the LRRH reading task, JTF substituted tense on only 2 verbs (3%). LTL substituted number on only 3 verbs; however, it appears that the null subject in these sentences caused him confusion (63, 66, 70). It seems that LTL considered "*ojos grandes*", rather than the null 2nd person

singular, to be the subject in these sentences. Neither patient made significant errors on bound clitics or reflexives.

Distribution of Grammatical Categories and Major Class Lexical Items

It was predicted that Spanish agrammatic patients would set up more contexts than their controls for Have/Be main verbs. Only JTF set up more contexts for Have/Be main verbs. LTL did not.

It was also predicted that Spanish agrammatics would show similar token/type ratios as their controls for nouns, verbs, and adjectives while the noun/adjective ratio of patients would be substantially higher. However, both verb and noun ratios were higher for JTF than for his control DVT. JTF had a verb ratio of 1.8 while his control had a verb ratio of 1.1. Moreover, JTF had a noun ratio of 2.1 while his control DVT had a noun ratio of 1.3. Adjective ratios were similar for both JTF and his control. Patient LTL also had a higher token/type ratio for nouns than his control AYI. LTL had a ratio of 2.1 while his control AYI had a ratio of 1.4. These results were surprising because they were not found in previous studies (Menn and Obler, 1990; Halliwell, 1998).

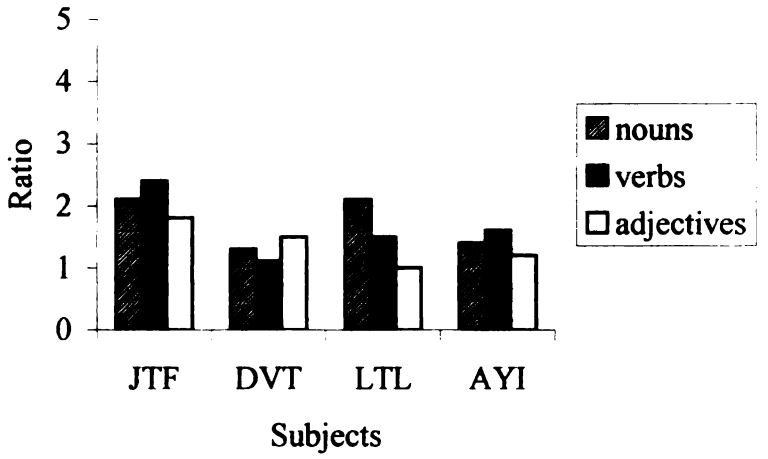


Figure 6. Summary of Token/Type Ratios

Syntactic Patterns and Word Order

As was predicted, syntax was simplified at all levels. Relative clauses were almost completely absent from agrammatic speech. Patients never used prepositional phrases to modify NPs. Moreover, modification by adjectives was low. At the VP level, very few subordinate clauses were produced and those produced almost always involved error. Even on the LRRH reading task, JTF substituted 3 subordinate conjunctions and LTL omitted 1 of 7 complementizers.

Production Parameters

It was correctly predicted that Spanish agrammatics would have slow rate of production and short phrase length. Words/minute produced by agrammatics was much lower than words/minute by controls. Moreover, phrase length was much shorter for agrammatics.

4.2 Theoretical Implications

This section examines the *Competition Model* and the *Tree-pruning Hypothesis* in light of the data collected in this study. The data can only shed light on these proposals; it cannot completely determine if they are correct accounts of the deficit. Further research is needed before either proposal can be accepted or completely rejected. First subject-verb agreement and tense production by Spanish agrammatics will be discussed. Then, the Spanish preposition '*a*' will be examined.

Benedet et al. (1998) found that the *Competition Model* accounts for the fact that their Spanish agrammatic patients did better on subject-verb agreement than English agrammatic patients. As noted in Section 1.1.2, it is possible that this was a result of agrammatic severity rather than language difference. Moreover, they stated that in Spanish tense marking was higher in cue costs than subject-verb agreement marking

because tense marking carries independent semantic meaning and therefore requires additional working memory. They predicted and they found that their Spanish agrammatics did better on producing subject-verb agreement than on producing tense. On the spontaneous speech tasks, LTL seemed to confirm their findings because he had no subject-verb agreement errors but he incorrectly produced tense for 10.1% of all auxiliaries and verbs. However, this is not the case with JTF. In the spontaneous speech tasks, JTF incorrectly produced subject-verb agreement for 11.4% of all auxiliaries and verbs while he incorrectly produced tense for 9.1% of all auxiliaries and verbs. JTF had a slightly higher percentage in error rate for subject-verb agreement marking than for tense marking, which is not predicted by the *Competition Model* as presented by Benedet et al. (1998). Under the *Competition Model*, one would expect the percentage of tense marking errors to be a great deal higher than the percentage of subject-verb agreement errors. In other words, agrammatics would not be expected to show similar number of errors on subject-verb agreement and tense.

Friedmann and Grodzinsky (1997) proposed that the breakdown of hierarchical structure accounts for the impairment of subject-verb agreement and tense. As noted in Section 1.1.3, Chomsky's representation of IP positions subject-verb agreement higher than tense and this is generally the representation assumed for Spanish. Under this representation, if tense is impaired, subject-verb agreement and the creation of embedded clauses and Wh-questions should also be impaired. However, if only subject-verb agreement is impaired, the formation of Wh-questions should be impaired but not tense. It appears that the data produced by LTL does not support the *Tree-pruning Hypothesis.* Because he made only tense errors, it appears that he has an impaired T and an intact

AgrS[8]. He also seems to have an impaired C. LTL produced 5 contexts for subordinate clauses while his control produced 29 contexts. Moreover, of those 5 contexts, only 1 subordinate clause was produced without error. LTL produced no contexts for relative clauses while his control produced 19 contexts. Finally, LTL produced 2 Wh-questions but 1 was ungrammatical (37a) while the other was an idiomatic expression. This indicates that LTL has an impaired C and T but not an impaired AgrS, which is not predicted by the Tree-pruning Hypothesis.

It is not clear whether the data collected from JTF supports the *Tree-pruning Hypothesis.* He made errors on both subject-verb agreement marking and tense marking. Under the *Tree-pruning Hypothesis* it would be argued that he has an impaired AgrS and T. If this is the case, he should also have an impaired CP. JTF produced 1 context for a subordinate clause; however, it was an idiomatic expression. His control only produced 3 contexts for subordinate clauses. Although his speech was slightly unclear, it appeared that JTF produced 1 context for a relative clause (49-also see primary transcripts). His control produced only 6 contexts for relative clauses. Finally, JTF produced 5 questions using Wh-words. However, 4 of them were idiomatic and it is unclear whether the fifth was produced correctly or not (49-also see primary transcriptions). In the spontaneous speech data it is difficult to determine whether JTF had an impaired CP. Since he did not carry out the LRRH reading task, which requires the subject to produce more instances of CP, enough data is not available.

Although the *Competition Model* can account for LTL's speech, it does not account for JTF's speech. The *Tree-pruning Hypothesis* does not account for the errors

[8] LTL did make 3 errors on subject-verb agreement in the LRRH reading task; however, it appears that this was a problem with determining the correct subject (subject was null) and not in providing correct agreement inflections (see transcriptions).

found in LTL's speech and enough data is not available to determine whether it accounts for the errors found in JTF's speech. The *Competition Model* predicts a somewhat large difference in error rate between subject-verb agreement marking and tense marking due to cue validity and cue costs. Under the *Tree-pruning Hypothesis*, it is only predicted that subject-verb agreement marking and tense marking will either be impaired or not impaired. However, it does not predict that tense marking will be more impaired than subject-verb agreement marking. Under the *Tree-pruning Hypothesis*, it seems plausible that an agrammatic with an impaired AgrS and T would show a similar number of errors on both subject-verb agreement marking and tense marking since neither node should be accessible. This seems to be the case with JTF; however, as noted above, it is not clear whether JTF has an impaired CP.

The reading data collected in this study does not support the *Tree-pruning Hypothesis*. Although JTF substituted 3 subordinate conjunctions and LTL omitted one, both patients read Wh-questions and embedded clauses without too much difficulty. Friedmann and Grodzinksy (1997) stated that agrammatics should have difficulty reading instances of CP, if Agr and/or T are impaired. They pointed out that, although their patient did better at reading Wh-questions than at producing them in spontaneous speech, her ability to read them was still disturbed. They concluded that Wh-questions were impossible to produce and hard to read and that the ability to read embedded clauses was also impaired for their patient.

Working within the *Competition Model*, Benedet et al. (1998) suggest that the Spanish preposition '*a*' is low in cue reliability because the preposition can have many different meanings and high in perceivability costs because it is a single unstressed syllable in a sentence context. They state that this is true for production and

comprehension. It would be predicted then that agrammatics would tend to omit the preposition '*a*' due to its low cue validity and its high cue costs. In part this is true. Production of all prepositions was clearly difficult for LTL. He made a number of substitution and omission errors in both spontaneous speech tasks and the LRRH reading task. However, if the data is examined more closely, it appears that errors are not random. In the spontaneous speech tasks, LTL omitted the preposition '*a*' when it case-marked a direct object and when it was part of the construction '*ir + a + infinitive*' (19). In the LRRH reading task, LTL omitted or substituted the preposition '*a*' only when it case-marked a direct object. LTL never omitted the preposition '*a*' when it provided meaning.

(18) Preposition '*a*': Omission

a.	*el niño va [a] conseguirle la galleta* (7)	
b.	*el asendado va [a] ir a la ciudad* (20b)	Spontaneous Speech
c.	*el lobo va [a] matar [a] Caperucita* (40a)	
d.	*la policía sorprende [al] ladrón* (14b)	
e.	*...para preguntarle [a] Caperucita* (9)	Reading

(19) Preposition '*a*': Preservation

a.	*...Caperucita vuelve a la casa* (36)	
b.	*el niño pasa la galleta a la niña* (11)	Spontaneous Speech
c.	*el asendado va [a] ir a la ciudad* (20b)	
d.	*Quiero que me$_9$ la lleve(s) a la casa* (6)	Reading

Zurif and Caramazza (1976) found similar patterns in Broca's aphasics. When faced with sentences like (20a), the patients were able to place the preposition in its correct position. However, when the preposition appeared as an infinitival complementizer (within verbal periphrasis) like (20b), patients made mistakes.

(20) a. John gave the cookie to Bill
b. She likes to eat candy

So, Benedet et al. (1998) would need another cue cost relevant only to case-marking and infinitival complements to account for this dissociation between what looks like functional prepositions and prepositions that provide meaning. They suggest that for production but not comprehension case marking '*a*' is high in assignability costs because a speaker must hold the entire propositional message in working memory to assign case. This would account for the dissociation between case marking '*a*' and lexical '*a*' (but not infinitival complement '*a*') during the spontaneous speech tasks but it is not clear whether this would account for the dissociation during the LRRH reading task.

The production and comprehension of lexical and functional prepositions following brain damage has been the focus of a number of studies (Friederici, 1982; Grodzinsky, 1988). Friederici (1985) showed that agrammatic patients were faster at recognizing open class words than closed class words. Moreover, the agrammatics in her study recognized lexical prepositions (with semantic content) much faster than obligatory prepositions (without semantic content). Her results indicate that, unlike obligatory prepositions, lexical prepositions are involved in processes at the semantic level. However, since patients were also slower at recognizing lexical prepositions than at recognizing other lexical categories, it appears that lexical prepositions are also involved at the structural level. On the other hand, obligatory prepositions seem to be processed at the structural level only. Based on this evidence, it appears that prepositions that play a

purely functional role will be more impaired in agrammatic speech than those with semantic content.

However, Froud (2001) reported that her aphasic patient, who demonstrated a strong dissociation between reading lexical and functional categories, treated all lexical prepositions like functional categories. His reading of single-word functional categories, including locative prepositions, was impaired while his reading of lexical categories remained intact. Because of this dissociation between functional and lexical categories and because the patient also made a large number of errors reading locative prepositions, Froud (2001) suggested that all prepositions are functional. Although her patient was tested on just locative prepositions she pointed out that he behaved the same way on non-locatives as well. This study suggests that prepositions are functional categories and there is no separation between what has traditionally been called lexical and functional prepositions. However, it was not clear whether prepositions in her study were as severely impaired as the other functional categories and whether there was any variation in error rate among the types of prepositions the patient read. It is possible that lexical prepositions (like the ones in her study) fall somewhere in between substantives and functional categories.

Froud (2001) pointed out that on previous studies, MC (her aphasic patient) was tested on reading single-word functional categories and substantives. He got only 12.13% of all function words correct but 84.31% of all substantives correct. However, on the locative preposition study he read 30% of all prepositions correctly and 75% of all substantives correctly. It might be suggested that MC's ability to read lexical prepositions falls somewhere in the middle between his ability to read lexical categories and and his ability to read purely functional categories. This seems to indicate, as

Friederici (1985) suggests, that lexical prepositions have to meet processing requirements at both the structural and semantic level. This could also account for the dissociation found between functional '*a*' and lexical '*a*' in LTL's speech.

The low reliability cues and high perceivability costs of the *Competition Model* do not seem to get the right results, especially in Friederici (1985) and Froud (2001) where target words used could belong to either lexical or functional categories[9]. Although it seems they should be identical in reliability cues and perceivability costs, agrammatics did better when the target word was presented as a lexical category than when it was presented as a purely functional category.

4.3 Limitations and Future Research

The goal of this study was to provide a general description of agrammatism in Spanish. The results provide a good deal information about the nature of Spanish agrammatism and also reveal how it patterns with agrammatism in other languages. Moreover, this study provides some insight on recent theoretical accounts of agrammatism. However, one major shortcoming of this study is that it is based on the data of only two patients. Moreover, patients were not forced to produce any particular forms, as they were in the studies supporting the *Competition Model* and the *Tree-pruning Hypothesis*. For these reasons, it is necessary that more data be examined and compared to the results of this study.

[9] For Froud (2001) words like 'behind' (the behind of the elephant vs. behind the house) were used that could be either a noun (lexical) or a preposition (for Froud, functional). For Friederici (1985) all prepositions tested could be used as either obligatory prepositions or lexical prepositions.

Chapter 5

Conclusion

The goal of this thesis was to describe the general characteristics of Spanish agrammatism. Studies of this nature had been carried out in several languages (Menn and Obler, 1990; Halliwell, 1998); however, this is the first report done for Spanish. In order to facilitate cross-language comparison, the methodology for collecting, examining and presenting data followed the methodology used in Menn and Obler (1990).

Predictions for Spanish agrammatism were based on the findings of several cross-language studies. Overall patients JTF and LTL patterned with the agrammatics in previous studies. They produced slow telegraphic speech, had short phrase length and supplied few words/minute. They also had difficulty with free and bound grammatical morphemes in both the spontaneous speech and LRRH reading task. Syntax was simplified at all levels; patients very rarely used modification or subordinate clauses. Patients JTF and LTL differed from agrammatics in previous studies in that they seemed to have no difficulty producing bound/free clitics and reflexives and they had high token/type ratios for nouns. JTF also had a high token/type ratio for verbs. This might suggest that both patients in the present study had word-finding difficulty; hence they relied on the same set of nouns and/or verbs in the spontaneous speech tasks.

Although this thesis provided a general overview of language breakdown in Spanish agrammatism, it did not explain why certain properties of language are impaired while others are left intact. Several accounts of this nature have been put forth and some of these were reviewed in this thesis. Moreover, some aspects of the *Competition Model* (Benedet et al., 1998) and the *Tree-pruning Hypothesis* (Friedmann and Grodzinksy,

1997) were examined in light of the production data collected from JTF and LTL. It is unclear whether the errors found in the spontaneous speech of JTF support the *Tree-pruning Hypothesis*; however, the errors found in the spontaneous speech of LTL did not. Moreover, the *Tree-pruning Hypothesis* was not supported by the data from the reading tasks. The spontaneous speech data from LTL seems to support the *Competition Model*, with respect to subject-verb agreement and tense; however, the errors found in JTF's speech does not. As was noted earlier, one major limitation of this thesis is that it was based on only two patients. For this reason, the results are not conclusive.

APPENDICES

APPENDIX A

LITTLE RED RIDING HOOD READING TASK

Spanish

Erase una vez, una niñita que vivía con sus padres. Su madre le había fabricado una capa roja con un capuchón, y por eso, todos le llamaban Caperucita Roja. Un día, su madre le dijo: "Caperucita, he preparado una canasta con comida. Quiero que la lleves a la casa de la abuelita, que está enferma en su cama. Caperucita tomó la canasta y partió. Cuando Caperucita caminaba por el bosque repentinamente encontró a un lobo. El lobo paró a hablarle a Caperucita, y le preguntó a donde iba con toda esa comida. Caperucita dijo que ella iba a visitar a su abuelita, quien no se encontraba muy bien de salud, y que ella le llevaba una canasta con comida. El lobo preguntó: "Caperucita, ¿y dónde vive tu abuelita?" y ella le contestó que su abuelita vive en una casa en medio del bosque. El lobo le dio las gracias y se fue. Caperucita continuó caminando sin apuro, parando para recoger flores y para comer frutillas. Finalmente, ella llegó a la casa de su abuelita. Caperucita tocó la puerta, pero nadie respondió, así es que ella entró a la casa y encontró a alguien en la cama, que pensó era su abuelita, y que vestía el camisón y gorro de su abuela y que las frazadas le cubrían hasta el cuello. Caperucita dijo: "Buenos días abuelita, te he traído una canasta con comida." Y el lobo, que estaba pretendiendo ser la abuelita, le pidió que acercara la canasta hacia la cama. Así, Caperucita acercó la canasta hacia la cama y dijo: "Abuelita, ¡pero qué ojos grandes tienes!" y el lobo contestó: "para verte mejor." Entonces, Caperucita dijo: "Abuelita, ¡pero qué grandes oídos tienes!", y el lobo contestó: "para escucharte mejor." Luego Caperucita dijo: "abuelita, ¡pero qué

dientes grandes que tienes!" y el lobo saltó de la cama diciendo: "¡para comerte mejor!" y trató de atrapar y comer a Caperucita. Caperucita comenzó a correr desesperadamente llorando y gritando por ayuda, pero el lobo la alcanzó y se la comió. Un cazador que en ese momento pasaba por los alrededores y que había escuchado los gritos de Caperucita, entró a la casa y mató al lobo. Luego le abrió la barriga al lobo y Caperucita y su abuelita saltaron sanas y salvas. Y así vivieron por mucho tiempo, felices y contentas.

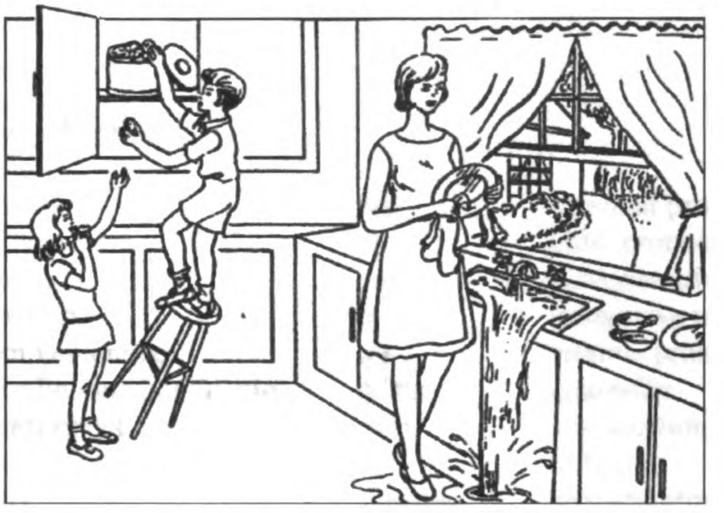
English

Once upon a time, there was a young girl that lived with her parents. Her mother had made her a red cape with a red hood and, for this reason, everyone called her Little Red Riding Hood. One day, her mother told her: "Little Red Riding Hood, I have prepared a basket with food. I want you to take it to your grandmother's house because she is sick and in bed. Little Red Riding Hood took the basket and left. While Little Red Riding Hood was walking in the forest she ran into a wolf. The wolf stopped to talk to Little Red Riding Hood and he asked her where she was going with all of the food. Little Red Riding Hood said that she was going to visit her grandmother, who was not feeling very well and that she was taking her a basket of food. The wolf asked her: "Little Red Riding Hood, Where does your grandmother live?" and she answered him saying that her grandmother lives in a house in the middle of the forest. The wolf thanked her and left. Little Red Riding Hood continued walking without any hurry, stopping to pick flowers and eat strawberries. Finally, she arrived to her grandmother's house. Little Red Riding Hood knocked on the door, but nobody answered. So, she entered the house and found someone in the bed that she thought was her grandmother and that was wearing her grandmother's nightshirt and nightcap and that was covered up to the neck by the

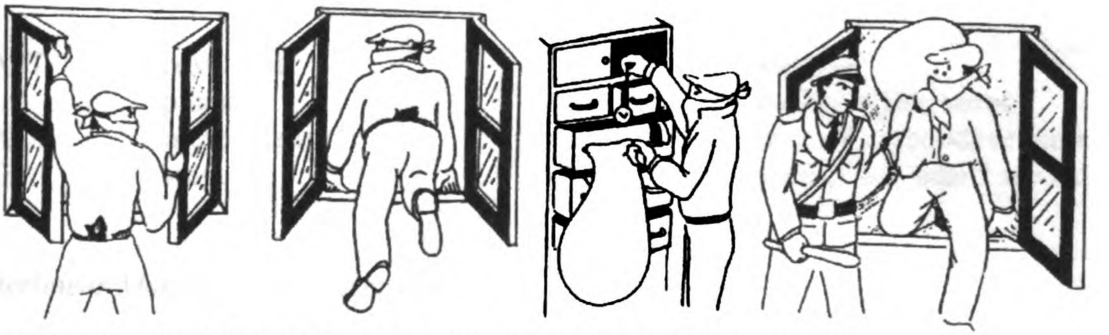
blankets. Little Red Riding Hood said: "Good Morning grandmother, I have brought you a basket with food." The wolf, who was pretending to be the grandmother, asked her to bring the basket closer to the bed. So, Little Red Riding Hood brought the basket closer to the bed and said: "Grandmother, what big eyes you have!" and the wolf answered: "the better to see you with." Then Little Red Riding Hood said: "Grandmother, what big ears you have!" and the wolf answered her: "the better to hear you with." Then Little Red Riding Hood said: "Grandmother, what big teeth you have!" and the wolf jumped from the bed saying: "the better to eat you with!" and he tried to trap and eat Little Red Riding Hood. Little Red Riding Hood began to run, crying and screaming for help, but the wolf caught her and ate her. At that very moment, a hunter who was passing by and who had heard the screaming of Little Red Riding Hood, entered the house and killed the wolf. Later, he opened the belly of the wolf and Little Red Riding Hood and her grandmother jumped out healthy and safe. And, this is how they lived happily ever after.

