Lexical Categories In Lengua De Señaspas Argentina

Roman Caceres

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LEXICAL CATEGORIES IN LENGUA DE SEÑAS ARGENTINA

by

Roman Caceres
Electronic Engineer, Universidad Nacional de Córdoba, 1996

A Thesis
Submitted to the Graduate Faculty

of the
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in partial fulfillment of the requirements

for the degree of
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Grand Forks, North Dakota

May
2017
This thesis, submitted by Roman Caceres in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

____________________
Kathryn L. Hansen, Chair

____________________
J. Albert Bickford

____________________
Keith W. Slater

This thesis meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

__________________________________________
Grant McGimpsey
Dean of the Graduate School

Date
PERMISSION

Title          Lexical categories in Lengua de Señas Argentina
Department     Linguistics
Degree         Master of Arts

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Roman Caceres

May 1, 2017
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ABBREVIATIONS

1, 2, 3  First, second and third person
CAS   Confederación Argentina de Sordos (Deaf Argentine Federation)
CIRC   Circle
CM   Centimeter
DU   Dual
HORIZ   Horizontal
IBIS   Instituto Bilingüe para Sordos (Bilingual Institute for the Deaf)
ILAC   Instituto del Lenguaje y la Audición de Córdoba (Córdoba Institute for Language and Hearing)
INTS   Intensive aspect
LIN   Linear
LSA   Lengua de Señas Argentina (Argentine Sign Language)
LSAo   Lengua de Señas Argentina used among Deaf with an education based on oralism
LSAp   Lengua de Señas Argentina considered pure among Deaf
NP   Noun phrase
OCS   Organización Cordobesa de Sordos (Cordoba Deaf Association)
PL   Plural
PP   Prepositional phrase
PRO   Silent pronoun
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ABSTRACT

The goal of this thesis is to identify lexical categories of Lengua de Señas Argentina (LSA). Sign languages, in general, have not been extensively researched. For example, the LSA section of the World Atlas of Language Structures only mentions irregular negatives and question particles.

The research methodology included interviews with fluent deaf signers. Different descriptions in LSA were video recorded, annotated and analyzed. The researcher made initial hypotheses about the syntactic nature of signs based on the strategy used for their elicitation. Then, the researcher tested the hypotheses through syntactic analysis.

During the analysis, the researcher identified two varieties of LSA. Signers from the older generation of Deaf use one; younger Deaf with an education based on oralism use the other. During this research, the label LSAp refers to the former and LSAs to the latter. The main difference between the two varieties is structural: The basic word order in LSAp is OSV, while in LSAs, it is SVO.

This research provides syntactic evidence for eleven lexical categories of LSA: Noun, Adjective, Degree Sign, Numeral, Determiner, Personal Pronoun, Possessive Pronoun, Verb, Adverb, Preposition, and Conjunction.

The Verb category includes intransitive, transitive, and ditransitive verbs. The Adverb category includes Adverbs of Frequency, Manner, Degree and Negation. The Preposition category is found only in LSAs.
CHAPTER 1
INTRODUCTION

The goal of this research is to identify lexical categories in *Lengua de Señas Argentina* (LSA) (ISO 693-3: aed).

Sign language linguistics is a relatively new field; sign languages, in general, have not been extensively researched. For example, the LSA section of the World Atlas of Language Structures online only mentions irregular negatives and question particles (Dryer & Haspelmath 2016). There is still a vast need for continued research on LSA.

During the analysis, the researcher has observed two different varieties of LSA. The differences between them will be discussed in section 1.2 because they directly affect the distribution of lexical categories.

Chapter 2 presents the research methodology. The lexical categories of LSA have been determined through syntactic analysis utilizing constituency tests. Also, some aspects of LSA morphology and phonology have been considered to support the analysis. The research methodology included interviews with fluent deaf signers. First, the three participants were asked to describe the images of the Parks word list (Parks 2011) giving a sign to represent each image along with an example in LSA for every sign. Then, their descriptions were video recorded and analyzed. Second, the researcher made initial hypotheses about the syntactic nature of signs based on their meanings. Third, the researcher tested the hypotheses through syntactic analysis.
Chapter 3 discusses LSA lexical categories. They have been organized into six groups: The Noun category (3.1), Noun Phrase Related categories (3.2), the Verb category (3.3), the Adverb category (3.4), the Preposition category (3.5), and the Conjunction category (3.6).

The Noun Phrase Related categories section includes six lexical categories found in noun phrases or interchangeable with noun phrases. This section includes Adjective (section 3.2.1), Degree Sign (section 3.2.1.3), Numeral (section 3.2.2), Determiner (section 3.2.3), Personal Pronoun (section 3.2.4), and Possessive Pronoun (section 3.2.5).

The Adverb category (section 3.4) includes the sub-categories Adverb of Frequency (section 3.4.1), Adverb of Manner (section 3.4.2), Adverb of Degree (section 3.4.3), and Adverb of Negation (section 3.4.4).

This research confirms the following cross-linguistic tendencies: (1) Noun and Verb seem to be universal categories to sign languages (Velupillai 2012:150); (2) there is significant overlap between noun and verbal forms; some forms are similar and others identical (Orfanidou, Woll & Morgan 2015:145); and (3) the overlap is never complete (Velupillai 2012).

One of the aims of this research is to benefit the Deaf community in Argentina by providing more documentation and research about their language that serves to validate LSA as a natural language and increase awareness in the hearing community.

### 1.1 The Deaf Community of Argentina

The Deaf community of Argentina is a minority group. Its main characteristic is the use of the Argentine Sign Language (LSA) as their natural language. Most of the Argentine Deaf population is born to hearing parents. Thus, they typically acquire sign
language later on in their lives as they come into contact with the Deaf community at large. Given the fact that elementary and high school are mandatory by law in Argentina, typically families move from their hometowns to the major cities, to find adequate schooling for their deaf children.

The social life of the Argentine Deaf develops through interaction with Deaf associations and clubs. At present, there are 37 deaf institutions located in the biggest cities where there is a larger concentration of deaf people. There is also a Deaf Argentine Federation (CAS, Confederación Argentina de Sordos) at the national level.

LSA has yet to be recognized by the Argentine Government as the official language of the Deaf community. This recognition by far is the biggest goal that they have.

The Deaf people in Argentina are los Sordos. The capital ‘S’ is used today to make a distinction between the clinical condition of a non-hearing person (un sordo), and someone who identifies himself as a part of a Deaf community with a common language: Lengua de Señas Argentina.

At present, there are no official statistics regarding Deaf sign language users in the country. Following worldwide tendencies (0.15%), the deaf population in Argentina would be around 60,000.

1.2 Varieties of LSA

This section presents two varieties of LSA found during this research and discusses the differences directly affecting the research methodology.

Signers from the older generation of Deaf people use one variety; younger Deaf with an education based on oralism use the other. Signers refer to the former as LSA puro
‘pure LSA’ and to the latter simply as LSA. During this research, they are identified as LSAp (from ‘pure’) and LSAo (from ‘oralism’).

The variety known as LSA puro tends to be used primarily by people who were born before 1955, although the choice of dialect is also influenced by location, education, and language contact.

This section discusses word order because it directly affects the distribution of lexical categories and therefore the selection of examples used for syntactic analysis.

In LSA, as in other sign languages, word order is flexible. However, signers of both varieties consistently showed different preferences. In LSAp, OSV is the word order found in neutral sentences with transitive verbs\(^1\) as in (1).

\[
eg g:j^2 \\
(1)^3 \quad RATÓN, \quad GATO, \quad \text{i\text{-}chase}\]  
\text{mouse} \quad \text{cat} \quad \text{i\text{-}chase}\]  
‘A cat chases a mouse.’

Example (1) is a fragment of a short narrative in LSA. RATÓN ‘mouse’ is the object, GATO ‘cat’ is the subject and i\text{-}PERSEGUIR, ‘chase’ is a transitive verb\(^5\). The word order is OSV. The relative absence of non-manuals other than eye gaze is evidence that this a neutral clause, suggesting that OSV is a basic word order for LSAp.