APPENDIX B

MATERIALS



Complex Action Picture (Cookie Theft): Menn and Obler (1990)



Modified Version: Picture Sequence (Thief): Menn and Obler (1990)

Picture Sequence (Farmer): Menn and Obler (1990)

APPENDIX C1

JTF: PRIMARY TRANSCRIPTIONS AND INTERLINEAR MORPHEMIC TRANSCRIPTIONS

List of Symbols and Abbreviations

adv	adverb	pro	personal pronoun
adj	adjectives	cli	clitic pronoun
art	article	dem	demonstrative pronoun
aux	auxiliary	poss	possessive pronoun
comp	complementizer	rel	relative pronoun
conj	coordinating conjunction	quant	quantifier
det	determiners	qwh	wh-question word
exclm	exclamation	rfl	reflexive
fill	filler	subconj	subordinating conjunction
N	noun	v	have/be main verb
neg	negative	V	lexical verb
num	number	Vinf	infinitive
prep	preposition		

PAST	past tense	[ ]	omission
PL	plural	/??/	uninterpretable string
PRES	present tense	(...)	pause of 2 seconds or more
SG	singular	(.)	pause of less than 2 seconds

Interlinear Morphemic Transcriptions

Line 1: Corrected or expected forms
Line 2: Morphemes produced by subject (italics)
Line 3: Morphemic translation with grammatical labels abbreviated
Line 4: English equivalent of Line 2

Supplementary Language Materials: LRRH Reading Task

Line 1: Reading produced by subject
Line 2: Reading task
Line 3: English equivalent of Line 2

Subscripts: Reading errors

PATIENT JTF: PRIMARY TRANSCRIPTIONS

Cookie Theft (124 seconds, 56 words)

Patient: Ya. La—está la—la lola está...está...(*sigh*)...El—el—el—el lolo . la /tuwando/ la—tomando la galleta. Lo—la—la niña está jugando. La señora está.../abr/ ah.../lava/—lavando—lavando losa. Y...la . la...la...la señora...chu (*whispers*)...Ahora no hay gato ahora. Ahora no hay gato. (*in reference to other version of Cookie Theft with cat*)

Examiner: No, no hay gato en esta. ¿Hay algo más que Ud. desea agregar?

Patient: La señora . ¿hablando?...no eh...Eso chuta me dio...(*sigh*)...Plato lo el—el—el—el plato la . plato la—la—la señora está jugando la—está /conver/—/conversa/ (*whispers*)—¿/conver/?

Examiner: ¿secando los platos?

Patient: Exactamente. Exactamente.

Thief (132 seconds, 58 words)

Patient: El...el ladrón...ladrón eh...está...abriendo la, no la puerta, la...(*snaps fingers*) la (whispers).../??/ chuta (*whispers*)...ventana...la ventana. La /sel/—la—el otro—el otro. Eh . el ladrón ya—ya están—está...(*sigh*)... está....Chuta (*whispers*)...¿Cómo se llama?.../abra/—¿abriendo? . la . ¿la ventana?...la ventana. La—el—el—el—el ladrón...está...está...eh... (*sigh*)...Chuta (whispers).

Examiner: Si le cuesta Ud. puede seguir con el próximo.

Patient: Y . y el—el ladrón ya están...el . el ladrón están...la /policí/—la policía. La policía está.../ko/ el—el—el—la policía y la ladrón están junto(s).

Farmer (129 seconds, 70 words)

Patient: Eh...¿Cómo se llama?...Chuta que me dio . pero...

Examiner: ¿Le ayudo un poco?

Patient: ya

Examiner: ¿Sembrar?

Patient: Se-se-sembrar. El—el—el—el—el—el—el lolo está sembrando. Eh . la—la—el mi(s)mo—la mi(s)mo...está allá. /su/ La mi(s)mo están.../sembra/ (*whispers*)...El—el maíz—y el maíz está—está—está se—se (*clitics*)...el maíz está ya está listo. Y—y el—el—el—el choclo están—están—está—está...(sigh)...su choclo está . listo para—para—para . comer. Y el—y el—y el lolo lo—lo...el . el lolo está...el camión. Todo(s) lo(s)—todo(s) lo(s) choclo(s)—choclo(s) están...están—están listo(s) ya 'poh' (*pues*).

Accident *(105 seconds, 133 words)*

Patient: Eh eso e(s) muy...El...el veinte-uno de—de mayo...eh...estoy—estaba trabajando. Ya estoy en el—estoy—estaba trabajando...en . en el—en el...eh...Estaba noche—estaba—estaba—estoy—estoy—estoy el noche má(s) o meno(s). ¿Se acuerda /uste/? (*asking speech pathologist*) Ahí ¿cómo se llama ese? eh...eh...Estaba—estaba trabajando. Era—era—era noche 'poh' (pues). Está—está—está...Y me dio...me dio...¿cómo se llama?...un vahído...no /??/ se dio un /mai/-vahído o otra cosa no me acuerdo. Y me dio quack! Todo. Y...bueno ya lo—lo . veinte-uno, veinte-do(s), veinte-tre(s), veinte-cuatro, veinte-cinco, veinte-sei(s), veinte-siete, veinte-ocho, /treint/ hasta seis de /ju/—hasta justamente a-ayer, no, anteayer, hace 2 año(s) atrás...me dio infarto. Me dio infarto cerebral. Y allí estoy yo. Pero tengo que hablarle /??/ me dijeron. Tengo que hablar . poco a poco. Qué lo que va hacer? Tengo que todo(s) lo(s) día(s) 'po' (pues) todo(s) lo(s) día(s) hablar hablar hablar.

PATIENT JTF: INTERLINEAR MORPHEMIC TRANSCRIPTIONS

Cookie Theft

(1) *La lola está*[jugando]* art N aux+[V]
the girl is
the girl is [playing].

*The prosody suggests that *estar* is an auxiliary and the patient was unable to provide a lexical verb. The gerund of *jugar* was inserted because JTF uses this verb in (3a).

(2) *El lolo* — art N
the boy
the boy

[está]tomando la galleta — [aux]+V art N
taking the cookie
[is] taking the cookie.

(3) *La niña está jugando* — art N aux+V
the girl is playing
the girl is playing.

(4) *La señora está lavando losa* — art N aux+V N
The lady is washing dishes
The lady is washing dishes.

(5) *Y la señora...* — conj art N
And the lady
And the lady...

(6) *Chu/* — exclm
Shoot
Shoot!

(7) *Ahora/ no hay gato ahora* — adv neg v N adv
Now, no there is cat now
Now, there isn't a cat now.

(8) *Ahora no hay gato/* — adv neg v N
Now no there is cat
Now there isn't a cat.

Examiner: *No, no hay gato en esta. ¿Hay algo más que Ud. desea agregar?*
No, there isn't a cat in this one. Is there something else you wish to add?

(9) *La señora [está] hablando** — art N [aux]+V
The lady talking
The lady [is] talking?

* Wrong lexical choice.

(10) *No/* — neg
No
No.

(11) *Eso/ chuta me dio [fuerte]/* dem exclm cli V [adv]
This, shoot me (it) gave
This, shoot it (the stroke) hit me [hard].

la:F/SG
(12) *[El] plato lo** [art] N art
plate the:NEUT
[The] plate the

*Article should be feminine to agree with *señora*. It appears patient is trying to say "*The plate. The woman is drying the plate.*" Self-corrected below.

(12a) *el plato la* art N art
the plate the
the plate the

(12b) *[el] plato* [art] N
plate
[the] plate

secando el:M/SG
la señora está jugando la*[plato]*/* art N aux+V art [N]
the lady is playing the:F/SG
the lady is playing the [plate].

*Wrong lexical choice for verb. The article *la* does not agree with the noun *plato*. The noun *plato* has been omitted because the patient tries but fails to self-correct the verb in (12c).

secando
(12c) *está conversando*/* aux+V
is conversing
is conversing?

*Wrong lexical choice for verb.

Examiner: *¿secando los platos?*
drying the dishes?

(13) *Exactamente/ Exactamente/* adv adv
Exactly Exactly
Exactly. Exactly.

Thief

(14)	*El ladrón está abriendo la* The theif is opening the The theif is opening the,	art N aux+V art
(14a)	*no la puerta* no the door not the door,	neg art N
(14b)	*la* the the	art
(14c)	*Chuta* Shoot Shoot!	exclm
(14d)	*la ventana* the window the window.	art N
(15)	*El otro* The other The other one (referring to next scene).	art N
(16)	*El ladrón ya están** está:3/SG The theif:3/SG already are:3/PL The theif already are	art N adv aux

*The noun and verb do not agree in number. Self-corrected below.

(16a)	*está* is:3/SG is	aux+
(16b)	*Chuta* Shoot Shoot!	(exclm
(16c)	*Cómo se llama* How REFL (it) calls How does one call it?	qwh rfl V)

(16d) *abriendo la ventana* * V art N
opening the window
opening the window?

(16e) *la ventana/* art N
the window
the window.

*Description seems strange since the second picture shows the thief "entering through the window" and not "opening the window". Furthermore, the patient already mentioned the thief opening the window in (14).

(17) *El ladrón está [robando] [valores]* * art N aux+[V] [N]
The theif is
The theif is [stealing] [valuables].

*It is difficult to determine what verb the patient intends to use but *[robando valores]* seems to correspond to picture.

(18) *Chuta/* exclm
Shoot
Shoot!

Examiner: Si le cuesta Ud. puede seguir con el próximo.

está:3/SG
(19) *Y el ladrón ya están** conj art N adv v
And the theif:3/SG already are:3/PL
And the theif are already

*The noun and verb do not agree in number.

está:3/SG
(19a) *el ladrón están** *[con] la policía* art N v [prep] art N
the theif:3/SG are:3/PL the police
the theif are (with) the police.

*The noun and verb do not agree in number. Self-corrected below. It appears that JTF has difficulty getting *the thief* and *the police* in the correct relation to the verb. He attempts again in (20) and is successful in (20a).

(20) *La policía está* art N v
the police is
the police is

(20a) *la policía y* — art N conj
the police and
the police and

el:M/SG
*la** *ladrón* *están junto(s)* — art N v adv
the:F/SG theif:M/SG are together
the theif are together.

*The article and noun do not agree in gender.

Farmer

(21) *Cómo se llama* — qwh rfl V
How REFL (it) calls
How does one call it?

(22) *Chuta que me dio* — exclm subconj cli V
Shoot that me (it) gave
Shoot, it (the stroke) hit me

pero [fuerte] — conj [adv]
but
really [hard].

Examiner: *¿Le ayudo un poco?*
Can I help you a little bit?

(23) *Ya* — adv
Ok
Ok.

Examiner: *¿Sembrar?*
To sow?

(24) *Sembrar* — Vinf
To sow
To sow.

(24a) *El lolo está sembrando* — art N aux+V
The boy is sowing
The boy is sowing.

(25) *El mismo* art N
The same
The same one

el:M/SG
(25a) *la* mismo está allá* art N v adv
the:F/SG same:M/SG is there
the same one is over there.

*The article and noun do not agree in gender.

el:M/SG está:3/SG
(26) *La* mismo están* sembrando* art N aux+V
The:F/SG same one:3/M/SG are:3/PL sowing
The same one are sowing.

*The article *la* and the noun *mismo* do not agree in gender. Moroever, the subject *el mismo* and the verb *están* do not agree in number. There is only one person in the picture so the verb should be singular.

(27) *Y el maíz está* conj art N v
And the corn is
And the corn is

(27a) *ya está listo/* adv v adj
already is ready
is already ready.

está:3/SG
(28) *Y el choclo están** conj art N v
And the corn:3/SG are:3/PL
And the corn are

*The noun *choclo* and verb *están* do not agree in number. Self-corrected below.

(28a) *está* v
is:3/SG
is

(28b) *su choclo está listo para comer* det N v adj prep Vinf
his corn is ready to eat
his corn is ready to eat.

(29) *Y el lolo* conj art N
And the boy
And the boy

(29a) *el lolo está [en] el camión* — art N v [prep] art N
the boy is the truck
the boy is [in] the truck.

(30) *Todo(s) lo(s) choclo(s)* — adj art N
All the corn
All of the corn

están listo(s) ya 'poh' (pues) — v adj adv fill
are ready already then
are already ready then.

Accident

(31) *Eso es muy [terrible]* * — dem v adv [adj]
This is very
This is very [terrible].

*It is difficult to determine which adjective the speaker intends to use and it is possible that he left the sentence unfinished due to the seriousness of the topic.

estaba:1/PAST
(32) *El 21 de mayo estoy** — art num prep N aux
The 21 of May (I) am:1/PRES
The 21st of May I am

*The auxiliary should be in past tense. Self-corrected below.

(32a) *estaba trabajando* — aux+V
(I) was working
I was working.

estaba:1/PAST
(33) *Ya estoy** *en el [taller]* — adv v prep art [N]
Already (I) am:1/PRES in the
I am already in the [shop].

*Auxiliary should be in past tense. Self corrected below.

estaba:1/PAST
(33a) *estoy*/ estaba trabajando* — aux aux+V
(I) am:1/PRES (I) was:1/PAST working
I am, I was working

en el [taller] — prep art [N]
in the
in the [shop].

*Auxiliary should be in past tense. Self-corrected.

(34) *Estaba [de] noche* — v [prep] N
It was night
It was night [out]

estaba:3/PAST
(35) *Estaba* *estoy** — v v
(It) was:3/PAST (I) am:1/PRES
It was, I am

de
*el** *noche* *más o menos* — art N adv conj adv
the:M/SG night:F/SG more or less
night more or less.

*There are a number of errors in (35). First of all, the noun *noche* and 1/PRES form of the verb *estar* do not agree in person and the verb should be in the past tense. Not only does the article *el* not agree in gender with the noun *noche*, it should not be used here. Instead the preposition *de* should occur in place of the article.

(36) *Se acuerda uste[d]** — rfl V pro
REFL remember you
Do you remember?

*Patient adresses speech pathologist

(37) *Ahí* — adv
From there
And so,

(37a) *cómo se llama ese* — qwh rfl V dem
How calls this
How does one call this?

(38) *Estaba trabajando* — aux+V
(I) was working
I was working.

(39) *Era noche 'poh' (pues)* — v N fill
(It) was night then
It was night.

(40) *Y me dio/* conj cli V
And me (it) gave
And I had,

cómo se llama/ qwh rfl V
how REFL (it) calls
how does one call it?

un vahído/ art N
a fainting spell
a fainting spell.

me
(41) */??/ se dio un vahído o otra cosa* cli V art N conj det N
gave a faint or something else
One could faint or something else

no me acuerdo/ neg rfl V
No me (I) remember
I don't remember.

(42) *Y me dio quack*/* conj cli V exclm
And me (it) gave quack
And I went quack!

**Quack* is a noise the patient used as he moved his hand past his neck.

(43) *Todo/* quant
Everything
Everything.

(44) *Y/ bueno ya/ lo veinte-uno/ veinte-do(s)/* conj fill fill art num num
And, well then the 21 22
And, well, the 21st, 22nd

veinte-tre(s)/ veinte-cuatro/ veinte-cinco/ num num num
23 24 25
23rd, 24th, 25th,

veinte-sei(s)/ veinte-siete/ veinte-ocho/ treinta/ num num num num
26 27 28 30
26th, 27th, 28th, 30th,

(44a) *hasta el 6 de ju(nio)/* prep art num prep N
until the 6 of June
until the sixth of June,

hasta justamente ayer / — prep adv N
until precisely yesterday
until precisely yesterday,

no/ anteayer/ hace 2 año(s) atrás — neg N V num N adv
no yesterday (it) makes 2 years ago
no, yesterday, two years ago

me dio [un] infarto — cli V [art] N
me (it) gave stroke
I had [a] stroke.

(45) *Me dio infarto cerebral* — cli V N adj
Me (it) gave stroke cerebral
I had a cerebral stroke.

(46) *Y allí estoy yo/* — conj adv v pro
And here am I
And here I am.

(47) *Pero tengo que hablarle** — conj aux+comp+Vinf+cli
But (I) have that to speak+him
But I have to speak to him

*It is acceptable to use the direct object clitic here in some dialects of Santiago, Chile.

/??/ me dijeron/ — cli V
me (they) said
/??/ they said to me.

(48) *Tengo que hablar poco a poco/* — aux+comp+V adv prep adv
I have that to speak little by little
I have to speak little by little.

(49) *Qué e(s) lo que va a hacer** — qwh v cli comp / aux+prep+V
What is it that (one) goes to do
What can one do?

*It is difficult to determine if all words were present in this question because it was spoken rather quickly. See primary transcriptions.

(50) *Tengo que* — aux+comp+
I have that
I have to,

todo(s) lo(s) día(s) pues (adj art N fill
all the days then
every day then,

todo(s) lo(s) día(s) hablar hablar hablar adj art N) Vinf Vinf Vinf
all the days speak speak speak
everyday speak, speak, speak.

PATIENT JTF: SUPPLEMENTARY LANGUAGE MATERIALS

LRRH: Oral Reading (227 minutes)

1. Erase una vez, una *niña*$_1$ que vivía con su(s) padre(s).
   Erase una vez, una niñita que vivía con sus padres.
   Once upon a time, there was a young girl that lived with her parents.

2. Su madre le había fabricado una capa roja
   Su madre le había fabricado una capa roja
   Her mother had made her a red cape

3. con un capuchón, y por eso, todo(s) le llamaban Caperucita Roja.
   con un capuchón, y por eso, todos le llamaban Caperucita Roja.
   with a red hood and, for this reason, everyone called her Little Red Riding Hood.

4. Un día, su madre le dijo:
   Un día, su madre le dijo:
   One day, her mother told her:

5. "Caperucita, he preparado una canasta con *comidas*$_2$.
   "Caperucita, he preparado una canasta con comida.
   "Little Red Riding Hood, I have prepared a basket with food.

6. Quiero que la lleves a la casa de la abuelita, que está enferma en su cama."
   Quiero que la lleves a la casa de la abuelita, que está enferma en su cama."
   I want you to take it to your grandmother's house because she is sick and in bed.

7. Caperucita tomó la canasta y partió.
   Caperucita tomó la canasta y partió.
   Little Red Riding Hood took the basket and left.

8. Cuando Caperucita caminaba por el bosque repentinamente encontró a un lobo.
   Cuando Caperucita caminaba por el bosque repentinamente encontró a un lobo.
   While Little Red Riding Hood was walking in the forest she ran into a wolf.

9. El lobo paró y_3 *hable-hablarlele*$_4$ a Caperucita,
El lobo paró a hablarle a Caperucita,
The wolf stopped to talk to Little Red Riding Hood

10. y le preguntó a donde iba con toda esa comida.
y le preguntó a donde iba con toda esa comida.
and he asked her where she was going with all of the food.

11. Caperucita dijo que ella iba a visitar a su abuelita,
Caperucita dijo que ella iba a visitar a su abuelita,
Little Red Riding Hood said that she was going to visit her grandmother,

12. quien no se encontraba muy bien de salud, y que ella le llevaba una *cana-canasta*$_5$
quien no se encontraba muy bien de salud, y que ella le llevaba una canasta
who was not feeling very well and that she was taking her a basket

con comida.
con comida.
of food.

13. El lobo preguntó:"Caperucita, ¿$_6$ dónde *viva*$_7$—vive tu abuelita?"
El lobo preguntó:"Caperucita, ¿y dónde vive tu abuelita?"
The wolf asked her: "Little Red Riding Hood, Where does your grandmother live?"

14. y ella le contestó *de*$_8$ su abuelita vive en *su*$_9$ casa
y ella le contestó que su abuelita vive en una casa
and she answered him saying that her grandmother lives in a house

15. en medio del bosque. El lobo le dio la(s) gracia(s) y se fue.
en medio del bosque. El lobo le dio las gracias y se fue.
in the middle of the forest. The wolf thanked her and left.

16. Caperucita */continu/*$_{10}$ caminando *sus*$_{11}$ sin *apuros*$_{12}$,
Caperucita continuó caminando sin apuro,
Little Red Riding Hood continued walking without any hurry,

17. parando para *recogerse*$_{13}$—recoger flores y para comer frutillas.
parando para recoger flores y para comer frutillas.
stopping to pick flowers and eat strawberries.

18. Finalmente, ella llegó a la casa de su abuelita. Caperucita tocó la puerta,
Finalmente, ella llegó a la casa de su abuelita. Caperucita tocó la puerta,
Finally, she arrived to her grandmother's house. Little Red Riding Hood knocked on the door,

19. pero nadie respondió, así es *de*$_{14}$ *aquello*$_{15}$—así es que *aquella*$_{16}$ *entre*$_{17}$ a la casa y
pero nadie respondió, así es que ella entró a la casa y
but nobody answered. So, she entered the house and

encontró
encontró
found

20. a alguien en la cama, que *pensaba*$_{18}$—que pensó era su abuelita,
a alguien en la cama, que pensó era su abuelita,
someone in the bed that she thought was her grandmother

21. y *de*$_{19}$ vestía *al*$_{20}$ camisón y *del*$_{21}$ gorro—*del gorro*$_{22}$ de su abuela
y que vestía el camisón y gorro de su abuela
and that was wearing her grandmother's night shirt and night cap

22. y que las—*y que las*$_{23}$ frazadas le cubrían hasta el cuello.
y que las frazadas le cubrían hasta el cuello.
and that was covered up to the neck by the blankets.

23. Caperucita dijo:"Buenos días abuelita,
Caperucita dijo:"Buenos días abuelita,
Little Red Riding Hood said: "Good Morning grandmother,

24. te he traído una canasta /*comi*/—*con*$_{24}$—con *comidas*$_{25}$." Y el lobo, que estaba
te he traído una canasta con comida." Y el lobo, que estaba
I have brought you a basket with food." The wolf, who was

pre-pretendiendo$_{26}$
pretendiendo
pretending

25. ser la abuelita, le pidió que acercara la canasta hacia la cama.
ser la abuelita, le pidió que acercara la canasta hacia la cama.
to be the grandmother, asked her to bring the basket closer to the bed.