---

1 There are exceptions. For instance, the verb SENTAR ‘sit on’ occurs in SOV clauses in LSAp.
2 Appendix A.3 presents a list of non-manual abbreviations.
3 Appendix A.1 explains sign language linguistics examples.
4 The use of subscripts is explained in section 3.3.2.
5 Section 3.3 presents syntactic evidence for this and other verbs in LSA.
Signers may alter word order to put different elements in focus. In LSAp, the default focus position is the end of the sentence. Examples (2) to (6) show this variation in word order along with the use of pauses and non-manuals.

\[
\begin{array}{cccc}
  e:b:r & h:t:id & h:t:id & b:shr \\
  h:t:id & h:t:id & b:shr & \\
  b:shl & b:shr & \\
\end{array}
\]

(2) \textit{SIEMPRE TRABAJAR, DOS VARÓN JÓVEN GEST:MANOS-SUBEN}  
always work two male young gesture: raised hands

‘Two young men always work.’

In (2), \textit{SIEMPRE TRABAJAR} ‘always work’ is the predicate, and \textit{DOS VARÓN JÓVEN} ‘two young men’ is the subject. The subject is in sentence-final position, which is a marked position in both varieties of LSA. A pause (indicated by a comma\(^6\)) and body shift left and right (b:shl and b:shr) separate the predicate from the subject. The gestural expression \textit{GEST:MANOS-SUBEN} (hands partially raised) ends the sentence. The subject is right-dislocated and placed in focus position.

A single sign can be dislocated and placed in default focus position, as shown in (3).

\[
\begin{array}{cccc}
  e:b:r & e:b:r & h:t:iud & h:t:iud \\
  h:t:iud & h:t:iud & h:t:iud & b:shr \\
  b:shr & \\
\end{array}
\]

(3) \textit{DOS JÓVEN TRABAJAR SIEMPRE, HOMBRE}  
two young work always man

‘Two young men always work.’

---

\(^6\) Notation conventions are explained in Appendix A.2.
In (3), the noun *HOMBRE* ‘man’ has been extracted from the subject NP, right-dislocated, and placed in default focus position. The dislocation is marked by a pause and the non-manual body shift right (b:shr).

(4) to (6) show three possible word orders for the same proposition in LSAp.

\[
\text{eg:i} \quad h:tid \quad h:tiu \quad h:tuti \quad h:tiu \quad h:tiu \quad h:tiu \quad h:tiu \\
\quad b:shr \quad b:shr \quad b:shr \quad b:shr \quad b:shr \quad b:shr \quad b:shr
\]

(4) \( \text{PERSONA}_i \text{ IX}_i \quad \text{COMPRAR}_j \quad \text{SOLO} \quad \text{CARNE}_j \)

\begin{align*}
\text{person} & \quad \text{that} \\
\text{S} & \quad \text{V} \\
\text{O}
\end{align*}

‘That person buys only meat.’

\[
\text{eg:i} \quad h:tid \quad h:tiu \quad h:tiu \quad h:tiu \\
\quad b:shr \quad b:shr \quad b:shr \quad b:shr
\]

(5) \( \text{PERSONA}_i \text{ IX}_i \quad \text{SOLO} \quad \text{CARNE}_j \quad \text{COMPRAR}_j \)

\begin{align*}
\text{person} & \quad \text{only} \quad \text{meat} \\
\text{S} & \quad \text{O} \\
\text{V}
\end{align*}

‘That person buys only meat.’

\[
\text{eg:i} \quad h:tid \quad h:tiu \quad h:tiu \quad h:tiu \\
\quad b:shr \quad b:shr \quad b:shr \quad b:shr
\]

(6) \( \text{CARNE}_j \quad \text{SOLO} \quad \text{IX}_i \quad \text{PERSONA}_i \quad \text{COMPRAR}_j \)

\begin{align*}
\text{meat} & \quad \text{only} \\
\text{O} & \quad \text{S} \\
\text{V}
\end{align*}

‘That person buys only meat.’

In (4) to (6), \( \text{COMPRAR}_j \) ‘buy’ is a transitive verb, \( \text{PERSONA} \text{ IX}_i \) ‘that person’ is the subject, and \( \text{SOLO} \text{ CARNE} \) ‘only meat’ is the object. The word order is SVO in (4), SOV in (5), and OSV in (6).
After observing video recordings of (4) to (6), the signer MRO identified (6) as the most natural expression of LSA. She explains this fact in (7).

\[
\begin{align*}
\text{eb:r} & \quad \text{eg:j} & \quad \text{eg:i} \\
\text{h:tid} & \quad \text{h:tutj} & \quad \text{h:tuti} \\
\text{b:shti} & \quad \text{b:shtj} \\
\end{align*}
\]

(7) **LSA NATURAL**, \text{CARNE}_j \text{SOLO} \text{IX}_i \text{PERSONA}_i \text{COMPRA}_j

<table>
<thead>
<tr>
<th>LSA</th>
<th>natural</th>
<th>meat</th>
<th>only</th>
<th>that person</th>
<th>i-buy-j</th>
</tr>
</thead>
</table>

‘This is natural LSA. That person buys only meat.’

In (7), MRO is producing the same proposition as in (4) to (6). This time she is using the most natural word order; that word order is OSV.

LSA has a variety of mechanisms that make possible this flexibility in word order. In the previous three examples, the verb \text{COMPRA}_j incorporates spatial agreement morphology with the subject at location “i” and the object at location “j”. When articulating \text{PERSONA IX}, ‘that person’, the signer's eyes gaze and her body shifts toward the location “i” (eg:i and b:shti). Also, when signing \text{SOLO CARNE} ‘only meat’, the eyes gaze toward the location “j” (eg:j). The non-manuals eye gaze and body shift distinguish subject from object, allowing freedom in word order.

On the other hand, signers of LSAo show a strong preference for SVO word order in sentences with transitive verbs, as shown in (8).

(8) **UNO MUJER COMPRA AUTO NUEVO**

<table>
<thead>
<tr>
<th>one</th>
<th>woman</th>
<th>buy</th>
<th>car</th>
<th>new</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>V</td>
<td>O</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

‘A woman bought a new car.’
In (8), *MUJER* ‘woman’ is the subject, *COMPRAR* ‘buy’ is a transitive verb, and *AUTO* 'new car' is the object. SC considered SVO as the most natural word order.

Sentences with ditransitive verbs also present differences in word order between LSAp and LSAo. In LSAp, the direct object takes the positions shown in (9) to (11).

(9) \[ \text{CAMISA}_i \text{MUJER}_j \text{REGALAR}_j \text{HOMBRE}_j \]

shirt \quad woman \quad i\text{-give.as.a.gift-} \quad man

\text{DO} \quad \text{S} \quad \text{IO} \\

‘A woman gives a shirt as a gift to a man.’

(10) \[ \text{MUJER}_i \text{REGALAR}_j \text{CAMISA}_j \text{HOMBRE}_j \text{IX}_j \]

woman \quad i\text{-give.as.a.gift-} \quad shirt \quad man \quad that

\text{DO} \quad \text{IO} \\

‘A woman gives a shirt as a gift to that man.’

(11) \[ \text{MUJER}_i \text{REGALAR}_j \text{HOMBRE}_j \text{IX}_j \text{CAMISA} \]

woman \quad i\text{-give.as.a.gift-} \quad man \quad that \quad shirt

\text{S} \quad \text{IO} \quad \text{DO} \\

‘A woman gives a shirt as a gift to that man.’

In (9) to (11), the direct object (DO) occurs at the beginning of the clause, following the verb, or following the indirect object (IO).

In LSAp, certain ditransitive verbs only allow the direct object at the beginning of the clause, as shown in (12).