26. Así, Caperucita acercó la canasta hacia la cama
Así, Caperucita acercó la canasta hacia la cama
So, Little Red Riding Hood brought the basket closer to the bed

27. y dijo: "Abuelita, ¡pero qué ojos grandes tienes!" y el lobo contestó:
y dijo: "Abuelita, ¡pero qué ojos grandes tienes!" y el lobo contestó:
and said: "Grandmother, what big eyes you have!" and the wolf answered:

28. "para verte mejor." Entonces, Caperucita dijo:
"para verte mejor." Entonces, Caperucita dijo:
"the better to see you with." Then Little Red Riding Hood said:

29. "Abuelita, ¡pero qué grandes oidos tienes!", y el lobo contestó:
"Abuelita, ¡pero qué grandes oidos tienes!", y el lobo contestó:
"Grandmother, what big ears you have!" and the wolf answered her:

30. "para escucharte mejor." Luego Caperucita dijo:
"para escucharte mejor." Luego Caperucita dijo:
"the better to hear you with." Then Little Red Riding Hood said:

31. "abuelita, ¡pero qué dientes grandes que tienes!" y el lobo saltó
"abuelita, ¡pero qué dientes grandes que tienes!" y el lobo saltó
"Grandmother, what big teeth you have!" and the wolf jumped

32. de la cama diciendo: "¡para comerte mejor!"
de la cama diciendo: "¡para comerte mejor!"
from the bed saying: "the better to eat you with!"

33. Y trató de atrapar y a_{27} comer a Caperucita.
Y trató de atrapar y comer a Caperucita.
and he tried to trap and eat Little Red Riding Hood.

34. Caperucita comenzó a correr desesperadamente llorando y gritando
Caperucita comenzó a correr desesperadamente llorando y gritando
Little Red Riding Hood began to run, crying and screaming

35. por *ayudas*$_{28}$, pero el lobo la alcanzó y se la comió.
por ayuda, pero el lobo la alcanzó y se la comió.
but the wolf caught her and ate her.

36. Un cazador que en ese momento pasaba por—*por*$_{29}$ los alrededores—*alrededores*$_{30}$
Un cazador que en ese momento pasaba por los alrededores
At that very moment, a hunter who was passing by

$_{31}$ que había escuchado los
y que había escuchado los
and who had heard the

37. gritos de Caperucita,
gritos de Caperucita,
screaming of Little Red Riding Hood,

38. entró a la casa y mató al *lobos*$_{32}$.
entró a la casa y mató al lobo.
entered the house and killed the wolf.

39. Luego le abrió la barriga—*la barriga*$_{33}$ al *lobos*$_{34}$ y Caperucita *y su abue*$_{35}$—
Luego le abrió la barriga al lobo y Caperucita
Later, he opened the belly of the wolf and Little Red Riding Hood

y su abuelita
y su abuelita
and her grandmother

40. saltaron sanas y salvas. Y así *viven*$_{36}$ por mucho tiempo,
saltaron sanas y salvas. Y así vivieron por mucho tiempo,
jumped out healthy and safe. And, this is how they lived

41. felices y contentas.
felices y contentas.
happily ever after.

APPENDIX C2

LTL: PRIMARY TRANSCRIPTIONS AND INTERLINEAR MORPHEMIC TRANSCRIPTIONS

List of Symbols and Abbreviations

adv	adverb	pro	personal pronoun
adj	adjectives	cli	clitic pronoun
art	article	dem	demonstrative pronoun
aux	auxiliary	poss	possessive pronoun
comp	complementizer	rel	relative pronoun
conj	coordinating conjunction	quant	quantifier
det	determiners	qwh	wh-question word
exclm	exclamation	rfl	reflexive
fill	filler	subconj	subordinating conjunction
N	noun	v	have/be main verb
neg	negative	V	lexical verb
num	number	Vinf	infinitive
prep	preposition		

PAST	past tense	[ ]	omission
PL	plural	/??/	uninterpretable string
PRES	present tense	(...)	pause of 2 seconds or more
SG	singular	(.)	pause of less than 2 seconds

Interlinear Morphemic Transcriptions

Line 1: Corrected or expected forms
Line 2: Morphemes produced by subject (italics)
Line 3: Morphemic translation with grammatical labels abbreviated
Line 4: English equivalent of Line 2

Supplementary Language Materials: LRRH Reading Task

Line 1: Reading produced by subject
Line 2: Reading task
Line 3: English equivalent of Line 2 (italics)

Subscripts: Reading errors

PATIENT LTL: PRIMARY TRANSCRIPTIONS

Cookie Theft (128 seconds, 101 words)

Patient: Ya...eh...la madre está limpiando...la madre está limpiando un plato. El . agua...el agua estaba cayendo. /Es/-/eská/ cayendo . un charco. El a la madre...la madre . está eh...la madre estaba eh...la madre (whispers)...no se dado cuenta . un charco. La niña...la niña...quiere galleta. El niño . va . consegirle la galleta pero no se ha dado cuenta que niño...trata...el niño eh...eh trata eh....s-se dado cuenta que...el niño...el niño estaba en...eh el niño eh.../bal/-/baliansar/-/be/-/a/-/bialansarse/. El niño . coge la galleta en un costado. El niño...pasa la galleta a la niña.

Thief (101 seconds, 27 words)

Patient: Ya . eh...ladrón...ladrón...ladrón...ah eh ladrón eh...ladrón.../esku/ eh ladrón en-entra...entra. Después, eh ladrón...ladrón...ladrón eh...ladrón se mete . en la casa. Ladrón roba...roba...roba...cajone(s) cómoda y ladrón... ladrón eh...ladrón eh . no ladrón el—la policía . sorprende ladrón . de saliendo la casa.

Farmer (67 seconds, 39 words)

Patient: El...choclo (whispers).../l/ eh...el asendado.../se/—la semilla. D-despué(s) eh . la /ensendado/ ve . que . la . /froece/-/frorecen/ las /vemilla(s)/. Aquí están eh . la(s) semilla(s) y...bastapájaro(s). Despué(s) ...la—el choclo...y . a el asendado eh.../eh/ asendado eh...choclo...y /lasendado/ va . ir . a la ciudad.../u/ busca choclo.

Accident (135 seconds, 107 words)

Patient: Eh sí . El...yo eh . cuando...yo estaba en . mi casa . entonce(s) eh . perdí el habla. Despué(s) eh . baño en mi casa entonces eh...eh . [verespe]??? por el teléfono. Así que no no se puede.

Examiner: ¿Ud. estaba solo?

Patient: Mi otro hijo está durmiendo . entonce(s) . eh no se puede. El....mi hijo mío eh eh....me eh...a ver eh me dijo eh estaba eh...una hora. Entonce(s) yo...yo eh . eh...ambulancia me fui—me fui...la ambulancia . a ver en ...do(s) hora(s).

Examiner: ¿Ud. estaba en la casa dos horas antes de que llegó la ambulancia?

Patient: Claro. Sí.

Examiner: Y después, ¿cuánto tiempo tenía que quedar en el hospital?

Patient: Cinco día(s) pero despué(s) eh...yo eh...una...do-do(s) semana(s) despué(s) ya eh tuve eh ¿cómo se llama esto?...esto ehm.../si/-/si/-silla rueda(s) . vení eh viene para acá...así sin (ha)cer terapia. Después eh . la Paula . fonoaudiólogo . la terapeuta. Así que . ahí eh tuve uno do(s) tre(s) mese(s)...sin andar.

Little Red Riding Hood (117 seconds, 75 words)

Patient: /Perucita/ Roja. /Perucita/ Roja...eh.../ab/—la abuelita . /Perucita/ . /Perucita/ Roja.../an/-/a/-anduvo...por el—el pueblo...eh el pueblo . y . el lobo feroz...se comió a la abuelita. Entonce(s) eh /per/ Caperucita /vluelve/—/vuevle/ a la casa...y...y...se . no se ha dado cuenta la—la /Carucita/. Entonce(s) el lobo...le dice...eh—Caperucita le dice, Con quién—con quién eh está en...los ojo(s)—los ojo(s)...eh...los ojos eh...Para comerte mejor. Para ver mejor . y . /calerucita/...llega eh...el lobo...el lobo el...el lobo eh Caperucita . lobo...va /me/-matar /larucita/ pero un /lob/ eh—leñador . boom!

PATIENT LTL: INTERLINEAR MORPHEMIC TRANSCRIPTIONS

Cookie Theft

(1) *La madre está limpiando un plato* art N aux+V art N
The mother is cleaning a plate
The mother is cleaning a plate.

está:PRES
(2) *El agua estaba* cayendo* art N aux+V
The water is:PAST falling
The water is falling.

*Switches tense to past.

(3) *Está cayendo [en] un charco* aux+V [prep] art N
(It) is falling a puddle
It is falling [into] a puddle.

(4) *A* la madre* — prep art N
To the mother
To the mother

*The preposition should be absent. Self-corrects below.

(4a) *la madre está* — art N aux
the mother is
the mother is

está:PRES
(4b) *la madre estaba* [lavando] [losa]* — art N aux+[V] [N]
the mother was:PAST
the mother was [washing] [the] [dishes].

*Switches tense to past.

(5) *La madre no se [ha] dado cuenta* — art N neg rfl [aux]+V+N
The mother no given notice
The mother [has] not noticed

del
un charco* — art N
a puddle
a puddle.

*Definite article needed since reference to *charco* has already been made. The preposition *de* must occur after *dar cuenta* and must be combined with the definite article *el* to form the preposition + article *del*.

(6) *La niña quiere galleta** — art N V N
The girl wants cookies
The girl wants cookies.

*The noun (*galleta*) can act as a mass noun in Chilean Spanish. The article is not necessary.

(7) *El niño va [a] consegirle* — art N aux+[prep]+Vinf+cli
The boy goes get+her
The boy goes [to] get her

la galleta — art N
the cookie
the cookie

pero [la] [mamá] — conj [art] [N]
but
but [the] [mother]

no se ha dado cuenta — neg rfl aux+V+N
no has given notice
hasn't noticed

*que [el] niño trata** — subconj [art] N V
that boy tries
that [the] boy tries

*Due to prosody and the lack of a pause between the subordinate conjunction *que* and the noun *niño* that follows it in (7), it appears that the patient is attempting to form a subordinate clause. The subject of *no se ha dado cuenta* is unclear; however, since *la madre* is the subject of this predicate in (5), it appears that *la madre* is the intended subject. The only other possibility for subject would be *el niño*, which would make the meaning of the sentence unclear.

(7a) *el niño trata [de] [sacar] [las][galletas]* — art N V [prep] [V] [art] [N]
the boy tries
the boy tries [to] [get] [the] [cookies].

(8) *[No] se [ha] dado cuenta* que* — [neg] rfl [aux]+V+N subconj
given notice that
[She has][not] noticed that

está:PRES
*el niño estaba** *en [un] [piso]* — art N v prep [art] [N]
the boy was:PAST on
the boy was on [a] [stool].

*Switches to past tense. Due to prosody and the lack of a pause between the subordinate conjunction *que* and the NP *el niño* that follows it in (8), it appears that the patient is attempting to form a subordinate clause. The subject of *[no] se [ha] dado cuenta* is unclear; however, since *la madre* is the subject of this predicate in (5), it appears that *la madre* is the intended subject. The only other possibility for subject would be *el niño*, which would make the meaning of the sentence unclear.

se balansea:3/SG
(9) *El niño balansearse** — N Vinf+rfl
The boy to balance:INF
The boy to balance himself.

*Verb lacks tense and agreement.

(10) *El niño coge la galleta* — art N V art N
The boy picks up the cookie
The boy picks up the cookie

en un costado [de][la][cocina] — prep art N [prep] [art] [N]
in a side
on one side [of] [the] [kitchen].

(11) *El niño pasa la galleta a la niña* — art N V art N prep art N
The boy passes the cookie to the girl
The boy passes the cookie to the girl.

Thief

(12) *[El] ladrón entra* — [art] N V
theif enters
[The] theif enters.

(13) *Después* — adv
Afterwards
Afterwards,

[el] ladrón se mete en la casa — [art] N rfl V prep art N
theif gets into the house
[the] theif gets into the house.

(14) *[El] ladrón roba* — [art] N V
theif steals
[The] theif steals

[de] [los] cajone(s) [de] [la] cómoda — [prep] [art] N [prep] [art] N
drawers dresser
[from] [the] drawers [of] [the] dresser

y [el] ladrón — conj [art] N
and theif
and [the] theif,

(14a) *no [el] ladrón* — neg [art] N
not theif
not [the] theif,

(14b) *la policía sorprende [al] ladrón* — art N V [prep+art] N
the police surprises theif
the police surprises [to] [the] theif

*de** *saliendo [de] la casa* prep V [prep] art N
from leaving the house
from leaving [from] the house.

*Preposition should occur after the verb "*salir*" and not before it.

Farmer

(15) *El choclo...* art N
The corn
The corn...

(16) *El asendado...* art N
The farmer
The farmer...

(17) *La semilla...* art N
The seed
The seed...

(18) *Despué(s)* adv
Next
Next,

el
*la** *asendado* *ve* art N V
the:F/SG farmer:M/SG sees
the farmer sees

*Wrong agreement between article and noun.

*que la** *florecen las semilla(s)* subconj art V art N
that they grow the seeds
that seeds the grow.

*It is unclear if *la* is a definite article or a direct object clitic.

espantapájaros
(19) *Aquí están la(s) semilla(s) y [un] bastapájaro(s)** adv v art N conj [art] N
Here are the seeds and stopbirds
Here are the seeds and stopbirds.

*Correct word is *espantapájaros* (scarebirds) not *bastapájaros* (stopbirds).

(20) *Despué(s)/* adv
Afterwards
Afterwards,

(20a) *el choclo y el asendado.../* art N conj art N
the corn and to the farmer
the corn and to the farmer...

(20b) *y el asendado** conj art N
and the farmer
and the farmer

va [a] ir a la ciudad aux+[prep]+Vinf prep art N
is going go to the city
is going [to] go to the city

* Although it is clear that the feminine article was used in (18), it is not so clear whether the patient said "*el asendado*" or "*la asendado*" in (20a) and (20d). In these last two cases, LTL is given the benefit of the doubt and the articles are transcribed as being correctly produced.

/??/ busca choclo/* V N
(he) looks for corn
/??/ he looks for corn.

*/??/ indicates that there was an uninterpretable string which makes the intended meaning of (20d) unclear.

Accident

(21) *Cuando* subconj
When
When

yo estaba en mi casa/ pro v prep det N
I was in my house
I was in my house,

entonce(s)/ fill
then
then,

perdí el habla/ V art N
(I) lost the speech
I lost my speech.

(22) *Despué(s)/* adv
Afterwards
Afterwards.

Me estaba:1/PAST bañando
(23) *Baño** *en mi casa/* V prep det N
(I) bathe:1/PRES in my house
I bathe in my house,

*It is unclear whether *baño* is a verb or a noun. If *baño* is a verb, it should be in the past tense. If *baño* is a noun, it lacks an article and the sentence is incomplete.

entonces/ fill
then
then,

/??/ [me levanté] por el telefono/* [V] prep art N
for the telephone
/??/ [I got up] for the telephone.

*It is unclear what verb the patient intended to use. From the rest of his account of what happened, it seems as if he tried to "get up" or "get to the phone" and could not.

podía:3/PAST
(24) *Así que/ no se* *puede*/* fill neg rfl V
So that no can:3/PRES
And, it wasn't possible.

*Verb should be in the past tense.

Examiner: *¿Ud. estaba solo?*
Were you alone?

estaba:PAST
(25) *Mi otro hijo está** *durmiendo/* det adj N aux+V
My other child is:PRES sleeping
My other child is sleeping,

*Auxiliary should be in the past tense.

podía:Past
entonce(s)/ no se puede/* fill neg rfl V
so no can:PRES
so, it wasn't possible.

*Because (23) had an uninterpretable string, it is not clear what exactly the patient was unable to do. Wrong tense on verb.

(26) *Mi hijo mío* det N adj
My child mine
My child of mine

a ver/ me dijo [que] estaba una hora fill cli V [subconj] v num N
lets see, me he told (I) was there one hour
lets see, he told me [that] I was there one hour.

(27) *Entonce(s) yo* fill pro
So I
So, I

(27a) *[en] [la] ambulancia me fui** [prep] [art] N rfl V
ambulance me (I) went
I went [in] [the] ambulance

*Word order strange. Self-corrected below.

(27b) *me fui [en] la ambulancia* rfl V [prep] art N
me (I) went the ambulance
I went [in] the ambulance

a ver/ en do(s) hora(s)/ fill prep num N
let's see in two hours
let's see, in two hours.

Examiner: *¿Ud. estaba en su casa por dos horas antes de que llegó la ambulancia?*
You were in your house for two hours before the ambulance came?

(28) *Claro. Sí.* adv adv
Yes. Yes
Yes. Yes.

Examiner: *Y después, ¿cuánto tiempo Ud. tenía que quedarse en el hospital?*
And afterwards, how long did you have to stay in the hospital?

(29) *Cinco día(s) pero después yo* num N conj adv pro
Five days but afterwards I
Five days but afterwards I

(29a) *do(s) semana(s) despué(s) ya tuve* num N adv adv v
two weeks later already (I) had
two weeks later I already had,

(29b) *cómo se llama esto* qwh rfl V dem
how calls this
how does one call this?

(29c) *[una] silla [de] rueda(s)* [art] N [prep] N
chair wheels
[a] chair [of] wheels (wheel chair).

Vine:1/SG/PAST
(30) *Vení** V
(I) came:over-regularized
I came

*LTL over-regularized the past tense form of *venir*.

Vine:1/SG/PAST
(30a) *viene** *para acá* V prep adv
(he) comes:3/SG/PRES for here like that
he comes here like that

*The verb should be in the past tense and does not agree with the subject (first person singular).

así sin hacer terapia adv prep Vinf N
like that without to do therapy
like that without doing therapy.

(31) *Después [estuve] [con] la Paula* adv [v] [prep] art N
Afterwards the Paula
Afterwards [I] [was] [with] Paula,

la fonoaudiólogo/ la terapeuta art N art N
the speechpathologist the therapist
the speechpathologist, the therapist.

(32) *Así que ahí tuve uno do(s) tre(s) mese(s)* fill adv v num num num N
So, from there (I) had one two three months
So, from there I spent one, two, three months

sin andar/ prep V
without to walk
without walking.

(33) *Caperucita Roja.../* N
LRRH
LRRH...

(34) *La abuelita.../* art N
The grandmother
The grandmother...

(35) *Caperucita Roja anduvo por el pueblo* N V prep art N
LRRH walked by the village
LRRH walked in the village

y el lobo feroz se comió conj art N adj rfl V
and the wolf ferocious REFL ate
and the ferocious wolf ate

a la abuelita/ prep art N
to the grandmother
the grandmother.

(36) *Entonce(s)/ Caperucita vuelve a la casa* fill N V prep art N
So LRRH returns to the house
So, LRRH returns home

y se conj rfl
and
and

(36a) *no se ha dado cuenta* neg rfl aux+V+N
no has given notice
LRRH has

la Caperucita/ art N
the LRRH
not noticed.

(37) *Entonce(s)/ el lobo le dice.../* fill art N cli V
So the wolf her says
So, the wolf says to her...

(37a) *Caperucita le dice/* N cli V
LRRH him says
LRRH says to him,

"Con quién está en	prep qwh v prep
With whom are in	
"With whom are in	
los ojo(s)"/*	art N
the eyes	
the eyes?"	

*It is unclear what the intended meaning of this question was. It appers that the patient is referring to the part of the story where LRRH says *"Porqué tienes esos ojos tan grandes?"*

(38)	*Para comerte mejor/*	prep Vinf+cli adv
	To eat+you better	
	To eat you better with.	
(39)	*Para ver mejor/*	prep Vinf adv
	To see better	
	To see better with.	
(40)	*Y Capurecita llega.../*	conj N V
	And LRRH begins	
	And LRRH begins...	
(40a)	*[el] lobo va [a] matar*	[art] N aux+[prep]+Vinf
	wolf goes kill	
	[the] wolf is going [to] kill	
	[a] Caperucita	[prep] N
	LRRH	
	[to] LRRH	
	pero un leñador/ boom/*	conj art N exclm
	but a wood-cutter boom	
	but a wood-cutter, boom!	

*Unable to find verb. Uses *boom* to describe shooting.

PATIENT LTL: SUPPLEMENTARY LANGUAGE MATERIALS

LRRH: Oral Reading (441 seconds)

1. Erase una vez, una *niña*$_1$ que *[e]*$_2$ vivía con su(s) padre(s).
   Erase una vez, una niñita que vivía con sus padres.
   Once upon a time, there was a young girl that lived with her parents.

2. Su—su madre $_3$ había */sfrabicado/*$_4$ una capa roja
   Su madre le había fabricado una capa roja
   Her mother had made her a red cape

3. *que*$_5$ un capuchón, y por eso, $_6$ *la*$_7$ llamaban Caperucita Roja.
   con un capuchón, y por eso, todos le llamaban Caperucita Roja.
   with a red hood and, for this reason, everyone called her Little Red Riding Hood.

4. Un día, su madre le dijo:
   Un día, su madre le dijo:
   One day, her mother told her:

5. "/Carp/-/Carperucita/, *[hoi]*$_8$ preparado una canasta con comida.
   "Caperucita, he preparado una canasta con comida.
   "Little Red Riding Hood, I have prepared a basket with food.

6. Queiro que—Quiero que *me*$_9$ la lleve(s) a la casa de *tu*$_{10}$ *abuela*$_{11}$ *pero*$_{12}$ que está
   Quiero que la lleves a la casa de la abuelita, que está
   I want you to take it to your grandmother's house because she is

   enferma $_{13}$"
   enferma en su cama."
   sick and in bed.

7. *La*$_{14}$ */Capu/-Claperucita/*$_{15}$ tomó la canasta y partió.
   Caperucita tomó la canasta y partió.
   Little Red Riding Hood took the basket and left.

8. Cuando la Caperucita Roja—Cuando Caperucita caminaba por el bosque
   Cuando Caperucita caminaba por el bosque
   While Little Red Riding Hood was walking in the forest

   repentinamente *se*$_{16}$ encontró $_{17}$ un lobo.
   repentinamente encontró a un lobo.
   she ran into a wolf.

9. El lobo *se*$_{18}$ paró *y*$_{19}$ *para*$_{20}$ *preguntarle*$_{21\ 22}$ Caperucita,
   El lobo paró a hablarle a Caperucita,
   The wolf stopped to talk to Little Red Riding Hood

10. y le *dijo*$_{23}$ *que*$_{24}$ /*hora*/$_{25}$ iba a comer—iba *a*$_{26}$ toda esa comida.
y le preguntó a donde iba con toda esa comida.
and he asked her where she was going with all of the food.