(12) \[ \text{TAZA}_i \text{MANIJA REDONDO}_i \text{MUJER}_j \text{IX}_j \text{DAR}_k \text{#MANIJA-OBJETO} \text{HOMBRE}_k \]

cup \quad handle \quad rounded \quad that \quad woman \quad that \quad j\text{-give-k-} \quad \text{man}

\text{OBJETO} \quad \text{handled.object} \\

‘That woman gives to a man that rounded cup with a handle.’
In (12), \textit{TAZA} \textit{MANIJA REDONDO IX} \textit{‘that rounded cup with a handle’} is the direct object, \textit{MUJER IX} \textit{‘that woman’} is the subject, \textit{DAR} \textit{#MANIJA-OBJETO} \textit{‘to give a handled object’} is a ditransitive verb, and \textit{HOMBRE} \textit{‘man’} is the indirect object. The verb \textit{DAR} \textit{#MANIJA-OBJETO} incorporates agreement morphology with subject (location “j”) and indirect object (location “k”). This type of form is discussed in section 3.3.1.

In LSAo, the direct object occurs in different positions, as shown in (13) to (15).

(13) \textit{MUJER} \textit{CAMISA} \textit{REGALAR} \textit{HOMBRE} \textit{S} \textit{DO} \textit{IO}

\begin{verbatim}
woman  shirt   i-give.as.a.gift  man
\end{verbatim}

‘A woman gives a shirt as a gift to a man.’

(14) \textit{MUJER} \textit{REGALAR} \textit{CAMISA} \textit{HOMBRE} \textit{IX} \textit{S} \textit{DO} \textit{IO}

\begin{verbatim}
woman  i-give.as.a.gift  shirt  man  that
\end{verbatim}

‘A woman gives a shirt as a gift to that man.’

(15) \textit{MUJER} \textit{REGALAR} \textit{HOMBRE} \textit{CAMISA} \textit{S} \textit{IO} \textit{DO}

\begin{verbatim}
woman  i-give.as.a.gift  man  shirt
\end{verbatim}

‘A woman gives a shirt as a gift to a man.’

In (13) to (15), the direct object follow the subject, the verb, or the indirect object.

In LSAo, certain verbs only allow the object after the subject, as shown in (16).

(16) \textit{MUJER} \textit{TAZA} \textit{DAR} \textit{#MANIJA-OBJETO} \textit{HOMBRE} \textit{S} \textit{DO} \textit{IO}

\begin{verbatim}
woman  cup    i-give-j-handled.object  man
\end{verbatim}

‘A woman gives a cup to a man.’
In (16), the direct object TAZA ‘cup’ follows the subject MUJER ‘woman’. Other positions are unacceptable.

The differences in word order between LSAp and LSAo are summarized in Table 1.

<table>
<thead>
<tr>
<th>Verb Type</th>
<th>LSAp</th>
<th>LSAo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-argument</td>
<td>O S V</td>
<td>S V O</td>
</tr>
<tr>
<td>Three-argument</td>
<td>(DO) S V (DO) IO (DO)</td>
<td>S (DO) V (DO) IO (DO)</td>
</tr>
</tbody>
</table>

LSAp and LSAo exhibit distinct structures. The basic word order in LSAp is OSV, while in LSAo, it is SVO. However, syntactic elements can be right-dislocated and moved to default focus position. These differences have been considered during this research when analyzing the distribution of signs. The next chapter will describe the methodology employed for syntactic analysis.

\[\text{Certain verbs allow DOs only in the position marked in bold.}\]
CHAPTER 2
METHODOLOGY

This chapter describes the research methodology, including the selection of participants, the procedures for data elicitation, and the principles for syntactic analysis.

2.1 The Participants

This section describes how the researcher selected the signers, including the criteria for selection and the method of recruitment. It also presents sociolinguistic information about the participants, including language background and language use.

The standard requisites for the selection of language helpers for linguistic research include the condition of being a native speaker. Unfortunately, this condition is difficult to meet for users of Argentine Sign Language, since most of them were born in hearing families. Usually, they acquired sign language later on in their lives when they came in contact with other deaf, primarily when they began elementary school.

Hence, the subjects selected for this research were fluent deaf signers who use LSA on a daily basis as their primary language of communication with other members of the deaf community or hearing signers. The researcher personally contacted individuals and requested their participation in the study. Recruitment happened in Argentine Sign Language (LSA). The Institutional Review Board (IRB) of the University of North Dakota has approved all the procedures for this research (project number IRB-201603-340).
Three deaf signers participated in this research. Because this research is focused on language utterances and not in language variation between individuals, this number of participants was sufficient to elicit the variety of data necessary.

Maria Rosa Olarriaga (MRO) was born in 1954. She was born hearing in a family of hearing people. When she was two years old she had an infection in her throat, nose and ear; after being treated with an oral medication, she recovered. However, soon after that, she lost her hearing. When she was school aged, she began attending the Córdoba Institute for Language and Hearing (*Instituto del Lenguaje y la Audición de Córdoba, ILAC*\(^8\)), at that time, the only school for the deaf in Córdoba, Argentina. There, she was exposed to sign language for the first time. At that point, the general teaching system was oralism, in which signing was not allowed in the school. Nevertheless, deaf children covertly used sign language to communicate among themselves. When MRO was sixteen years old, she met her future husband. He was a fluent signer of LSA, who had not had training in oralism. From him, MRO learned most of her sign language. Today, MRO is a teacher in the Bilingual Institute for the Deaf (*Instituto Bilingüe para Sordos, IBIS*), the only Bilingual school for Deaf in Córdoba. She was part of the Deaf community from the very beginning when the Cordoba Deaf Association (*Organización Córdobesa de Sordos, OCS*) began its meetings. There she observed variations in LSA among the signers.

Susana Cavallini (SC) was born in 1965. She was born deaf in a family with many deaf members from whom she naturally acquired LSA. Her mother, a sister, a son and some cousins are deaf. She also attended the ILAC and used sign language to

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\(^8\) ILAC was established in 1944. More information can be found in [http://ilac.jimdo.com/historia/](http://ilac.jimdo.com/historia/)
communicate with her classmates. She has always used LSA in her communication with her deaf husband, family, friends, and every situation.

Rita Albertengo (RA) was born in 1970. She was born deaf because her mother had rubella when she was pregnant. When she was five years old, she began attending the ILAC; there she was exposed to LSA for the first time. She used LSA during the breaks and outside of class. She began attending OCS when she was seven. There she met her future husband, who is also deaf. They have three hearing children who are fluent in LSA. She uses LSA on a daily basis in her communication with family and friends.

2.2 The Data

This section describes the procedures used for data elicitation, including materials, recording, and processing.

The methodology included informal interviews with the participants. Each interview lasted up to three hours with a break of 20 minutes half way through. During the interviews, the researcher arranged pictures or items depicting objects and actions. The participants made descriptions in LSA while they were video recorded. Based on the data collected and using different constituency tests, the researcher signed various utterances and asked the participants to assess their grammaticality and produce correct sentences when needed, which were also video recorded. Ungrammatical or nonsensical sentences tend to go against normal social conversation expectations. Thus, the researcher gave preference to grammatical sentences to minimize the strain that assessing an excess of ungrammatical sentences could cause. The participants also watched the video recordings and provided free translations in Spanish for every utterance.
During the first sessions, the three signers were asked to describe the images of the Parks word list (Parks 2011), giving a sign to represent each image along with an example for every sign. This list had been used in several countries, including some in South America. It consists of 241 pictures representing common words found in sign languages: objects, colors, other common object qualities, numbers, actions, kinship relations, jobs, adverbial expressions, questions, yes/no words, and some religious vocabulary.

The data elicited during these sessions was video recorded and annotated using the software ELAN (Sloetjes & Wittenburg 2008). See Appendix C for detailed information about the structure of the ELAN data files.

The existence of nouns was presumed; thus, the elicitation of nouns was performed directly from the pictures of the Parks list. Descriptions representing objects are likely to involve nouns. In LSA there is a significant overlap between noun and verbal forms. Therefore, syntactic tests have been used to identify nouns, discussed in section 3.1.