11. *La*$_{27}$ Caperucita dijo que ella iba a visitar a su abuelita,
Caperucita dijo que ella iba a visitar a su abuelita,
Little Red Riding Hood said that she was going to visit her grandmother,

12. quien no se encontraba muy bien /se/$_{28}$ /lalud/$_{29, 30}$ que ella le *dijo a—le dijo—le*$_{31}$
quien no se encontraba muy bien de salud, y que ella le
who was not feeling very well and that she

llevara$_{32}$ una canasta con *la*$_{33}$ comida.
llevaba una canasta con comida.
was taking her a basket of food.

13. El lobo preguntó:"Caperucita, ¿$_{34}$ dónde vive *su*$_{35}$ abuelita?"
El lobo preguntó:"Caperucita, ¿y dónde vive tu abuelita?"
The wolf asked her: "Little Red Riding Hood, Where does your grandmother live?"

14. y ella le contestó que su abuelita vive en una casa
y ella le contestó que su abuelita vive en una casa
and she answered him saying that her grandmother lives in a house

15. $_{36}$ /me/-medio del bosque. *La Caperucita*—el lobo le dio la(s) gracia(s) y se fue.
en medio del bosque. El lobo le dio las gracias y se fue.
in the middle of the forest. The wolf thanked her and left.

16. *La*$_{37}$ Caperucita /*continu*/$_{38}$ caminando sin apuro,
Caperucita continuó caminando sin apuro,
Little Red Riding Hood continued walking without any hurry,

17. parando $_{39}$ *recojerse*$_{40}$ flore(s) $_{41}$ para *comer*—comer frutilla(s).
parando para recojer flores y para comer frutillas.
stopping to pick flowers and eat strawberries.

18. Finalmente, /e/-ella llegó *hasta*$_{42}$ la casa de su abuelita. Caperucita tocó *en*$_{43}$ la puerta,
Finalmente, ella llegó a la casa de su abuelita. Caperucita tocó la puerta,
Finally, she arrived to her grandmother's house. Little Red Riding Hood knocked on the door,

19. *y*$_{44}$ nadie respondió, asi que—así *que*$_{45}$ es que ella entró a *[bus]*$_{46}$ casa y encontró
pero nadie respondió, así es que ella entró a la casa y encontró
but nobody answered. So, she entered the house and found

20. *en*$_{47}$ alguien en la cama, $_{48}$ pensó *que*$_{49}$ era su abuelita,
a alguien en la cama, que pensó era su abuelita,
someone in the bed that she thought was her grandmother

21. y que *vestida*$_{50}$ *[e]*$_{51}$ camisón y gorro de su *abuelita*$_{52}$
y que vestía el camisón y gorro de su abuela
and that was wearing her grandmother's night shirt and night cap

22. y que la(s) frazada(s) le /cu/-cubrían hasta el cuello.
y que las frazadas le cubrían hasta el cuello.
and that was covered up to the neck by the blankets.

23. *La*$_{53}$ Caperucita $_{54}$ "Bueno(s) día(s)—Bueno(s) día(s) abuelita,
Caperucita dijo: "Buenos días abuelita,
Little Red Riding Hood said: "Good Morning grandmother,

24. *yo*$_{55}$ he traído una canasta con comida." Y el lobo, que estaba */prendiendo/*$_{56}$
te he traído una canasta con comida." Y el lobo, que estaba pretendiendo
I have brought you a basket with food." The wolf, who was pretending

25. ser $_{57}$ abuelita, le pidió que acercara la canasta hacia la cama.
ser la abuelita, le pidió que acercara la canasta hacia la cama.
to be the grandmother, asked her to bring the basket closer to the bed.

26. Así, *el lobo*$_{58}$ *se*$_{59}$ acercó la canasta *[iesa]*$_{60\,61}$ cama
Así, Caperucita acercó la canasta hacia la cama
So, Little Red Riding Hood brought the basket closer to the bed

27. y dijo: "Abuelita, ¡pero qué *grandes ojos*$_{62}$ *tienen*$_{63}$!"y el lobo *le*$_{64}$ contestó:
y dijo: "Abuelita, ¡pero qué ojos grandes tienes!" y el lobo contestó:
and said: "Grandmother, what big eyes you have!" and the wolf answered:

28. "para verte mejor." Entonce(s), *él dijo a Caperucita*$_{65}$:
"para verte mejor." Entonces, Caperucita dijo:
"the better to see you with." Then Little Red Riding Hood said:

29. "Abuelita, ¡pero qué grandes oido(s) *tienen*$_{66}$!", y el lobo *le*$_{67}$ contestó:
"Abuelita, ¡pero qué grandes oidos tienes!", y el lobo contestó:
"Grandmother, what big ears you have!" and the wolf answered her:

30. "para escucharte mejor." Luego *la*$_{68}$ Caperucita dijo:
"para escucharte mejor." Luego Caperucita dijo:
"the better to hear you with." Then Little Red Riding Hood said:

31. "abuelita, ¡pero qué dientes *tran* $_{69}$ grandes *tienen*$_{70}$!" y el lobo saltó—saltó
"abuelita, ¡pero qué dientes grandes tienes!" y el lobo saltó
"Grandmother, what big teeth you have!" and the wolf jumped

32. *en*$_{71}$ la cama diciendo: "¡para comerte mejor!"
de la cama diciendo: "¡para comerte mejor!"
from the bed saying: "the better to eat you with!"

33. y trató se-[seaparar]—trató se—se$_{72}$ a atrapar y comer*te*$_{73}$ la [bue]—a la [per]—a *la*$_{74}$
y trató de atrapar y comer a
and he tried to trap and eat

Caperucita.
Caperucita.
Little Red Riding Hood.

34. *La*$_{75}$ Caperucita *combenzó* $_{76}$ a correr desesperadamente llo-llorando y gritando
Caperucita comenzó a correr desesperadamente llorando y gritando
Little Red Riding Hood began to run, crying and screaming

35. *con*$_{77}$ ayuda, pero el lobo la alcanzó y se /ka/—se la comió.
por ayuda, pero el lobo la alcanzó y se la comió.
for help, but the wolf caught her and ate her.

36. Un cazador que en *eso(s)*$_{78}$ *momento(s)*$_{79}$ pasaba—pasaba por los alrededore(s)
Un cazador que en ese momento pasaba por los alrededores
At that very moment, a hunter who was passing by

y que *haí* $_{80}$ escuchado lo(s)
y que había escuchado los
and who had heard the

37. grito(s) $_{81}$ *la*$_{82}$ Caperucita,
gritos de Caperucita,
screaming of Little Red Riding Hood,

38. /enve/—entró a *lu* $_{83}$ casa y mató al lobo.
entró a la casa y mató al lobo.
entered the house and killed the wolf.

39. *La /Care/—la caperucita para la Caperu eh*$_{84}$ Leugo le abrió la-la barriga
Luego le abrió la barriga
Later, he opened the belly

y$_{85}$ el$_{86}$ lobo $_{87}$ Caperucita y su abuelita
al lobo y Caperucita y su abuelita
of the wolf and Little Red Riding Hood

40. saltaron sana(s) y salva(s).[88] así vivieron por mucho tiempo,
saltaron sanas y salvas. Y así vivieron por mucho tiempo,
and her grandmother

41. */velice(s)/*[89] y *contento(s)*[90].
felices y contentas.
happily ever after.

APPENDIX C3

DVT: PRIMARY TRANSCRIPTIONS AND INTERLINEAR MORPHEMIC TRANSCRIPTIONS

List of Symbols and Abbreviations

adv	adverb	pro	personal pronoun
adj	adjectives	cli	clitic pronoun
art	article	dem	demonstrative pronoun
aux	auxiliary	poss	possessive pronoun
comp	complementizer	rel	relative pronoun
conj	coordinating conjunction	quant	quantifier
det	determiners	qwh	wh-question word
exclm	exclamation	rfl	reflexive
fill	filler	subconj	subordinating conjunction
N	noun	v	have/be main verb
neg	negative	V	lexical verb
num	number	Vinf	infinitive
prep	preposition		

PAST	past tense	[ ]	omission
PL	plural	/??/	uninterpretable string
PRES	present tense	(...)	pause of 2 seconds or more
SG	singular	(.)	pause of less than 2 seconds

Interlinear Morphemic Transcriptions

Line 1: Corrected or expected forms
Line 2: Morphemes produced by subject (italics)
Line 3: Morphemic translation with grammatical labels abbreviated
Line 4: English equivalent of Line 2

Supplementary Language Materials: LRRH Reading Task

Line 1: Reading produced by subject
Line 2: Reading task
Line 3: English equivalent of Line 2 (italics)

Subscripts: Reading errors

CONTROL DVT: PRIMARY TRANSCRIPTIONS

Cookie Theft (21 seconds, 35 words)

Control: Ehm . está la mama eh lavando la ehm—la losa. El agua escurre del—del lavaplato(s). Está mirando ahí (*referring to where the mother is looking*). El hom—niño está sacando una galleta sobre . un piso que se cae . con una—con la hermana. Esa es la escena.

Thief (29 seconds, 44 words)

Control: Ehm . una persona—un sujeto abre una ventana. Sube a la ventana ah . ingresando al interior. Está sacando de unos closet, de un mueble unos artículo(s), echando en una bolsa y acá, supuestamente, viene saliendo . por la misma ventana y está siendo sorprendido por un policia.

Farmer (32 seconds, 60 words)

Control: Ya . eh acá hay un—una persona que está, digamos, sembrando. Luego, supuestamente, la misma persona observa la plantación. Hay un espantapájaro(s) ahí. Están chica(s) la(s)—todavía la plantación. Acá hay . ya está el mismo personaje con—con un choclo, puntualmente, y con una plantación más grande y acá hay un camión que lleva lleno—a la ciudad va lleno de choclo.

Accident (54 seconds, 104 words)

Control: Cuando niño a los diez año(s) tuve un accidente que me caí a un ehm . la calle donde está el—el ¿cómo se llama esto? El...donde bajan hacia el alcantarillado.

Examiner: Ah sí donde se saca el....

Control: Sí se saca ese tubo de...Y en ese eh habían pavimentado la calle donde yo vivía. Tenía diez año(s)—nueve o diez año(s) y allí eh . de noche no dejaron precaución y jugaba con un amigo y caí. Lo cual me—me—me—partí acá (*pointing to area of head*) la cabeza y . sangré mucho. Me trajeron a la posta y me—me curaron. Supuestamente, no he tenido

secuela(s), supuestamente. Nunca he notado . pero tuve un golpe fuerte ahí. Ese fue un accidente serio.

CONTROL DVT: INTERLINEAR MORPHEMIC TRANSCRIPTIONS

Cookie Theft

(1)	*Está la mama lavando la losa* Is the mom washing the dishes The mom is washing the dishes.	aux+ (art N) V art N
(2)	*El agua escurre del lavaplato(s)* The water drains from+the sink The water drains from the sink.	art N V prep+art N
(3)	*Está mirando ahí* (She) is looking there She is looking over there.	aux+V adv
(4)	*El niño está sacando una galleta* the boy is taking a cookie the boy is getting a cookie	art N aux+V art N
	sobre un piso que se cae on a stool that falls on a stool that is falling	prep art N comp rfl V
	con la hermana with the sister with his sister.	prep art N
(5)	*Esa es la escena* This is the scene This is the scene.	dem v art N

Thief

(6)	*Una persona un sujeto abre una ventana* A person an individual opens a window A person, an individual opens a window.	art N art N V art N

(7) *Sube a la ventana ingresando al interior/* — V prep art N V prep+art N
Lifts up the window entering towards the inside
Lifts up the window and entering inside.

(8) *Está sacando de unos closest(s)*/* — aux+V prep art N
(He) is taking from some closets
He is taking from some closets,

**Closets* (closets) should be *cajones* (drawers).

de un mueble/ unos artículo(s)/ — prep art N art N
from a piece of furniture some items
from a piece of furniture, some articles,

echando en una bolsa — V prep art N
putting in a bag
putting them in a bag

y acá/ — conj adv
and here
and here,

supuestamente/ viene saliendo — adv aux+V
supposedly (he) comes leaving
supposedly, he is leaving

por la misma ventana — prep art adj N
through the same window
through the same window

y está siendo sorprendido por un policia/ — conj aux+aux+V prep art N
and is being surprised by a policeman.
and is being suprised by a policeman.

Farmer

(9) *Acá hay una persona que está* — adv v art N comp aux+
Here (there) is a person that is
Here there is a person that is,

digamos/ sembrando/ — (V) V
let's say sowing
you could say, sowing.

(10) *Luego/ supuestamente/ la misma persona* — adv adv art adj N
Later supposedly the same person
Later, supposedly, the same person

observa la plantación/ — V art N
observes the plantation
ovserves the plantation.

(11) *Hay un espantapájaro(s) ahí/* — v art N adv
(There) is a scarecrow there
There is a scarecrow there.

(12) *Están chica(s) la(s)* — v adj art
(They) are:3PL little the
They are little the

(12a) *todavía *la plantación/* — adv art N
still the plantation
still the plantation.

*The verb "*están*", the adjective "*chicas*" and the article "*las*" do not agree in number with the noun "*plantación*". It appears that subject had a different noun in mind when making the verb, adjective and article plural.

(13) *Acá hay* — adv v
Here (there) is
Here there is

(13a) *ya está el mismo personaje con un choclo/* — adv v art adj N prep art N
still is the same person with a corn
the same person is still with a piece of corn,

puntualmente/ y con — adv conj prep
precisely and with
precisely, and with

una plantación más grande/ — art N adv adj
a plantation more big
a much bigger plantation,

y acá hay un camión — conj adv v art N
and here is a truck
and here is a truck

que lleva lleno — comp V adj
that carries full
that is carrying full

(13b) *a la ciudad va lleno de choclo* — prep art N V adj prep N
to the city goes full of corn
goes full of corn to the city.

Accident

(14) *Cuando niño a los diez año(s)* — subconj N prep art num N
When child at the 10 years
When I was a 10 year old child,

tuve un accidente que me caí a un... — v art N subconj rfl V prep art
(I) had an accident that (I) fell to a
I had an accident where I fell into a...

(14a) *la calle donde está el...* — art N adv V art
the street where (there) is the
the street where there is the...

(14b) *cómo se llama esto* — qwh rfl V dem
how call this
what do you call it?

(14c) *donde bajan hacia el alcantarillado* — adv V prep art N
where (they) go down towards the sewer
where they go down into the sewer.

Examiner: *Ah sí, donde se saca el ....*
Oh yeah, where take out the....

(15) *Sí se saca ese tubo de...* — adv rfl V det N prep
Yes, take out this tube of
Yes, they take out this tube of...

(15a) *y en ese habían pavimentado la calle* — conj prep dem aux+V art N
and on this (they) had paved the road
and ontop of this they had paved the road

donde yo vivía — adv pro V
where I lived
where I lived.

(16) *Tenía diez año(s)/* — v num N
(I) had 10 years
I was 10 years old,

(16a) *nueve o diez año(s)* — num conj num N
nine or ten years
nine or ten years old

y allí de noche no dejaron precaución — conj adv prep N neg V N
and there at night (they) no left precaution
and there they didn't take precautions

y jugaba con un amigo y caí/ — conj V prep art N conj V
and (I) was playing with a friend and (I) fell
and I was playing with a friend and I fell,

lo cual me partí acá la cabeza — art subconj cli V adv art N
the which me (I) cut here the head
from which I cut my head here

y sangré mucho/ — conj V adv
and (I) bled a lot
and I bled a lot.

(17) *Me trajeron a la posta* — cli V prep art N
Me (they) brought to the clinic
They brought me ot he clinic

y me curaron/ — conj cli V
and me (they) cured
and they cured me.

(18) *Supuestamente/* — adv
Supposedly
Supposedly,

no he tenido secuela(s)/ supuestamente/ — neg aux+v N adv
no (I) have had outcomes supposedly
I haven't had scars, supposedly.

(19) *Nunca he anotado.../* — adv aux+V
Never (I) have noticed
I have never noticed...

(19a) *pero tuve un golpe fuerte ahí/* — conj v art N adj adv
but (I) had a knock strong there
but I had a strong knock there.

(20) *Ese fue un accidente serio* dem v art N adj
This was an accident serious
This was a serious accident.

CONTROL DVT: SUPPLEMENTARY LANGUAGE MATERIALS

Oral Reading (138 seconds)

1. Erase una vez, una niñita que vivía con su(s) padres.
Erase una vez, una niñita que vivía con sus padres.
Once upon a time, there was a young girl that lived with her parents.

2. Su madre le había fabricado *una ˈkaˈ*$_1$ una capa roja
Su madre le había fabricado una capa roja
Her mother had made her a red cape

3. con un capuchón, y por eso, todo(s) le llamaban Caperucita Roja.
con un capuchón, y por eso, todos le llamaban Caperucita Roja.
with a red hood and, for this reason, everyone called her Little Red Riding Hood.

4. Un día, su madre le dijo:
Un día, su madre le dijo:
One day, her mother told her:

5. "Caperucita, he preparado una canasta con comida.
"Caperucita, he preparado una canasta con comida.
"Little Red Riding Hood, I have prepared a basket with food.

6. Quiero que la lleves a la casa de la abuelita, que está enferma en su cama."
Quiero que la lleves a la casa de la abuelita, que está enferma en su cama."
I want you to take it to your grandmother's house because she is sick and in bed.

7. Caperucita tomó la canasta y partió.
Caperucita tomó la canasta y partió.
Little Red Riding Hood took the basket and left.

8. Cuando Caperucita caminaba por el bosque repentinamente encontró a un lobo.
Cuando Caperucita caminaba por el bosque repentinamente encontró a un lobo.
While Little Red Riding Hood was walking in the forest she ran into a wolf.

9. El lobo paró a hablarle a Caperucita,
El lobo paró a hablarle a Caperucita,
The wolf stopped to talk to Little Red Riding Hood

10. Y le preguntó a donde iba con toda esa comida.
Y le preguntó a donde iba con toda esa comida.
and he asked her where she was going with all of the food.

11. Caperucita dijo que ella iba a visitar a su abuelita,
Caperucita dijo que ella iba a visitar a su abuelita,
Little Red Riding Hood said that she was going to visit her grandmother,

12. quien no se encontraba muy bien de salud, y que ella le llevaba una canasta con
quien no se encontraba muy bien de salud, y que ella le llevaba una canasta con
who was not feeling very well and that she was taking her a basket of

comida.
comida.
food.

13. El lobo *le*$_2$ preguntó:"Caperucita, ¿y dónde vive tu abuelita?"
El lobo preguntó:"Caperucita, ¿y dónde vive tu abuelita?"
The wolf asked her: "Little Red Riding Hood, Where does your grandmother live?"

14. y ella le contestó que su abuelita vive en una casa
y ella le contestó que su abuelita vive en una casa
and she answered him saying that her grandmother lives in a house

15. en medio del bosque. El lobo le dio las gracia(s) y se fue.
en medio del bosque. El lobo le dio las gracias y se fue.
in the middle of the forest. The wolf thanked her and left.

16. Caperucita continuó caminando sin apuro,
Caperucita continuó caminando sin apuro,
Little Red Riding Hood continued walking without any hurry,

17. parando para recojer flore(s) y para comer *fruta(s)*$_3$— frutillas.
parando para recojer flores y para comer frutillas.
stopping to pick flowers and eat strawberries.

18. Finalmente, ella llegó a la casa de *la*$_4$ abuelita. Caperucita tocó la puerta,
Finalmente, ella llegó a la casa de su abuelita. Caperucita tocó la puerta,
Finally, she arrived to her grandmother's house. Little Red Riding Hood knocked on the door,

19. pero nadie respondió, así es que ella entró a la casa y encontró
pero nadie respondió, así es que ella entró a la casa y encontró
but nobody answered. So, she entered the house and found

20. a alguien en la cama, que pensó era su abuelita,
a alguien en la cama, que pensó era su abuelita,
someone in the bed that she thought was her grandmother

21. y que vestía el camisón y gorro de su abuela
y que vestía el camisón y gorro de su abuela
and that was wearing her grandmother's night shirt and night cap

22. y que las frazada(s) le cubrían hasta el cuello.
y que las frazadas le cubrían hasta el cuello.
and that was covered up to the neck by the blankets.

23. Caperucita dijo:"Bueno(s) día(s) abuelita,
Caperucita dijo:"Bueno(s) día(s) abuelita,
Little Red Riding Hood said: "Good Morning grandmother,

24. te he traído una canasta con comida." Y el lobo, que estaba pretendiendo
te he traído una canasta con comida." Y el lobo, que estaba pretendiendo
I have brought you a basket with food." The wolf, who was pretending

25. ser la abuelita, le pidió que se acercara la canasta hacia la cama.
ser la abuelita, le pidió que se acercara la canasta hacia la cama.
to be the grandmother, asked her to bring the basket closer to the bed.

26. Así, Caperucita acercó la canasta hacia la cama
Así, Caperucita acercó la canasta hacia la cama
So, Little Red Riding Hood brought the basket closer to the bed

27. y dijo: "Abuelita, ¡pero qué ojo(s) *tan*$_5$ grande(s) tienes!" y el lobo contestó:
y dijo: "Abuelita, ¡pero qué ojos grandes tienes!" y el lobo contestó:
and said: "Grandmother, what big eyes you have!" and the wolf answered:

28. "para verte mejor." Entonce(s), Caperucita dijo:
"para verte mejor." Entonces, Caperucita dijo:
"the better to see you with." Then Little Red Riding Hood said:

29. "Abuelita, ¡pero qué grandes oidos tienes!", y el lobo contestó:
"Abuelita, ¡pero qué grandes oidos tienes!", y el lobo contestó:
"Grandmother, what big ears you have!" and the wolf answered her:

30. "para escucharte mejor." Luego Caperucita dijo:
"para escucharte mejor." Luego Caperucita dijo:
"the better to hear you with." Then Little Red Riding Hood said:

31. "abuelita, ¡pero qué diente(s) *tan*$_6$ grande(s) que tienes!" y el lobo saltó
"abuelita, ¡pero qué dientes grandes que tienes!" y el lobo saltó
"Grandmother, what big teeth you have!" and the wolf jumped

32. de la cama diciendo: "¡para comerte mejor!"
de la cama diciendo: "¡para comerte mejor!"
from the bed saying: "the better to eat you with!"

33. y trató de atrapar y comer a Caperucita.
y trató de atrapar y comer a Caperucita.
and he tried to trap and eat Little Red Riding Hood.

34. Caperucita comenzó a correr desesperadamente llorando y gritando
Caperucita comenzó a correr desesperadamente llorando y gritando
Little Red Riding Hood began to run, crying and screaming

35. por ayuda, pero el lobo la alcanzó y se la comió.
por ayuda, pero el lobo la alcanzó y se la comió.
but the wolf caught her and ate her.

36. Un cazador que en ese momento pasaba por lo(s) alrededore(s) y que había
Un cazador que en ese momento pasaba por los alrededores y que había
At that very moment, a hunter who was passing by and who had

escuchado lo(s)
escuchado los
heard the

37. grito(s) de Caperucita,
gritos de Caperucita,
screaming of Little Red Riding Hood,

38. entró $_7$ la casa y mató al lobo.
entró a la casa y mató al lobo.
entered the house and killed the wolf.

39. Luego le abrió la barriga al lobo y Caperucita y su abuelita
Luego le abrió la barriga al lobo y Caperucita y su abuelita
Later, he opened the belly of the wolf and Little Red Riding Hood and her grandmother

40. saltaron sana(s) y salva(s). Y asi vivieron por mucho tiempo,
saltaron sanas y salvas. Y asi vivieron por mucho tiempo,
jumped out healthy and safe. And, this is how they lived

41. felice(s) y *contento(s)*$_8$.
felices y contentas.
happily ever after.

APPENDIX C4

AYI: PRIMARY TRANSCRIPTIONS AND INTERLINEAR MORPHEMIC TRANSCRIPTIONS

List of Symbols and Abbreviations

adv	adverb	pro	personal pronoun
adj	adjectives	cli	clitic pronoun
art	article	dem	demonstrative pronoun
aux	auxiliary	poss	possessive pronoun
comp	complementizer	rel	relative pronoun
conj	coordinating conjunction	quant	quantifier
det	determiners	qwh	wh-question word
exclm	exclamation	rfl	reflexive
fill	filler	subconj	subordinating conjunction
N	noun	v	have/be main verb
neg	negative	V	lexical verb
num	number	Vinf	infinitive
prep	preposition		

PAST	past tense	[ ]	omission
PL	plural	/??/	uninterpretable string
PRES	present tense	(...)	pause of 2 seconds or more
SG	singular	(.)	pause of less than 2 seconds

Interlinear Morphemic Transcriptions

Line 1: Corrected or expected forms
Line 2: Morphemes produced by subject (italics)
Line 3: Morphemic translation with grammatical labels abbreviated
Line 4: English equivalent of Line 2

Supplementary Language Materials: LRRH Reading Task

Line 1: Reading produced by subject
Line 2: Reading task
Line 3: English equivalent of Line 2 (italics)

Subscripts: Reading errors

CONTROL AYI: PRIMARY TRANSCRIPTIONS

Cookie Theft (69 seconds, 142 words)

Control: Bueno, ésta e(s) una escena en una . cocina, aparentemente...ehm, y hay tre(s) personas. Para ir directamente a la(s)—a la(s) acciones que suceden, ehm . hay una mujer que está secando un plato ehm inmediatamente a lado de un lavatorio que se está inundando en este momento y el agua se derrama por encima del—de este lavatorio o lavaplato(s). Eh hacia atrá(s) de la escena hay do(s) niños que están intentando sacar, aparentemente, una(s) galleta(s) o algo así de un . tarro o /kon/-contenedor ubicado en una alacena en el . que está sobre la pared. Eh el niño está subido sobre un piso, taburete y que está bastante inestable y si sigue así, aparentemente, la situación siguiente es que se va a caer. La niña está ehm . con su brazo izquierdo estirado en una intención aparente de recibir una galleta que le va a dar su supuesto hermano.

Thief (20 seconds, 57 words)

Control: En la interpretación de esto sería una—un personaje—un ladrón que está . eh entrando subrepticiamente por una ventana para eh . robar valores de—que salen. Esas son la(s) do(s) primera(s) escena(s), que está robando valores de un un . ehm mueble, ¿no es cierto? en una casa y al momento de retirarse es sorprendido por la policia que lo . aprehende.

Farmer (38 seconds, 71 words)

Control: Bueno, primera escena o primer cuadro hay un a-agricultor o un campesino que está sembrando. Ehm posteriormente, ehm aparentemente alguno(s) . semana(s) despué(s) está mirando el crecimiento de su cultivo con un—hay un espantapájoro(s) aparentemente en el fondo. Ha pasado más el tiempo en el tercero que ehm . se ve que está ehm . admirando . su cosecha . de maí(z) y finalmente va en una vehículo—una camioneta—un camión a, probablemente, a venderlo en el mercado.

Accident (36 seconds, 64 words)

Control: Hace poco fue el último. Ehm . en el estacionamiento de la—de acá del hospital, en la tarde, que iba saliendo relativamente apurado. Ehm retrocediendo en el auto, eh no advertí un auto que estaba un poco

desfasado de la linea de esta-estacionamiento y le impacté con el mio . relativamente fuerte. Aparte de daño . eh en lo(s) do(s) auto(s), no hubo ningún inconveniente en especial en lo personal.

Little Red Riding Hood (158 seconds, 412 words)

Control: El cuento de la Caperucita es ehm . una niña ehm . pequeña que solía usar un gorro rojo por la cual todo(s) le llamaban Caperucita Roja. Que eh . una tarde la—ah! que tenía una abuelita que vivía al—al otro lado de un bosque. Eh . una tarde una—su mama le dio una cesta con alimento(s) para que se la llevara a su abuelita, recomendándole que no atrevesar el bosque si no que se fuera al-alrededor del mismo porque podría encontrarse a un lobo. Ehm . entiendo que Caperucita . desobedeció a su madre. Travesó por el bosque. Se econtró con el lobo . y—quien le preguntó a donde iba. La Caperucita ehm . le dijo que iba a la casa de la abuelita. El lobo con ésto ehm . salió corriendo primero que la Caperucita para llegar a donde la abuelita. Ehm . entró, se comió a la abuelita . y se acostó con lo(s) vestimeintos de ella en la cama . esperando que llegara la Caperucita. Cuando llegó la niña eh . el lobo fingiendo la—la voz le dijo que pasara. Entonce(s), la Caperucita se acercó y lo miró y lo encontró extraña. Entonce(s), le preguntó, "¿Por qué tiene esos ojos tan grandes?" Entonces, "Estos son para mirarte mejor." "¿Por qué tiene esa(s) oreja(s) tan grandes?" "Son para escucharte mejor." "¿Por qué tiene esa naríz tan grande?" "Será para olerte mejor." Y, "¿Por qué tiene esa boca tan grande?" "Para comerte mejor!" Y se comió a la Caperucita. (*interruption*) Después de eso, habían uno(s) cazadore(s), leñadores o algún personaje de ese tipo que andaban dando vuelta por allí y cuando sintieron que la Caperucita estaba peleando con el lobo (*interruption*) como escucharon los grito(s) de la Caperucita en su pelea con el lobo, supongo, ehm se acercaron y vieron el lobo que estaba— que acaba de comerse a la Caperucita, y como se la había comido tan rápido se la había tragado solamente. Entonce(s), ello(s) eh . cazaron el lobo y lo abrieron el—el—el cuerpo, el abdomen y sacaron a la Caperucita y a la abuelita de adentro y para que el lobo no se diera cuenta mientras estaba muy dormido—ah eso era! que el lobo se había quedado dormido por el—por el que—eh . después de comerse a la abuelita y a la Caperucita. Entonce(s), antes que se despertara, lo llenaron con piedras de—para que se sintiera . repleto y cuando se despertó el lobo se sintió muy mal porque le pesaba mucho el estómogo. Entonce(s), se quiso ir a tomar agua en un rio y se cayo adentro y se murió.

CONTROL AYI: INTERLINEAR MORPHEMIC TRANSCRIPTIONS

Cookie Theft

(1)	*Bueno, esta e(s) una escena*	fill dem v art N
	Well this is a scene	
	Well, this is a scene	
	en una cocina aparentemente	prep art N adv
	in a kitchen aparently	
	in a kitchen, aparently,	
	y hay tre(s) personas	conj v num N
	and there are three persons	
	and there are three people.	
(2)	*Para ir directamente a la(s) acciones*	prep Vinf adv prep art N
	to go directly to the actions	
	to go directly to the actions	
	que suceden	comp V
	that happen	
	that are happening,	
	hay una mujer que está secando	v art N comp aux+V
	there is a woman that is drying	
	there is a woman that is drying	
	un plato inmediatamente al lado de	art N adv prep+art N prep
	a plate immediately to+the side of	
	a plate immediately next to	
	un lavatorio que se está inundando	art N comp rfl aux+V
	a lavatory that is flooding	
	a sink that is overflowing	
	en este momento y el agua	prep det N conj art N
	in this moment and the water	
	in this moment and the water	
	se derrama por encima del	rfl V prep adv prep+art
	spills for above of+the	
	spills over the top of the	
(2b)	*de este lavatorio o lavaplato(s)*	prep det N conj N
	of this lavatory or sink	
	of this lavaory or sink.	

(3)	*Hacia atrá(s) de la escena* towards back of the scene Towards the back of the scene	prep adv prep art N
	hay do(s) niños que están intentando there are two children that are trying there are two children that are trying	v num N comp aux+V
	sacar/ aparentemente/ una(s) galleta(s) to take out aparently some cookies to get, aparently, some cookies	Vinf adv art N
	o algo así de un tarro or something like that from a jar or something like that from a jar	conj quant adv prep art N
	o contenedor ubicado or container located or container located	conj N adj
	en una alacena en el in a cupboard in the in a cupboard in the	prep art N prep art
(3a)	*que está sobre la pared/* that is over the wall that is over the wall.	comp v prep art N
(4)	*El niño está subido* the boy is elevated The boy is elevated	art N v adj
	sobre un piso/ taburete y/ over a bench stool and over a bench, stool and,	prep art N N conj
(4a)	*que está bastante inestable* that is quite unstable that is quite unstable	comp v adv adj
	y si sigue así/ aparentemente and if follows this way aparently and if this continues, apparently	conj conj V adv adv

	la situación siguiente es the situation following is the following situation is	art N adj v
	que se va a caer/ that itself (it) go to to fall that it will fall.	subconj rfl aux+prep+Vinf
(5)	*La niña está con su brazo izquierdo* The girl is with her arm left The girl is with her left arm	art N v prep det N adj
	estirado en una intención aparente stretched in an intention apparent stretched with the apparent intention	adj prep art N adj
	de recibir una galleta of to receive a cookie to receive a cookie	prep Vinf art N
	que le va a dar that her (he) goes to to give (see next line)	comp cli aux+prep+Vinf
	su supuesto hermano her supposed brother that her brother is going to give to her.	det adj N

Thief

(6)	*En la interpretación de esto sería* In the interpretation of this would be In the interpretation of this one there would be	prep art N prep dem v
(6a)	*un personaje/ un ladrón que está entrando* a person a theif that is entering a person, a theif that is entering	art N art N comp aux+V
	subrepticiamente por una ventana surreptitiously for a window surreptitiously through a window	adv prep art N
	para robar valores de for to steal valuables from the in order to steal valuables from the	prep Vinf N prep

(6b) *que salen* comp V
that are
that are there.

(7) *Esa(s) son la(s) do(s) primera(s) escena(s)* dem v art num adj N
These are the two first scenes
These are the first two scenes,

que está robando valores de un mueble/ subconj aux+V N prep art N
that (he) is stealing valuables from a furniture
that he is stealing valuables from a piece of furniture,

¿no es cierto?/ en una casa neg v adj prep art N
no is true in a house
isn't that right? in a house

y al momento de conj art+prep N prep
and at the moment of
and in the moment of

retirarse/ es sorprendido Vinf+rfl aux+V
to leave is surprised
leaving, is surprised

por la policía que lo aprehende prep art N comp cli V
by the police that him aprehends
by the police that aprehends him.

Farmer

(8) *Bueno/ primera escena o primer cuadro* fill adj N conj adj N
Well first scene or first frame
Well, the first scene or the first frame,

(8a) *hay un agricultor o un campesino* v art N conj art N
there is a farmer or a peasant
there is a farmer or a peasant

que está sembrando/ comp aux+V
that is sowing
that is sowing.

(9) *Posteriormente* adv
Later
Later,

algunas:F/PL
aparentemente ***alguno(s)** *semanas después/* adv det N adv
apparently some:M/PL weeks:F/PL later
apparently some weeks later,

*****Agreement between determiner "*algunos*" and noun "*semanas*" is incorrect.

está mirando el crecimiento de su cultivo aux+V art N prep det N
[he]is watching the growth of his crops
he is watching how his crops have grown

con un prep art
with a
with a

(9a) *hay un espantapájoro(s)* v art N
there is a scarecrow
there is a scarecrow

aparentemente en el fondo adv prep art N
apparently in the back
apparently in the background.

(10) *Ha pasado más el tiempo* aux+V adv art N
Has passed more the time
More time has passed

en el tercero prep art N
in the third one
in the third one (referring to frames)

que se ve que subconj rfl V subconj
that one sees that
that one sees that

está admirando su cosecha aux+V det N
(he) is admiring his crop
he is admiring his crop

de maí(z) prep N
of corn
of corn

un

*y finalmente va en *una vehículo/* — conj adv aux+ (prep art N
and finally (he) goes in a vehicle
and, finally, he goes in a vehicle,

*Agreement between the article and noun seems to be incorrect. Since the subject prolonged the pronunciation of the article *una*, it is unclear whether he used the feminine form of the article or whether he used the masculine form *un* followed by the filler /ah/.

una camioneta/ un camión — art N art N
a truck a semitruck
a truck, a semitruck

a /probablemente/ a venderlo — prep adv) prep+Vinf+cli
to probably to sell+it
to, probably, to sell it

en el mercado/ — prep art N
in the market
at the market.

Accident

(11) *Hace poco fue el último/* — V adv v art N
(It) makes little was the last
It wasn't very long since the last one.

(12) *En el estacionamiento de la* — prep art N prep art
In the parking lot of the
In the parking lot of the

(12a) *de acá del hospital/* — prep adv prep+art N
of here of the hospital
of here at the hospital,

en la tarde/ — prep art N
in the evening
in the evening,

que iba saliendo relativamente apurado/ — subconj V V adv adv
that (I) went leaving relatively in a hurry
I left relatively fast.

(13) *Retrocediendo en el auto* — V prep art N
Backing up in the car
Backing up in the car,

no advertí un auto que estaba — neg V art N comp v
no (I) notice a car that was
I didn't notice a car that was

un poco desfasado — art adv adj
a little out of place
a little over

de la línea del estacionamiento — prep art N prep+art N
of the line of the parking
the parking line

y le impacté con el mio — conj cli V prep art poss
and it (I) hit with the mine
and I hit it with mine

relativamente fuerte — adv adv
relatively hard
relatively hard.

(14) *Aparte de daño en los dos auto(s)* — prep prep N prep art num N
Apart from damge in the two cars
Apart from damage to the two cars,

no hubo ningún inconveniente — neg v det N
no there was no inconvenience
there wasn't any damage

en especial en lo personal — prep N prep art N
in special in the personal
in particular to myself.

Little Red Riding Hood

(15) *El cuento de la Caperucita es* — art N prep art N v
The story of the LRRH is
The story of LRRH is

una niña pequeña que — art N adj comp
a girl little that
a little girl who was in the habit of

solía *usar* *un gorro rojo* aux+Vinf art N adj
was in the habit of to use a hat red
using a red hat

por la cual *todo(s)* *le* prep art subconj quant cli
for the which everyone her
as result everyone

llamaban Caperucita Roja/ V N
called LRRH
called her LRRH.

(16) *Que una tarde la.../* subconj art N art
That one evening the
That one evening the...

(16a) *Ah! que tenía una abuelita* excIm comp v art N
Ah! that had a grandma
Oh yeah! That had a grandma

que vivía al *otro lado* comp V prep+art adj N
that lived at the other side
that lived at the other end

de un bosque/ prep art N
of a forest
of a forest.

(17) *Una tarde una* art N art
One evening a
One evening a

(17a) *su mamá le dio una cesta con alimento(s)* det N cli V art N prep N
her mom her gave a basket with food
her mom gave her a basket with food

para que se la *llevara* prep subconj cli cli V
so that it (she) will take
so that she will take it

a su abuelita/ prep det N
to her grandma
to her grandma,

recomendándole que no atrevesar — V+cli subconj neg Vinf
recommedingher that no to cross
recommending to her that she not cross

el bosque — art N
the forest
the forest

sino que se fuera alrededor — conj subconj rfl V adv
but that (she) went around
but rather that she went around

del mismo — prep+art N
of the same
it

porque podría encontrarse — subconj aux+Vinf+rfl
because (she) could to meet
because she might run

a un lobo/ — prep art N
to a wolf
into a wolf.

(18) *Entiendo que Caperucita desobedeció* — V subconj N V
(I) understand that LRRH disobeyed
I understand that LRRH disobeyed

a su madre/ — prep det N
to her mother
her mother.

(19) *Atravesó por el bosque/* — V prep art N
(She) crossed for the forest
She crossed the forest.

(20) *Se econtró con el lobo* y — rfl V prep art N conj
(She) met with the wolf and
She ran into the wolf and

(20a) *quien le preguntó adónde iba/* — rel cli V qwh V
who her asked to where (she) was going
who asked her where she was going.

(21) *La Caperucita le dijo* — art N cli V
The LRRH him said
LRRH said to him

que iba a la casa — subconj V prep art N
that (she) was going to the house
that she was going to her

de la abuelita — prep art N
of the grandma
grandma's house.

(22) *El lobo con esto salió corriendo* — art N prep dem V V
The wolf with this left running
With this the wolf took off running

primero que la Caperucita — adv subconj art N
before that the LRRH
before LRRH

para llegar adonde la abuelita — prep Vinf adv art N
for to arrive to where the grandma
to arrive to her grandma's.

(23) *Entró se comió a la abuelita* — V rfl V prep art N
(He) entered (he) ate to the grandma
He went in, ate the grandma

y se acostó con lo(s) vestimientos — conj rfl V prep art N
and laid down with the clothes
and laid down with her clothes on

de ella en la cama — prep pro prep art N
of her in the bed
in the bed

esperando que llegara la Caperucita — V subconj V art N
waiting that would arrive the LRRH
waiting for LRRH to arrive.

(24) *Cuando llegó la niña* — subconj V art N
when arrived the girl
when the girl arrived,

el lobo fingiendo la voz — art N V art N
the wolf faking the voice
the wolf, disguising his voice,

le dijo que pasara — cli V subconj V
her told that pass
told her to come in.

(25) *Entonce(s), la Caperucita se acercó* — fill art N rfl V
So, the LRRH neared
So, LRRH neared

y lo miró — conj cli V
and him looked
and looked at him

*y lo encontró extraña** — conj cli V adj
and him:M/SG found strange:F/SG
and found him strange.

*The clitic pronoun "*lo*" and the adjective "*extraña*" do not agree in gender. This could have resulted because the speaker is referring to a "wolf" (*el lobo*:M/SG) that is dressed as a "grandmother" (*la abuela*:F/SG).

(26) *Entonce(s) le preguntó* — fill cli V
So, him (she) asked
So, she asked him,

"Por qué tiene esos ojos tan grandes" — qwh v det N adv adj
Why (you) have these eyes so big
"Why do you have such big eyes?"

(27) *Entonces* — fill
So
So,

(27a) *"Estos son para mirarte mejor"* — det v prep Vinf+cli adv
These are for to see+you better
"These are to see you better with."

(28) *"Por qué tiene esa(s) oreja(s) tan grandes"* — qwh v det N adv adj
Why (you) have those ears so big
"Why do you have such big ears?"

(29) *"Son para escucharte mejor"* — v prep Vinf+cli adv
(They) are for to hear+you better
"They are to hear you better with."

(30) *"Por qué tiene esa naríz tan grande"* — qwh v det N adv adj
Why (you) have that nose so big
"Why do you have such a big nose?"

(31) *"Será para olerte mejor"* — v prep Vinf+cli adv
(That) would be for to hear+you better
"That would be to hear you better with."

(32) *Y "por qué tiene esa boca tan grande"* — conj qwh v det N adv adj
and why (you) have this mouth so big
and, "why do you have such a big mouth?"

(33) *"Para comerte mejor"* — prep Vinf+cli adv
For to eat+you better
"To each you better with!"

(34) *Y se comió a la Caperucita* — conj rfl V prep art N
and (he) ate to the LRRH
and he ate LRRH.

(35) *Después de eso habían uno(s) cazadore(s)* — adv prep dem v art N
After of this (there) were some hunters
Afterwards, there were some hunters,

leñadores o algún personaje de ese tipo — N conj det N prep det N
woodcutters or some person of this type
woodcutters or someone like that

que andaban dando vuelta por allí — comp aux+V N prep adv
that were going giving turns for there
that were walking around there

y cuando sintieron — conj subconj V
and when (they) heard
and when they heard

que la Caperucita estaba peleando — subconj art N aux+V
that the LRRH was fighting
that LRRH was fighting

con el lobo — prep art N
with the wolf
with the wolf,

Inturruption by someone at the door.

(35a) *como escucharon los grito(s)* — subconj V art N
since (they) heard the shouts
since they heard the shoults

de la Caperucita en su pelea — prep art N prep det N
of the LRRH in her fight
of LRRH in her fight

con el lobo/ supongo/ — prep art N V
with the wolf (I) suppose
with the wolf, I suppose,

se acercaron y vieron el lobo — rfl V conj V art N
(they) neared and saw the wolf
they drew near and saw the wolf

que estaba — comp aux
that was
that was

(35b) *que acaba de comerse* — comp aux+prep+Vinf+rfl
that (he)finished of to eat
that he had just finished eating

a la Caperucita/ — prep art N
to the LRRH
LRRH,

y como se la — conj subconj rfl cli
and since her
and since

había comido tan rápido — aux+V adv adv
(he) had eaten so fast
he had eaten her so fast

se la había tragado solamente — rfl cli aux+V adv
her had swallowed only
he only swallowed her.