Other descriptions were video recorded using some of the previously elicited objects, however with varying colors and sizes. Constituency tests were used to test if these descriptions included adjectives. The results are discussed in section 3.2.1.

Other descriptions were video recorded using objects arranged in groups of different quantities (i.e. one cup, two cups, three cups). Constituency tests were used to test if these descriptions included numerals. The results are discussed in section 3.2.2.

The elicitation of verbs was performed using pictures from the Parks list representing common actions; sometimes the researcher performed the actions to clarify the intended meaning. The signers were asked to describe the actions using different actors, objects
and locations. The researcher used mime to perform other actions not represented in the Parks list. The signer’s descriptions were video recorded.

To test transitivity, the researcher produced similar sentences omitting noun phrases other than the subject, when possible. Two cases were tested: (1) the sentence has one noun phrase potentially acting as a direct object; thus, the verb seems to be transitive; the noun phrase acting as a direct object is omitted; and (2) the sentence has two noun phrases potentially acting as direct and indirect objects; thus, the verb seems to be ditransitive; the noun phrase acting as an indirect object is omitted.

In the first case, if the resulting sentence is ungrammatical then the noun phrase is required by the verb; the verb is transitive. If the resulting sentence is grammatical then there are three options: (1) the verb is intransitive; (2) the verb has variable transitivity values; or (3) the verb is transitive but the direct object can be omitted through ellipsis.

In the second case, if the resulting sentence is ungrammatical then the noun phrase is required by the verb; the verb is ditransitive. If the resulting sentence is grammatical then there are three options: (1) the verb is transitive; (2) the verb has variable transitivity values (e.g. ‘Peter bought Mary a book’ vs. ‘Peter bought a book’); or (3) the verb is ditransitive but the indirect object can be omitted through ellipsis (e.g. \textit{LIBRO PEDRO} \textit{DAR} ‘Peter gave (him/her) a book’). The results are discussed in section 3.3.

Signs for moving or stationary objects, usually involve morphologically complex verbal forms, sometimes referred to as “poly-morphemic verbs” (Engberg-Pedersen 1993), or “classifier constructions” (Emmorey 2003). The strategy for elicitation was showing a short cartoon video involving a series of actions and asking for descriptions. The poly-morphemic status was established based on the signer's interpretation of the meaning of such forms. In these forms, every component can have a meaning. On the
other hand, a frozen form has one meaning for the whole construction. Signs used for the handling of objects are also likely to involve morphologically complex verbal forms, including specific handshape units. The strategy for elicitation was asking the signer to explain how to use different tools or kitchen utensils, discussed in section 3.3.1.

Narratives always include referential devices, often pronouns with anaphoric function. Thus, short stories involving different participants (a man, a woman, people, myself, an object) were recorded and analyzed. Constituency tests were used to establish if referential elements were pronouns. The results are discussed in section 3.2.4.

Languages express possession in different forms. The researcher asked the signers to describe various objects belonging to different owners or groups of owners. Constituency tests were used to establish if the descriptions included possessive pronouns. The results are discussed in section 3.2.5.

Examples for constituency tests have been chosen carefully. They were selected in accordance with the semantic restrictions of the language. A sentence can be grammatical even though unacceptable, and thus incorrectly judged as ungrammatical by the signers. A strategy used to avoid this issue was using natural sentences of Argentine Sign Language. For example, PAN AZUL IX GUSTAR ‘I like blue bread’ is grammatically correct even though not factual. This example is not a good choice for constituency tests. Therefore, signers were asked to provide natural examples for every sign elicited from the Parks list. Those examples or similar were used later for syntactic analysis.

The descriptions were video recorded in high definition. The original videos were recorded in Ultra High Definition (UHD or 4K) quality and then edited into two different scenes: a general view of the signer, and an amplified view of signer's face. Both videos
are in 960 by 720 pixels. Videos were annotated using the software ELAN as described in Appendix C.