(36) *Entonce(s)/ ello(s) cazaron el lobo* — fill pro V art N
So they hunted the wolf
So, they hunted the wolf

y lo abrieron el cuerpo/ el abdomen — conj cli V art N art N
and him opened the body the abdomen
and opened up his body, his abdomen

y sacaron a la Caperucita — conj V prep art N
and took out to the LRRH
and took out LRRH

	y a la abuelita de adentro and to the grandma from inside and her grandma from inside	conj prep art N prep adv
	y para que el lobo and so that the wolf and so the wolf	conj prep subconj art N
	no se diera cuenta no gave account would not realize (what happened)	neg rfl V+N
	mientras estaba muy dormido... while (he) was very asleep while he was fast asleep...	subconj v adv adj
(36a)	*ah eso era* oh that was (it) oh that was it!	exclm dem v
	que el lobo se había quedado that the wolf had remained that the wolf had remained	subconj art N rfl aux+V
	dormido por el que asleep for the that asleep in order that...	V prep art subconj
(36b)	*después de comerse a* after of to eat to after eating	adv prep Vinf prep
	la abuelita y a la Caperucita the grandma and to the LRRH the grandma and LRRH.	art N conj prep art N
(37)	*Entonce(s)/ antes que se despertara* So, before that himself woke up So, before he woke up,	fill prep subconj rfl V
	lo llenaron con piedras de him (they) filled with rocks from they filled him with rocks from...	cli V prep N prep
(37a)	*para que se sintiera repleto* for that (he) felt full so that he felt full	prep subconj rfl V adv

	y cuando se despertó	conj subjconj rfl V
	and when (he) woke up	
	and when he woke up,	
	el lobo se sintió muy mal	art N rfl V adv adj
	the wolf felt very badly	
	the wolf felt very badly	
	porque le pesaba mucho el estómogo	subconj cli V adv art N
	because him weighed a lot the stomach	
	because his stomach weighed a lot.	
(38)	*Entonce(s) se quiso ir a tomar*	fill rfl V aux+prep+Vinf
	So (he) wanted to go to drink	
	So, he wanted to go to drink	
	agua en un río	N prep art N
	water in a river	
	water from the river	
	y se cayó adentro y se murió	conj rfl V adv conj rfl V
	and (he) fell in and (he) died	
	and he fell in and he died.	

CONTROL AYI: SUPPLEMENTARY LANGUAGE MATERIALS

Oral Reading (123 seconds)

1. Erase una vez, una niñita que vivía con su(s) padres.
   Erase una vez, una niñita que vivía con sus padres.
   Once upon a time, there was a young girl that lived with her parents.

2. Su madre le había fabricado una capa roja
   Su madre le había fabricado una capa roja
   Her mother had made her a red cape

3. con un capuchón, y por eso, todo(s) le llamaban *la*$_1$ Caperucita Roja.
   con un capuchón, y por eso, todos le llamaban Caperucita Roja.
   with a red hood and, for this reason, everyone called her Little Red Riding Hood.

4. Un día, su madre le dijo:
   Un día, su madre le dijo:
   One day, her mother told her:

5. "Caperucita, he preparado una canasta con comida.
   "Caperucita, he preparado una canasta con comida.
   "Little Red Riding Hood, I have prepared a basket with food.

6. Quiero que la lleves a la casa de la abuelita, que está enferma en su cama."
   Quiero que la lleves a la casa de la abuelita, que está enferma en su cama."
   I want you to take it to your grandmother's house because she is sick and in bed.

7. Caperucita tomó la canasta y partió.
   Caperucita tomó la canasta y partió.
   Little Red Riding Hood took the basket and left.

8. Cuando Caperucita caminaba por el bosque repentinamente encontró a un lobo.
   Cuando Caperucita caminaba por el bosque repentinamente encontró a un lobo.
   While Little Red Riding Hood was walking in the forest she ran into a wolf.

9. El lobo paró a hablarle a Caperucita,
   El lobo paró a hablarle a Caperucita,
   The wolf stopped to talk to Little Red Riding Hood

10. y le preguntó a donde iba con toda esa comida.
    y le preguntó a donde iba con toda esa comida.
    and he asked her where she was going with all of the food.

11. Caperucita *le*$_2$ dijo que ella iba a visitar a su abuelita,
    Caperucita dijo que ella iba a visitar a su abuelita,
    Little Red Riding Hood said that she was going to visit her grandmother,

12. quien no se encontraba muy bien de salud, y que ella le llevaba una canasta con
    quien no se encontraba muy bien de salud, y que ella le llevaba una canasta con
    who was not feeling very well and that she was taking her a basket of food.

    comida.
    comida.
    food.

13. El lobo preguntó:"Caperucita, ¿y dónde vive tu abuelita?"
    El lobo preguntó:"Caperucita, ¿y dónde vive tu abuelita?"
    The wolf asked her: "Little Red Riding Hood, Where does your grandmother live?"

14. Y ella le contestó que su abuelita vive en una casa
    Y ella le contestó que su abuelita vive en una casa
    and she answered him saying that her grandmother lives in a house

15. en medio del bosque. El lobo le dio las gracias y se fue.
    en medio del bosque. El lobo le dio las gracias y se fue.
    in the middle of the forest. The wolf thanked her and left.

16. Caperucita continuó caminando sin apuro,
Caperucita continuó caminando sin apuro,
Little Red Riding Hood continued walking without any hurry,

17. parando para recojer flores y para comer frutillas.
parando para recojer flores y para comer frutillas.
stopping to pick flowers and eat strawberries.

18. Finalmente, ella llegó a la casa de su abuelita. Caperucita tocó la puerta,
Finalmente, ella llegó a la casa de su abuelita. Caperucita tocó la puerta,
Finally, she arrived to her grandmother's house. Little Red Riding Hood knocked on the door,

19. pero nadie respondió, así es que ella entró a la casa y encontró
pero nadie respondió, así es que ella entró a la casa y encontró
but nobody answered. So, she entered the house and found

20. a alguien en la cama, que pensó *que*$_3$ era su abuelita,
a alguien en la cama, que pensó era su abuelita,
someone in the bed that she thought was her grandmother

21. y que vestía el camisón y gorro de su abuela
y que vestía el camisón y gorro de su abuela
and that was wearing her grandmother's night shirt and night cap

22. y que las frazadas le cubrían hasta el cuello.
y que las frazadas le cubrían hasta el cuello.
and that was covered up to the neck by the blankets.

23. Caperucita dijo:"Buenos días abuelita,
Caperucita dijo:"Buenos días abuelita,
Little Red Riding Hood said: "Good Morning grandmother,

24. te he traído una canasta con comida." Y el lobo, que estaba pretendiendo
te he traído una canasta con comida." Y el lobo, que estaba pretendiendo
I have brought you a basket with food." The wolf, who was pretending

25. ser la abuelita, le pidió que acercara la canasta hacia la cama.
ser la abuelita, le pidió que acercara la canasta hacia la cama.
to be the grandmother, asked her to bring the basket closer to the bed.

26. Así, Caperucita acercó la canasta hacia la cama
Así, Caperucita acercó la canasta hacia la cama
So, Little Red Riding Hood brought the basket closer to the bed

27. y dijo: "Abuelita, ¡pero qué ojos *tan*$_4$ grandes tienes!" y el lobo contestó:
y dijo: "Abuelita, ¡pero qué ojos grandes tienes!" y el lobo contestó:
and said: "Grandmother, what big eyes you have!" and the wolf answered:

28. "para verte mejor." Entonce(s), Caperucita dijo:
"para verte mejor." Entonces, Caperucita dijo:
"the better to see you with." Then Little Red Riding Hood said:

29. "Abuelita, ¡pero qué grandes oidos tienes!", y el lobo contestó:
"Abuelita, ¡pero qué grandes oidos tienes!", y el lobo contestó:
"Grandmother, what big ears you have!" and the wolf answered her:

30. "para escucharte mejor." Luego Caperucita dijo:
"para escucharte mejor." Luego Caperucita dijo:
"the better to hear you with." Then Little Red Riding Hood said:

31. "abuelita, ¡pero qué dientes grandes que tienes!" y el lobo saltó
"abuelita, ¡pero qué dientes grandes que tienes!" y el lobo saltó
"Grandmother, what big teeth you have!" and the wolf jumped

32. de la cama diciendo: "¡para comerte mejor!"
de la cama diciendo: "¡para comerte mejor!"
from the bed saying: "the better to eat you with!"

33. y trató de atrapar y comer a Caperucita.
y trató de atrapar y comer a Caperucita.
and he tried to trap and eat Little Red Riding Hood.

34. Caperucita comenzó a correr desesperadamente llorando y gritando
Caperucita comenzó a correr desesperadamente llorando y gritando
Little Red Riding Hood began to run, crying and screaming

35. por ayuda, pero el lobo la alcanzó y se la comió.
por ayuda, pero el lobo la alcanzó y se la comió.
for help, but the wolf caught her and ate her.

36. Un cazador que en ese momento pasaba por los alrededores y que había escuchado
Un cazador que en ese momento pasaba por los alrededores y que había escuchado
At that very moment, a hunter who was passing by and who had heard

lo(s)
lo(s)
the

37. gritos de Caperucita,
gritos de Caperucita,
screaming of Little Red Riding Hood,

38. entró a la casa y mató al lobo.
entró a la casa y mató al lobo.
entered the house and killed the wolf.

39. Luego le abrió la barriga al lobo y Caperucita y su abuelita
Luego le abrió la barriga al lobo y Caperucita y su abuelita
Later, he opened the belly of the wolf and Little Red Riding Hood and her grandmother

40. saltaron sanas y salvas. Y asi vivieron por mucho tiempo,
saltaron sanas y salvas. Y asi vivieron por mucho tiempo,
jumped out healthy and safe. And, this is how they lived

41. felices y contentas.
felices y contentas.
happily ever after.

APPENDIX D1

Table 18. JTF: MORPHEME ERRORS AND DISTRIBUTIONS

	I Correctly Supplied	%	II Substitutions	%	III Omissions	%	Total I+II+ III
Articles	42	84	6	12	3	6	50
Other Determiners	2	100	-	-	-	-	2
Prepositions	9	69	1	8	3	23	13
Prepos. + Determ.	-	-	-	-	-	-	-
Adjectives	7	87	-	-	1	13	8
Strong Pronouns	5	100	-	-	-	-	5
Clitic Pronouns	9	90	1	10	-	-	10
Reflexives	6	100	-	-	-	-	6
Auxiliaries	16	73	4	18	2	9	22
Have/Be Main Verbs	17	77	5	23	-	-	22
Main Lexical Verbs	33	87	3	8	2	5	38
Relative Pronouns	-	-	-	-	-	-	-
Complementizers	1	100	-	-	-	-	1
Subord. Conjunctions	1	100	-	-	-	-	1
Coor. Conjunctions	14	100	-	-	-	-	14

APPENDIX D2

Table 19. LTL: MORPHEME ERRORS AND DISTRIBUTIONS

	I Correctly Supplied	%	II Substitutions	%	III Omissions	%	Total I+II+ III
Articles	48	72	2	3	17	25	67
Other Determiners	4	100	-	-	-	-	4
Prepositions	19	54	-	-	16	46	35
Prepos. + Determ.	-	-	-	-	1	100	1
Adjectives	3	100	-	-	-	-	3
Strong Pronouns	4	100	-	-	-	-	4
Clitic Pronouns	5	100	-	-	-	-	5
Reflexives	13	100	-	-	-	-	13
Auxiliaries	8	62	3	23	2	15	13
Have/Be Main Verbs	6	75	1	13	1	13	8
Main Lexical Verbs	39	81	6	13	3	6	48
Relative Pronouns	-	-	-	-	-	-	-
Complementizers	-	-	-	-	-	-	-
Subord. Conjunctions	4	80	-	-	1	20	5
Coor.Conjunctions	11	100	-	-	-	-	11

APPENDIX D3

Table 20. DVT: MORPHEME ERRORS AND DISTRIBUTIONS

	I Correctly Supplied	%	II Substitutions	%	III Omissions	%	Total I+II+ III
Articles	44	100	-	-	-	-	44
Other Determiners	1	100	-	-	-	-	1
Prepositions	22	100	-	-	-	-	22
Prepos. + Determ.	2	100	-	-	-	-	2
Adjectives	9	100	-	-	-	-	9
Strong Pronouns	5	100	-	-	-	-	5
Clitic Pronouns	2	100	-	-	-	-	2
Reflexives	4	100	-	-	-	-	4
Auxiliaries	11	100	-	-	-	-	11
Have/Be Main Verbs	12	100	-	-	-	-	12
Main Lexical Verbs	31	100	-	-	-	-	31
Relative Pronouns	-	-	-	-	-	-	-
Complementizers	3	100	-	-	-	-	3
Subord. Conjunctions	3	100	-	-	-	-	3
Coor. Conjunctions	12	100	-	-	-	-	12

APPENDIX D4

Table 21. AYI: MORPHEME ERRORS AND DISTRIBUTIONS

	I Correctly Supplied	%	II Substitutions	%	III Omissions	%	Total I+II+ III
Articles	107	99	1	1	-	-	108
Other Determiners	18	95	1	5	-		19
Prepositions	95	100	-	-	-	-	95
Prepos. + Determ.	7	100	-	-	-	-	7
Adjectives	24	100	-	-	-	-	24
Strong Pronouns	13	100	-	-	-	-	13
Clitic Pronouns	23	100	-	-	-	-	23
Reflexives	25	100	-	-	-	-	25
Auxiliaries	24	100	-	-	-	-	24
Have/Be Main Verbs	29	100	-	-	-	-	29
Main Lexical Verbs	95	100	-	-	-	-	95
Relative Pronouns	1	100	-	-	-	-	1
Complementizers	17	100	-	-	-	-	17
Subord. Conjunctions	29	100	-	-	-	-	29
Coor. Conjunctions	32	100	-	-	-	-	32

APPENDIX E1

Table 22. JTF/DVT: DISTRIBUTION OF MORPHEMES IN THE TEXT

	Patient JTF				Control DVT			
	actual		context		actual		context	
	N	%	N	%	N	%	N	%
Articles	48	18	50	18	44	19	44	19
Other Det.	2	1	2	1	1	0.4	1	0.4
Prepositions	9	3	13	5	22	9	22	9
Prep. + Det.	-	-	-	-	2	1	2	1
Adjectives	7	3	8	3	9	4	9	4
Nouns	54	20	58	21	48	21	48	21
Strong Pro.	5	2	5	2	5	2	5	2
Clitic Pro.	10	4	10	4	2	1	2	1
Reflexives	6	2	6	2	4	2	4	2
Adverbs/Quant.	30	11	32	11	22	9	22	9
Auxiliaries	19	7	21	7	11	5	11	5
Have/Be M.V.	22	8	22	8	12	5	12	5
Main Verbs	36	14	38	14	31	13	31	13
Comp.	1	0.4	1	0.4	6	3	6	3
Sub.Conj.	1	0.4	1	0.4	3	1	3	1
Coord. Conj.	14	5	14	5	12	5	12	5

APPENDIX E2

Table 23. LTL & AYI: DISTRIBUTION OF MORPHEMES IN THE TEXT

	Patient LTL				Control AYI			
	actual		context		actual		context	
	N	%	N	%	N	%	N	%
Articles	50	19	67	21	109	15	109	15
Other Det.	4	1	4	1	19	3	19	3
Prepositions	21	8	35	11	95	13	95	13
Prep. + Det.	-	-	1	0.3	7	1	7	1
Adjectives	3	1	3	1	23	3	23	3
Nouns	75	28	80	25	121	17	121	17
Strong Pro.	4	1	4	1	15	2	15	2
Clitic Pro.	5	2	5	2	23	3	23	3
Reflexives	13	5	13	4	25	4	25	4
Adverbs/Quant.	11	4	13	4	51	7	51	7
Auxiliaries	17	6	17	5	24	3	24	3
Have/Be M.V.	7	3	9	3	29	4	29	4
Main Verbs	45	17	48	15	95	13	95	13
Comp.	-	-	-	-	17	2	17	2
Sub.Conj.	4	1	5	2	29	4	29	4
Coord. Conj.	11	4	11	3	32	4	32	4

APPENDIX F

Table 24. MAJOR CLASS LEXICAL ITEMS

Patient JTF: Major Class Lexical Items

Narrative	Nouns Token/Type	Ratio	Verbs Token/Type	Ratio	Adjectives Token/Type	Ratio
Cookie	14/7	2	7/6	1.2	0/0	-
Thief	14/5	2.8	3/2	1.5	1/1	1
Farmer	11/5	2.2	6/4	1.5	3/1	3
Accident	15/10	1.5	18/7	2.5	3/2	1.5
Total	54/26	2.1	34/19	1.8	7/4	1.8

Patient LTL: Major Class Lexical Items

Narrative	Nouns Token/Type	Ratio	Verbs Token/Type	Ratio	Adjectives Token/Type	Ratio
Cookie	26/8	3.25	15/11	1.4	0/0	-
Thief	11/5	2.2	5/5	1	0/0	-
Farmer	12/5	2.4	3/3	1	0/0	-
Accident	16/13	1.2	14/10	1.4	2/2	1
LRRH	10/7	1.4	10/8	1.3	1/1	1
Total	75/35	2.1	48/32	1.5	3/3	1

Control DVT: Major Class Lexical Items

Narrative	Nouns Token/Type	Ratio	Verbs Token/Type	Ratio	Adjectives Token/Type	Ratio
Cookie	9/9	1	4/4	1	0/0	-
Thief	11/9	1.2	8/7	1.1	1/1	1
Farmer	11/7	1.6	5/5	1	6/4	1.5
Accident	17/13	1.3	14/14	1	2/2	1
Total	48/36	1.3	31/27	1.1	9/6	1.5

Control AYI: Major Class Lexical Items

Narrative	Nouns Token/Type	Ratio	Verbs Token/Type	Ratio	Adjectives Token/Type	Ratio
Cookie	27/22	1.2	11/11	1	8/8	1
Thief	10/10	1	7/6	1.2	2/2	1
Farmer	17/17	1	6/6	1	2/1	2
Accident	11/9	1.2	6/6	1	1/1	1
LRRH	55/34	1.6	65/43	1.5	10/7	1.4
Total	120/86	1.4	95/59	1.6	23/19	1.2

APPENDIX G

Table 25. PRODUCTION PARAMETERS

Patient JTF: Rate of Production

Narrative	Total of Words	Total Phrases	Speaking Time (min.)	Rate	
				Word/Min.	Phrase/Min.
Cookie	56	15	2:04	27.1	7.3
Thief	58	22	2:12	26.4	10
Farmer	70	16	2:09	32.6	7.4
Accident	133	31	1:45	76	17.7

Patient LTL: Rate of Production

Narrative	Total of Words	Total Phrases	Speaking Time (min.)	Rate	
				Word/Min.	Phrase/Min.
Cookie	101	25	2:08	47.3	11.7
Thief	27	9	1:41	16	5.3
Farmer	39	13	1:07	34.9	11.6
Accident	105	30	2:15	46.6	13.3
LRRH	75	26	1:57	38.5	13.3

Control DVT: Rate of Production

Narrative	Total of Words	Total Phrases	Speaking Time (min.)	Rate	
				Word/Min.	Phrase/Min.
Cookie	35	6	0:21	100	17.1
Thief	44	4	0:29	91	8.3
Farmer	60	8	0:32	112.5	15
Accident	104	15	0:54	115.6	16.7

Control AYI: Rate of Production

Narrative	Total of Words	Total Phrases	Speaking Time (min.)	Rate	
				Word/Min.	Phrase/Min.
Cookie	142	10	1:09	123.5	11.5
Thief	57	5	0:20	171	15
Farmer	71	4	0:38	112.1	6.3
Accident	64	5	0:36	106.7	8.3
LRRH	412	34	2:38	156.5	12.9

Figure 7. Patient JTF: Distribution of Phrase Length: *Cookie Theft*

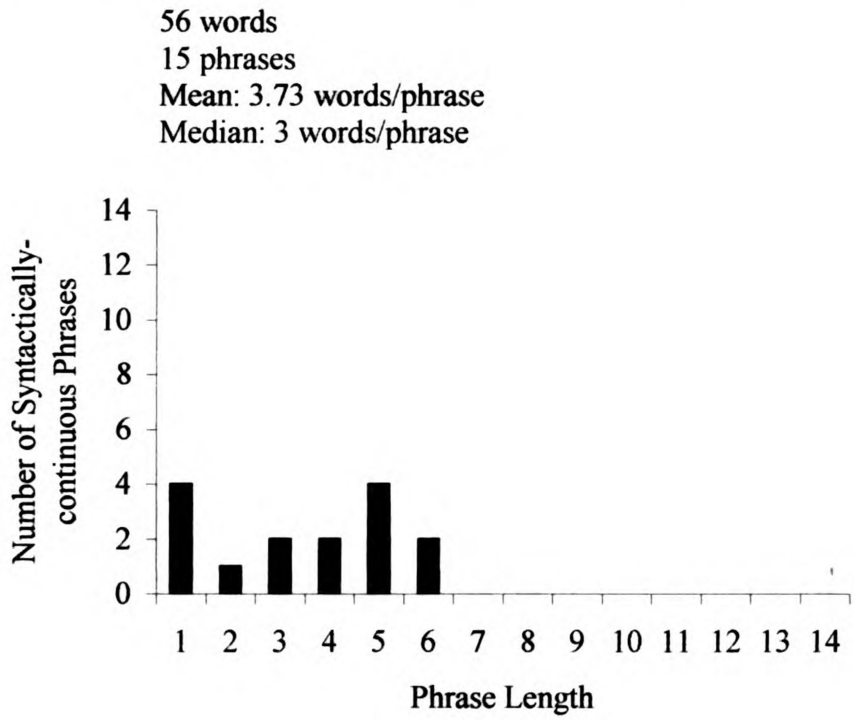


Figure 8. Patient JTF: Distribution of Phrase Length: *Thief*

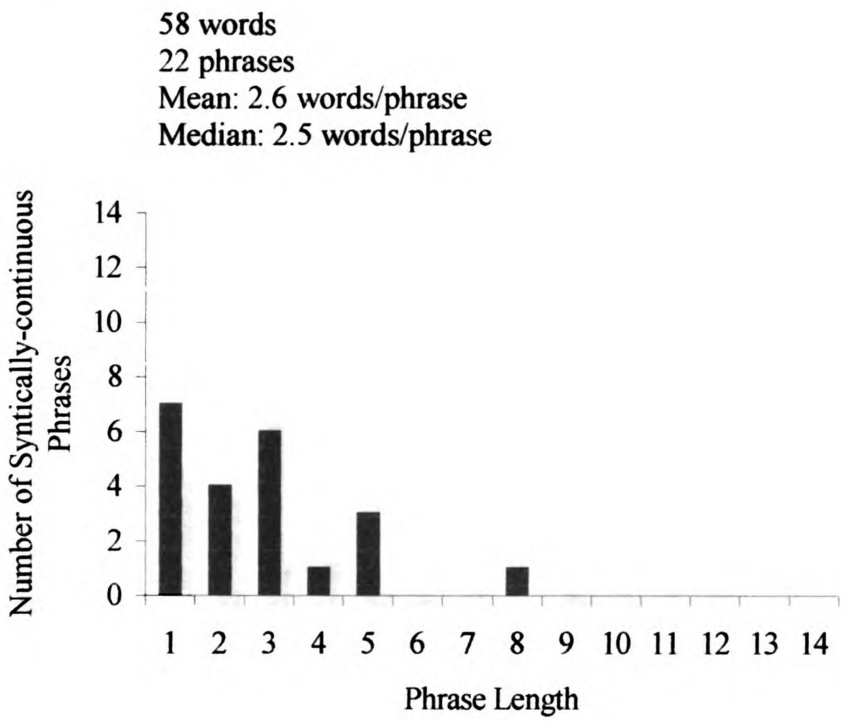


Figure 9. Patient JTF: Distribution of Phrase Length: *Farmer*

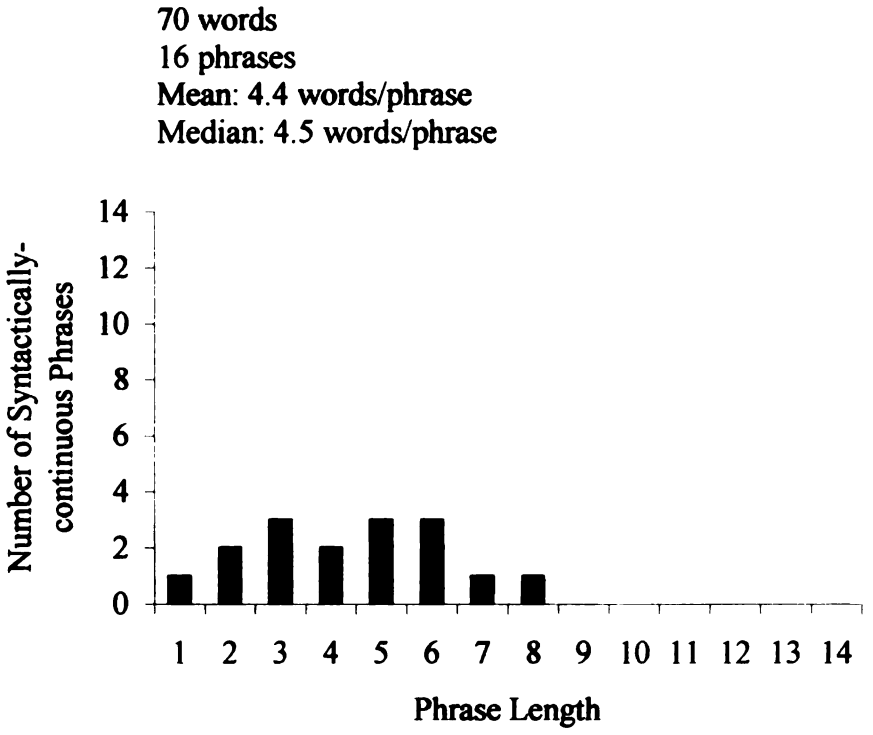
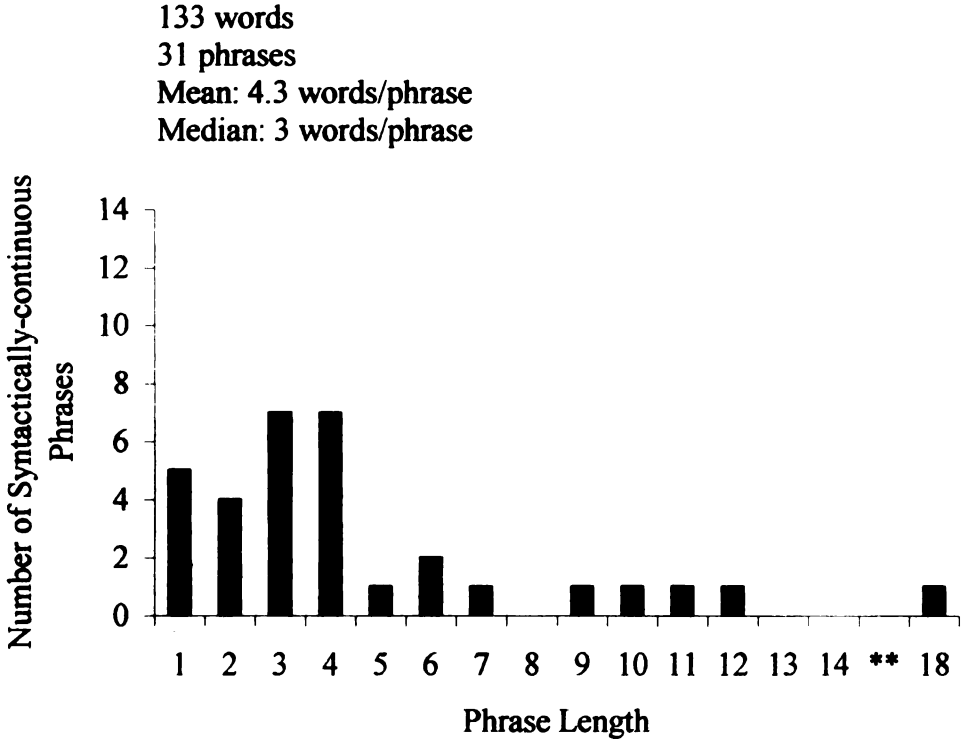


Figure 10. Patient JTF: Distribution of Phrase Length: *Accident*



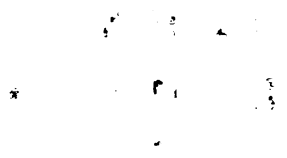


Figure 11. Patient LTL: Distribution of Phrase Length: *Cookie Theft*

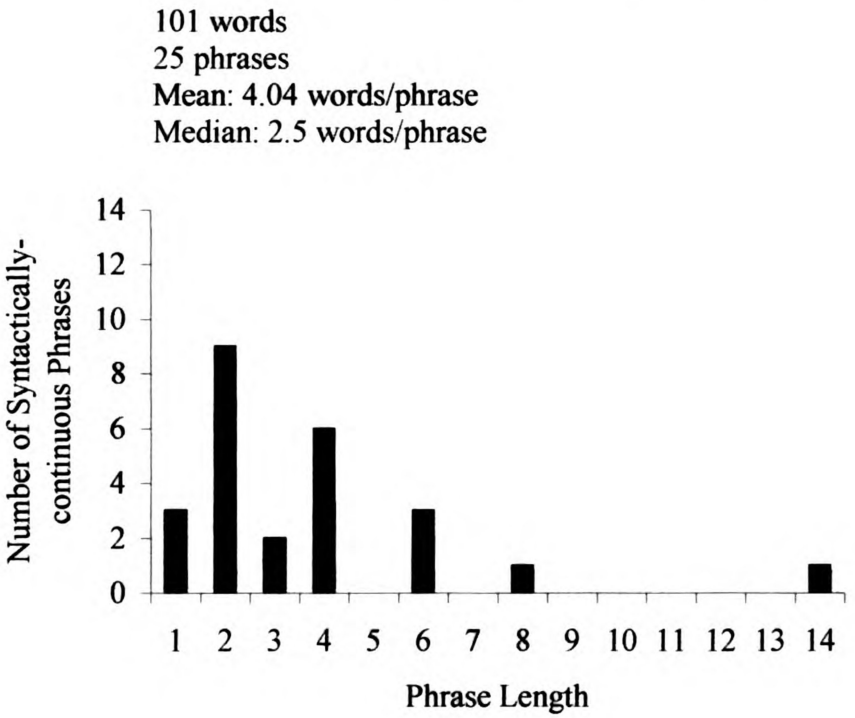


Figure 12. Patient LTL: Distribution of Phrase Length: *Thief*

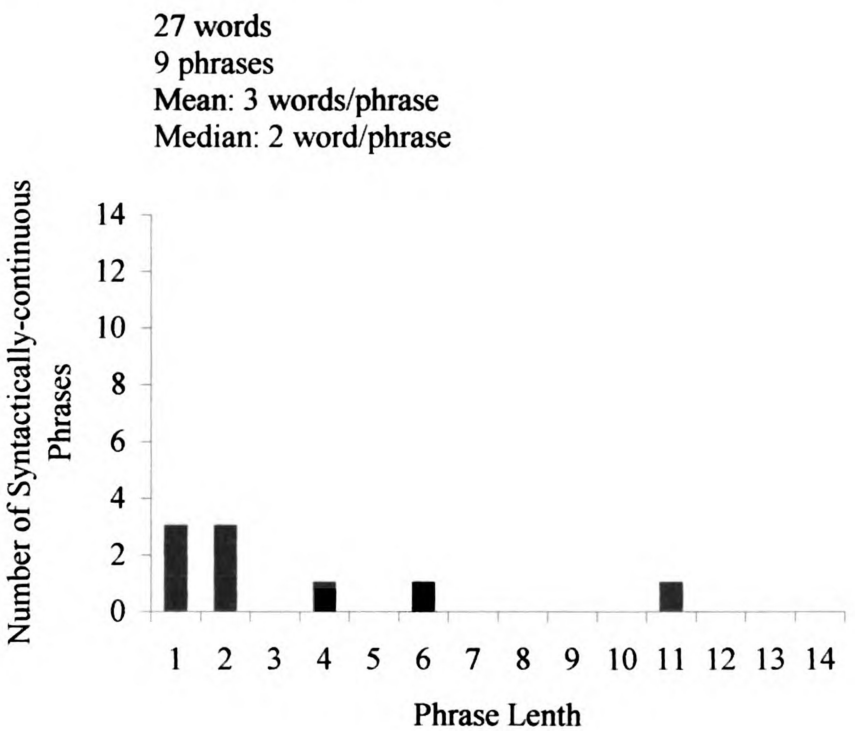


Figure 13. Patient LTL: Distribution of Phrase Length: *Farmer*

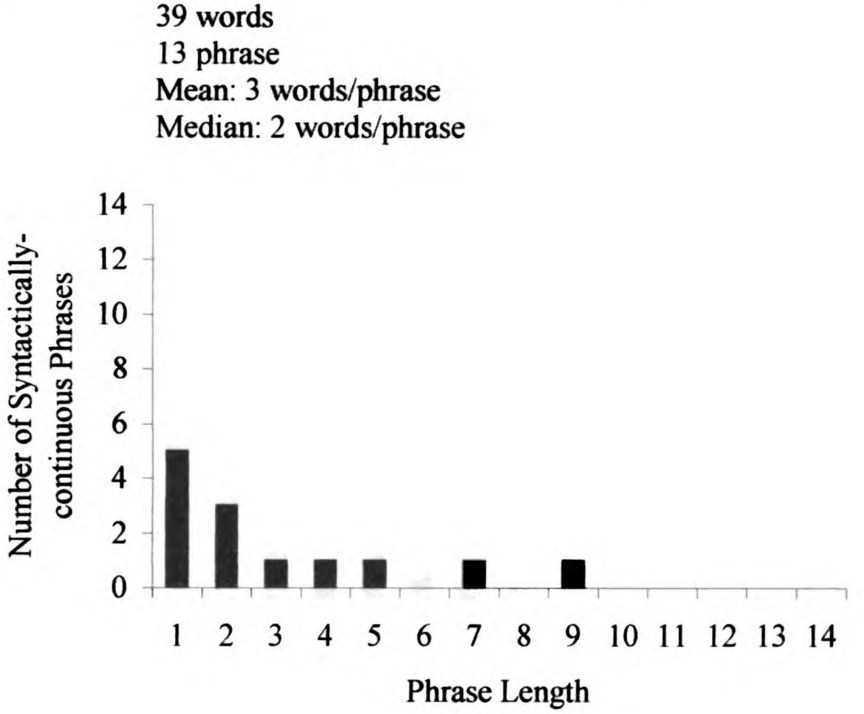


Figure 14. Patient LTL: Distribution of Phrase Length: *Accident*

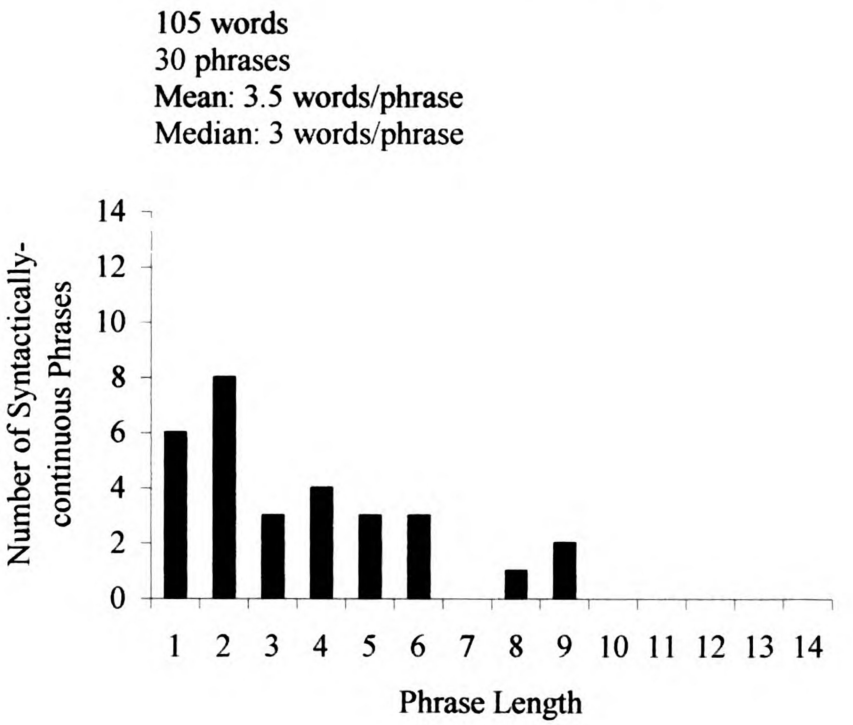


Figure 15. Patient LTL: Distribution of Phrase Length: *LRRH*

75 words
26 phrases
Mean: 2.88 words/phrase
Median: 2 words/phrase

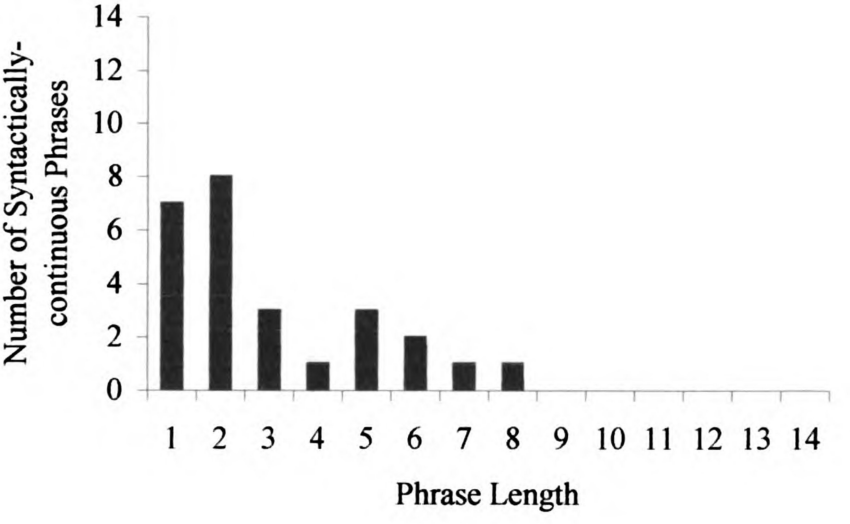


Figure 16. Control DVT: Distribution of Phrase Length: *Cookie Theft*

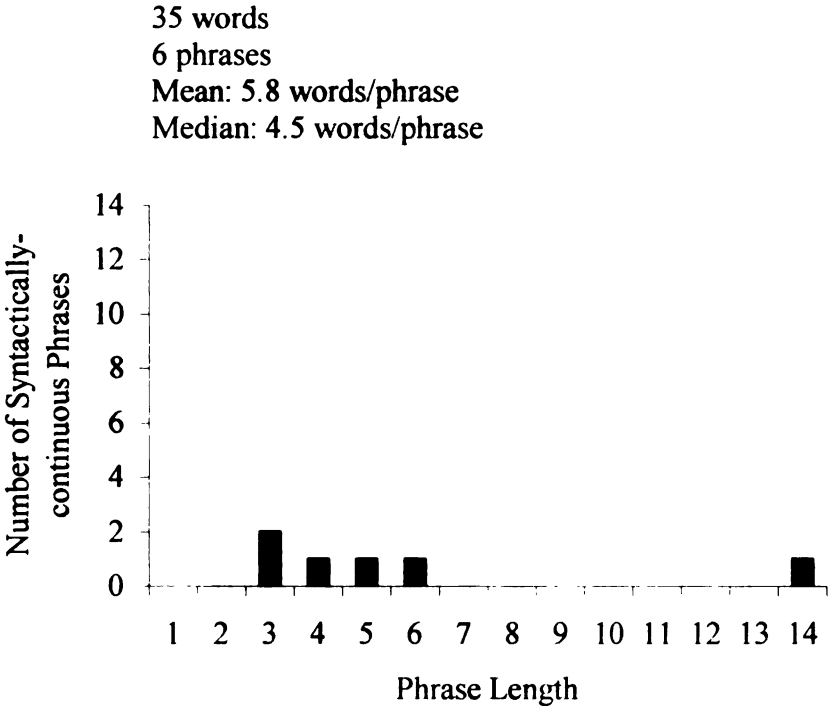


Figure 17. Control DVT: Distribution of Phrase Length: *Thief*

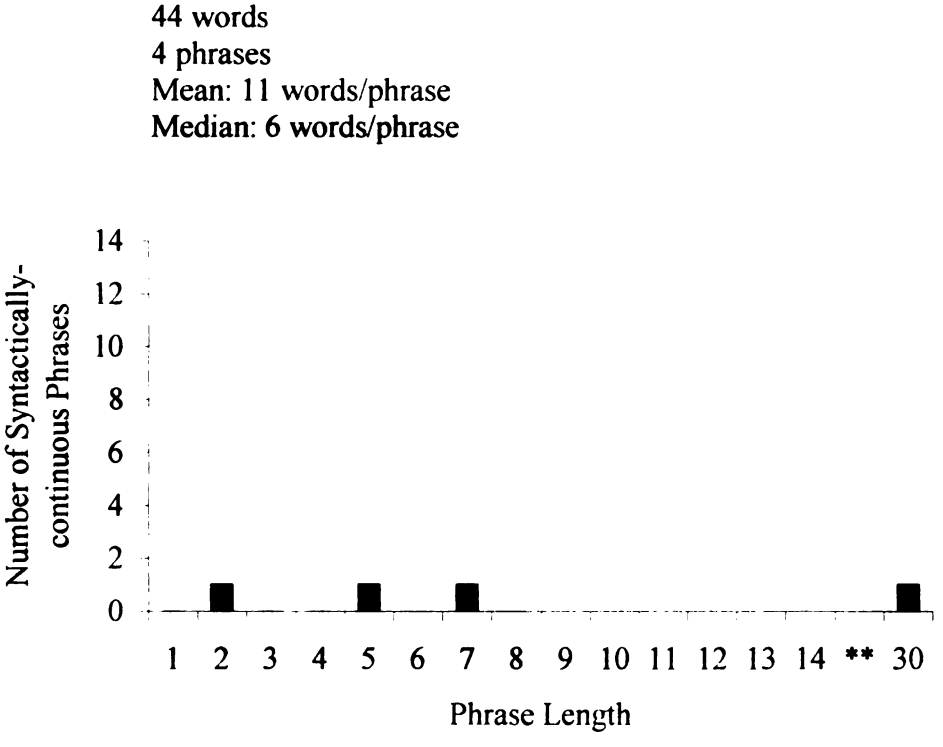


Figure 18. Control DVT: Distribution of Phrase Length: *Farmer*

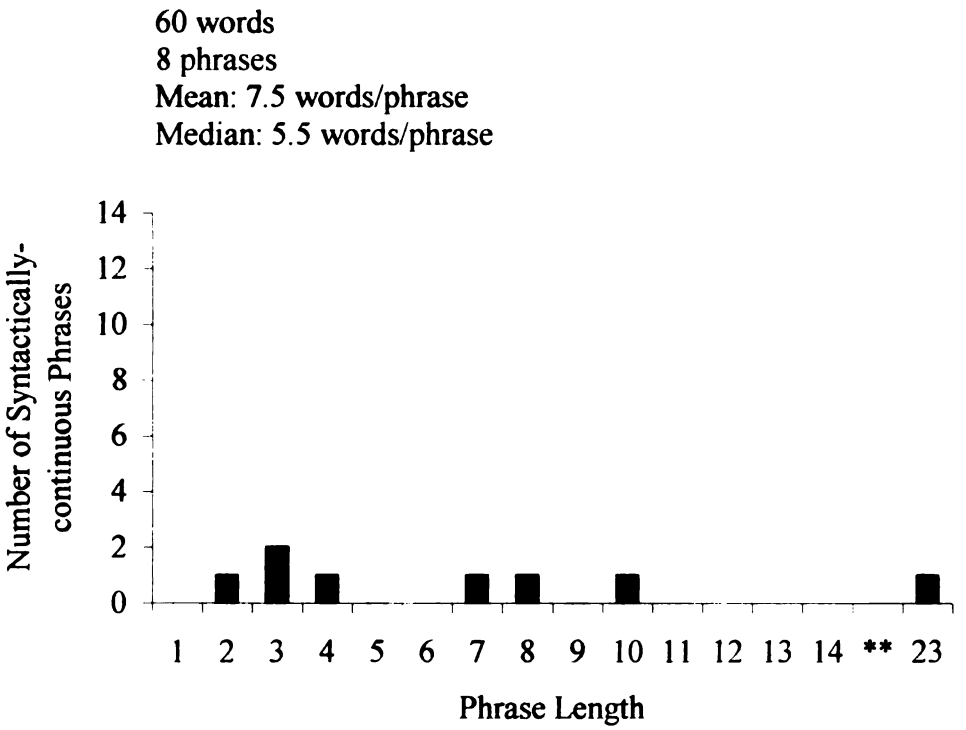


Figure 19. Control DVT: Distribution of Phrase Length: *Accident*

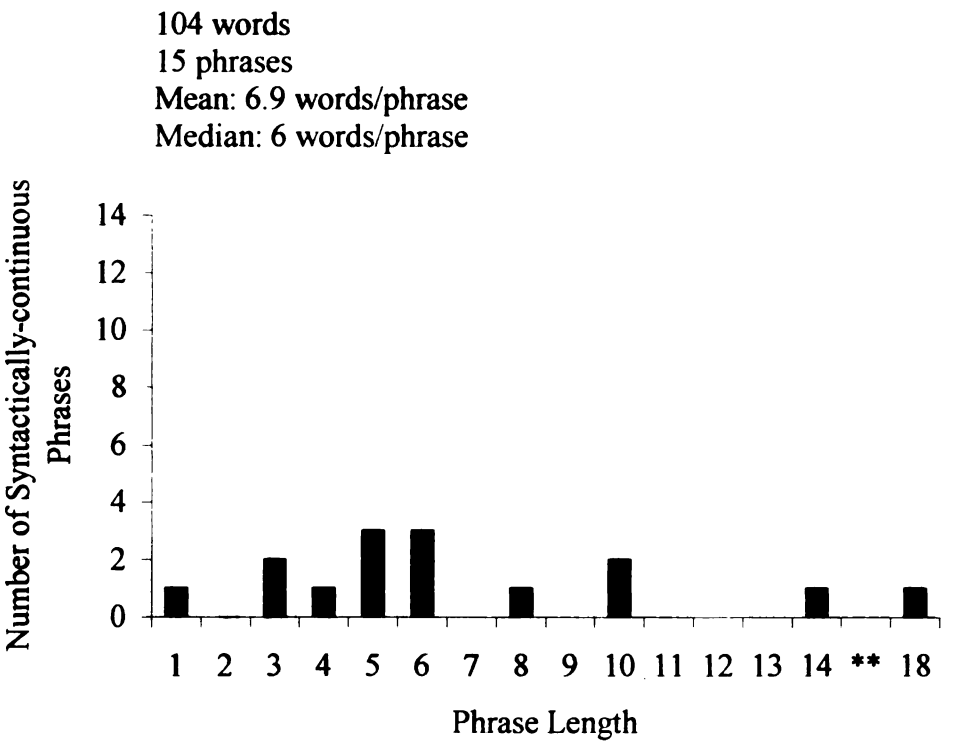


Figure 20. Control AYI: Distribution of Phrase Length: *Cookie Theft*

142 words
10 phrases
Mean: 14.2 words/phrase
Median: 9 words/phrase

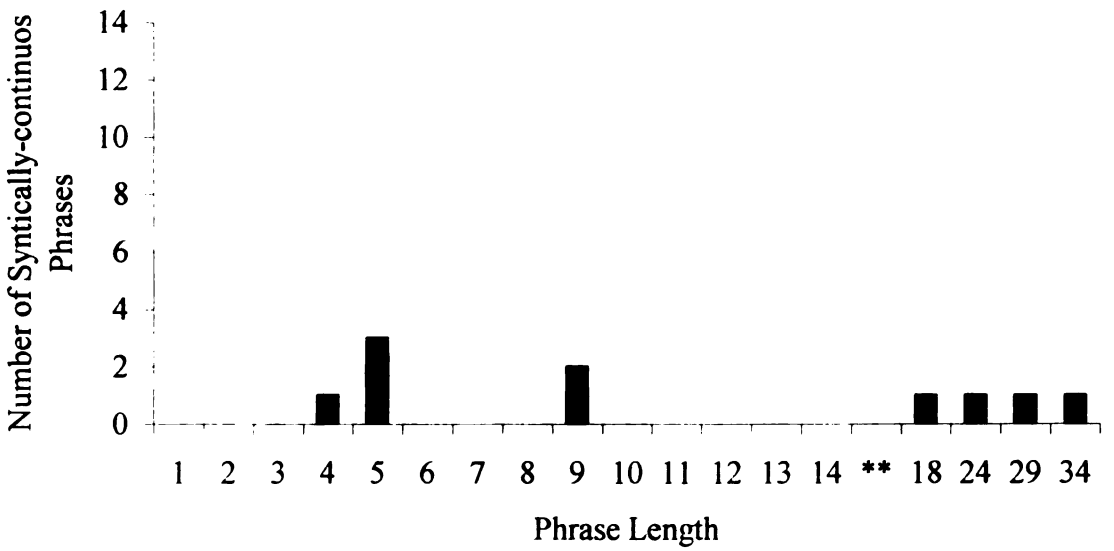


Figure 21. Control AYI: Distribution of Phrase Length: *Thief*

57 words
5 phrases
Mean: 11.4 words/phrase
Median: 14 words/phrase

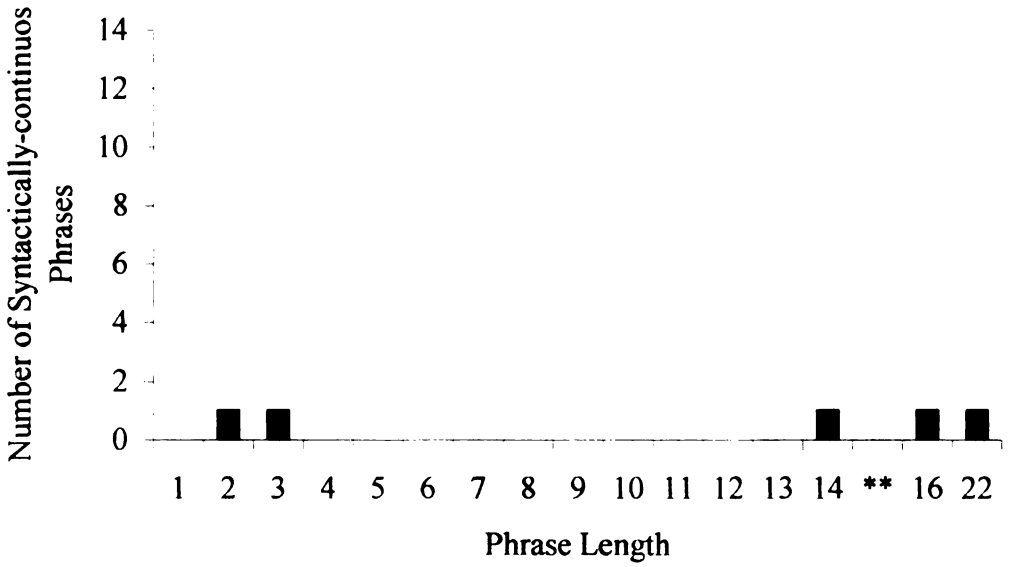


Figure 22. Control AYI: Distribution of Phrase Length: *Farmer*

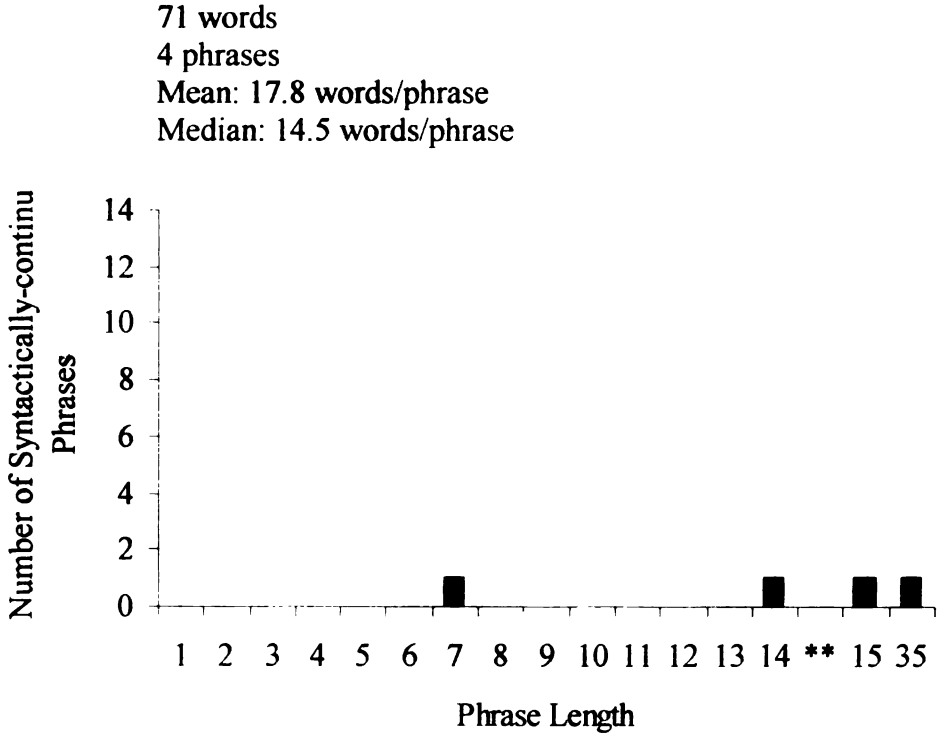


Figure 23. Control AYI: Distribution of Phrase Length: *Accident*

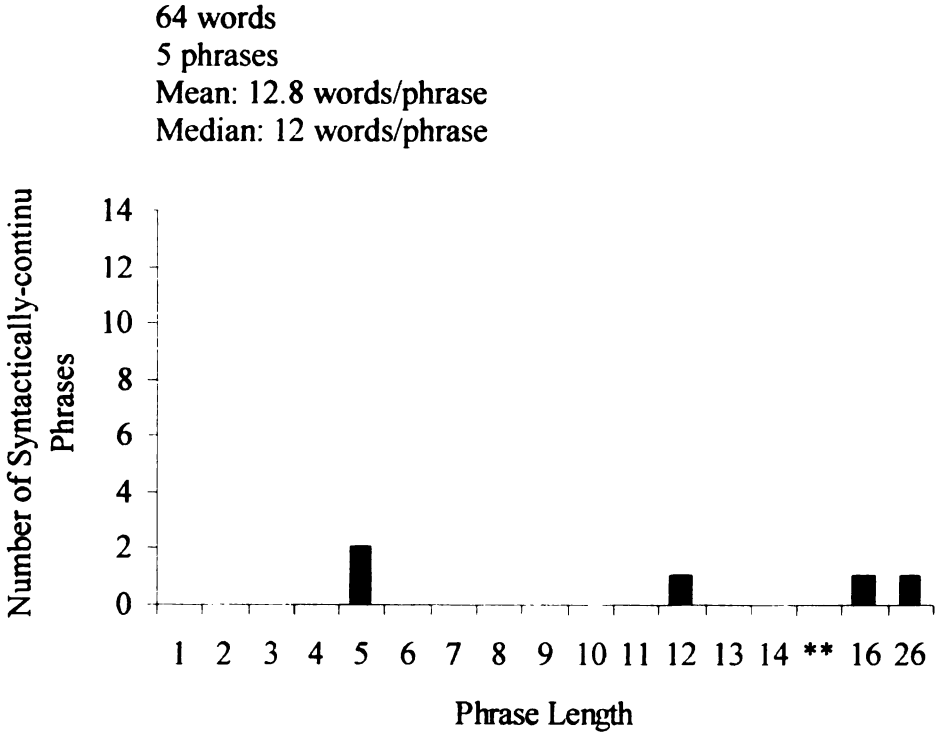
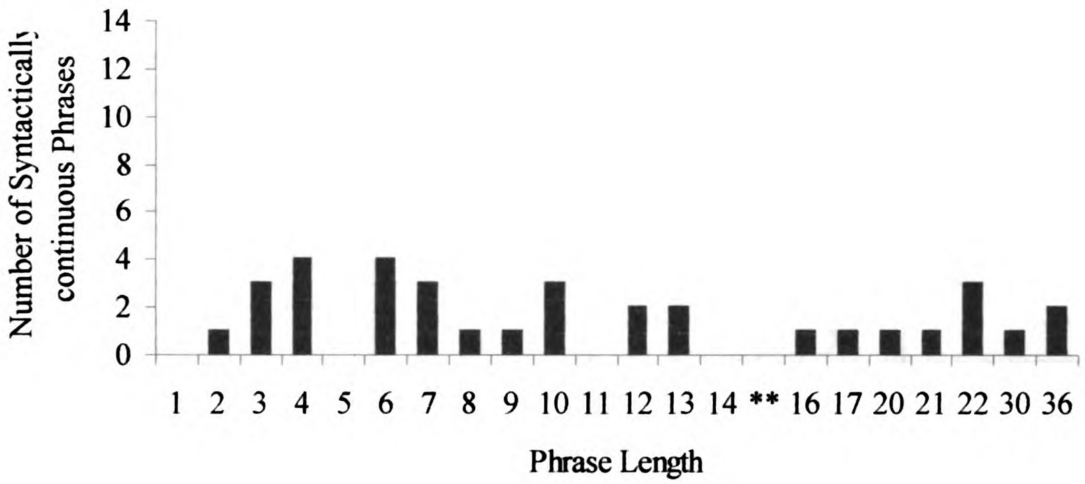


Figure 24. Control AYI: Distribution of Phrase Length: *LRRH*

412 words
34 phrases
Mean: 12.1 words/phrase
Median: 10 words/phrase



APPENDIX H1

Table 26. JTF: READING ERRORS

Substitution and Omission Errors in Reading

	I Correct	II Substitutions	III Omissions	Total I+II+III	IV Additions
Definite Articles	30	-	-	30	1
Indefinte Articles	10	1	-	11	-
Other Det.	13	-	-	13	1
Prepositions	45	1	-	46	3
Strong Pronouns	6	1	-	7	-
Clitic Pronouns	18	-	-	18	-
Reflexives	4	-	-	4	-
V/Aux. Inflect.	74	2	-	76	-
Rel. Pronouns	1	-	-	1	-
Complementizers	4	3	-	7	-
Coor. Conj.	29	-	2	31	-
N/Adj. Inflect.	76	6	-	82	-
Nouns	73	-	-	73	-
Lexical Verbs	70	-	-	70	-
Adjectives	9	-	-	9	-

APPENDIX H2

Table 27. LTL: READING ERRORS

Substitution and Omission Errors in Reading

	I Correct	II Substitutions	III Omissions	Total I+II+III	IV Additions
Definite Articles	26	2	2	30	1
Indefinte Articles	11	-	-	11	-
Other Det.	10	2	1	13	1
Prepositions	29	9	8	46	1
Strong Pronouns	6	-	1	7	-
Clitic Pronouns	15	2	1	18	4
Reflexives	4	-	-	4	4
V/Aux. Inflect.	69	7	-	76	-
Rel. Pronouns	7	-	-	1	-
Complementizers	6	-	1	7	-
Coor. Conj.	25	1	5	31	1
N/Adj. Inflect.	81	1	-	82	-
Nouns	71	1	1	73	-
Lexical Verbs	67	2	1	70	-
Adjectives	9	-	-	9	-

APPENDIX H3

Table 28. DVT: READING ERRORS

Substitution and Omission Errors in Reading

	I Correct	II Substitutions	III Omissions	Total I+II+III	IV Extra
Definite Articles	30	-	-	30	-
Indefinte Articles	11	-	-	11	-
Other Det.	12	1	-	13	-
Prepositions	45	-	1	46	-
Strong Pronouns	7	-	-	7	-
Clitic Pronouns	18	-	-	18	1
Reflexives	4	-	-	4	-
V/Aux. Inflect.	76	-	-	76	-
Rel. Pronouns	1	-	-	1	-
Complementizers	7	-	-	7	-
Coor. Conj.	31	-	-	31	-
N/Adj. Inflect.	82	-	-	82	-
Nouns	72	1	-	73	-
Lexical Verbs	70	-	-	70	-
Adjectives	8	1	-	9	-

APPENDIX H4

Table 29. AYI: READING ERRORS

Substitution and Omission Errors in Reading

	I Correct	II Substitutions	III Omissions	Total I+II+III	IV Extra
Definite Articles	30	-	-	30	-
Indefinte Articles	11	-	-	11	-
Other Det.	13	-	-	13	-
Prepositions	46	-	-	46	-
Strong Pronouns	9	-	-	7	-
Clitic Pronouns	7	-	-	18	1
Reflexives	18	-	-	4	-
V/Aux. Inflect.	3	-	-	76	-
Rel. Pronouns	76	-	-	1	-
Complementizers	1	-	-	7	1
Coor. Conj.	7	-	-	31	-
N/Adj. Inflect.	31	-	-	82	-
Nouns	73	-	-	73	-
Lexical Verbs				70	
Adjectives				9	

REFERENCES

REFERENCES

Bates, E.; B. Wulfeck; B. MacWhinney. (1991). Cross-linguistic research in aphasia: an overview. *Brain and Language* 41, 123-148.

Benedet, M.; J. Christiansen; H. Goodglass. (1998). A cross-linguistic study of grammatical morphology in Spanish- and English-speaking agrammatic patients. *Cortex* 34 (3), 309-336 June.

Broca, P. (1865). Sur le siege de la faculte du langage articule. *Bull. Soc. Antrol.* 6, 337-393 (translated in: Translation of Broca's 1865 Report. Localization of Speech in the Third Frontal Convolution. *Arch Neurol.* Vol. 43, Oct. 1986).

Friederici, A. (1982). Syntactic and semantic processes in aphasic deficits: The availability of prepositions. *Brain and Language* 15, 249-258.

Friederici, A. (1985). Levels of processing and vocabulary types: Evidence from on-line comprehension in normals and agrammatics. *Cognition* 19, 133-166.

Friedmann, N. & Y. Grodzinsky. (1997). Tense and agreement in agrammatic production: Pruning the syntactic tree. *Brain and Language* 56, 397-425.

Froud, K. (2001). Prepositions and the lexical/functional divide: Aphasic evidence. *Lingua* 111, 1-28.

Garcia-Albea, J., M. L. Sanchez Bernardos, S. Del Viso Pabón. (1986). *Test de Boston para el diagnostico de la afasia: adaptación española.* Adopted from: Goodglass, H. & E. Kaplan. (1983). *The Assessment of Aphasia and Related Disorders.* Second Edition. Lea & Febiger, Philadelphia.

Goodglass, H. & E. Kaplan. (1983). *The Assessment of Aphasia and Related Disorders.* Second Edition. Lea & Febiger, Philadelphia.

Goodglass, H. & L. Menn. (1985). Is agrammatism a unitary phenomenon? In M-L. Kean (Ed.) *Agrammatism.* New York: Academic Press.

Grodzinsky, Y. (1988). Syntactic representations in Agrammatic Aphasia: The Case of Prepositions. *Language and Speech* Vol. 31, Part 2, 1988.

Grodzinsky, Y. (1990). *Theoretical Perspectives on Language Deficits.* Cambridge: MIT Press.

Grodzinsky, Y. (2000). The neurology of syntax: Language use without Broca's area. *Behavioral and Brain Sciences* 23 (1).

Hagiwara, H. (1995). The breakdown of functional categories and the economy of derivation. *Brain and Language* 50, 92-116.

Halliwell, J. (1998). *Agrammatic Production in Korean.* Michigan State University Master's Thesis.

Jakobson, R. (1941). Kindersprache, Aphasie und Allgemeine Lautgesetze. Universitets Arsskrift, Uppsala. Translated as Child Language, Aphasia and Phonological Universals. Mouton, The Hague, 1968.

Jakobson, R. (1963). Toward a linguistic classification of aphasic impairments. Ciba Foundation Symposium on Disorders of Language, London, May 21, 1963. In Goodglass & Blumstein (Eds.) Psycholinguistics and Aphasia. The John Hopkins University Press.

Kean, M-L. (1977). The linguistic interpretation of aphasic syndromes: Agrammatism in Broca's Aphasia, an example. *Cognition* 5, 9-46.

Kean, M-L. (1985). *Agrammatism.* New York: Academic Press.

Kolk, H.; M. Van Grunsven; A. Keyser. (1985). On parallelism between production and Comprehension in agrammatism. In M-L. Kean (Ed.) *Agrammatism.* New York: Academic Press.

Lapointe, S.G. (1983). Some issues in the linguistic description of agrammatism. *Cognition* 14, 1-41.

Luria, A. (1970). *Traumatic Aphasia: Its Syndromes, Psychology and Treatment.* Mouton, The Hague.

Menn, L. & L. Obler. (1990). *Agrammatic Aphasia: A Cross-language Narrative Sourcebook, Volumes 1-3.* Amsterdam: John Benjamins.

Miceli and Mazzucchi. (1990). Agrammatism in Italian. In L. Menn & L. Obler (Eds.) *Agrammatic Aphasia: A Cross-language Narrative Sourcebook, Volumes 1-3* (pp. 715-816). Amsterdam: John Benjamins.

Pick, A. (1913). *Die Agrammatischen Sprachstörungen.* Berlin: Springer Verlag.

Pick, A. (1971). *Aphasia.* (Trans. J. W. Brown). IL: C. C. Thomas. (Origninal German Edition published in 1931).

Pollock, Jean-Yves. (1989). Verb movement, universal grammar and the structure of IP. *Linguistic Inquiry* 20, 365-424.

Reznik, M. (1995). Functional categories in agrammatism. *Brain and Language* 50, 117-133.

Rosenbek, J; L. LaPointe; R. Wertz. (1989) *Aphasia: A Clinical Approach.* Austin, Texas: PRO-ED, Inc.

Solé, Y. & C. Solé. (1977). *Modern Spanish Syntax: A Study in Contrast.* Toronto:D.C. Heath and Company.

Steinthal, H. (1871). *Einleitung in die Psychologie und Sprachwissenschaft.* Berlin: Ferd. Dümmler's Verlagsbuchhandlung; Harrwitz und Gossmann.

Torrego Salcedo, E. (1999). El complemento directo preposicional. In *Gramática Descriptiva de la Lengua Española, Vol. 2.* Editorial Espasa Calpe, S.A.

Vico, J. B. (1744). *Principi di Scienza Nuova. Terza Impressione.* Naples: Stamperia Muziana.

Wepfer, J. J. (1727). *Observationes Medico-practicae de Affectionis Capitis Iternis & Externis.* Schaffhausen: Ziegler.

Whitaker, H. (1998). History of neurolinguistics. In B. Stemmer & H. Whitaker (Eds.), *Handbook of Neurolinguistics* (pp. 25-54). Academic Press.

Zurif, E. & A. Caramazza. (1976). Psycholinguistic structures in aphasia: studies in syntax and semantics. In H. Whitaker & H. A. Whitaker (Eds.) *Studies in Neuro linguistics*, Vol. 1. Academic Press.