2.3 The Analysis

This section describes the principles used for syntactic analysis.

According to (Zeshan 2000:55–57), two formal approaches have been used to distinguish lexical categories: inflectional paradigms and positional (syntactic) analysis. Zeshan's work on IPSL (Indo-Pakistan Sign Language) shows that inflections in sign languages may not be dependent on a particular lexical category “in a straightforward way.”

In LSA, as in sign languages generally, “most inflectional morphology is found in the VP [verb phrase] and not the NP [noun phrase]” (Velupillai 2012:190). In LSA, some nouns and adjectives incorporate morphology expressing plurality, but not all of them. However, nouns always combine with dependent elements typically considered noun modifiers. On the other hand, verbs of activity (e.g. run) can take inflectional morphology to express durative aspect, while verbs of accomplishment (e.g. melt) cannot take that morphology. However, verbs can always be modified by verbal modifiers. Thus, syntactic analysis is a better alternative to identify the lexical categories in sign languages.

Therefore, syntactic analysis has been the primary tool used to identify the lexical categories in LSA. Nevertheless, some aspects of the LSA morphology have been considered to support the analysis.

In this research, the syntactic analysis is based on the following principles:
(1) Typically, coordinating conjunctions link syntactic units of the same category. If two signs are conjoined, and the resulting sentence is grammatical, then that is evidence they belong to the same lexical category. If they cannot be conjoined because the resulting sentence is ungrammatical, then that is evidence they belong to different lexical categories;

(2) Generally, signs in the same lexical category are mutually substitutable. If a sign replaces another presenting the same syntactic distribution and the resulting sentence is grammatical, then that is evidence they belong to the same lexical category. If it does not replace another because the resulting sentence is ungrammatical, then that is evidence they belong to different lexical categories;

(3) Certain lexical categories\(^9\) do not occur in isolation but as daughters of one type of phrase. If two or more head elements combine with the same dependent elements, this is evidence that the head elements belong to the same lexical category. If they do not combine with the same dependent elements because the resulting sentences are ungrammatical, this is evidence that the head elements belong to different lexical categories;

(4) When present, certain non-manuals mark the boundaries and extent of syntactic units. If a non-manual co-occurs simultaneously with multiple adjacent signs, this is evidence that the signs form a syntactic constituent; and

\(^9\) They can be major or minor categories. Generally, Adjective is a major category daughter of the NP, while Preposition is a minor category head of the PP.
(5) When several elements combine to form a syntactic unit, there is a syntactic relation between them that persists when the unit moves to another place in the clause. Given grammatical clauses, if two signs move together then that is evidence they form a unit with a constituent structure. If two signs do not move together, then that is evidence they do not form a syntactic unit.

It is important to keep in mind that these principles are simple inductive arguments. Therefore, the truth of conclusions based on these principles is probable, not certain. For that reason, multiple tests have been used for testing every category.

The following sections discuss the application of these principles.

2.3.1 Principle #1

Principle #1 states that typically, coordinating conjunctions link syntactic units of the same category. If two signs are conjoined, and the resulting sentence is grammatical, then that is evidence they belong to the same lexical category. If they cannot be conjoined because the resulting sentence is ungrammatical, then that is evidence they belong to different lexical categories.

According to Velupillai (2012:307), “[c]oordination is when linguistic units of the same syntactic status are linked together to form a larger linguistic unit which carries the same function as its parts.” The units linked by coordination share the same status or importance, and typically the same syntactic category.

Frequently, coordination includes a connecting element or coordinating conjunction, which “is a conjunction that links constituents without syntactically subordinating one to the other” (Hartmann & Stork 1972:54, Crystal 1980:76).

In LSA, the conjunction O ’or’ (section 3.6) serves to link signs, as shown in (17).
In (17), the conjunction *or* links the signs *NEGRO* ‘black’ and *FEO* ‘ugly’. This evidence shows that *NEGRO* ‘black’ and *FEO* ‘ugly’ belong to the same lexical category. Coordination provides evidence for lexical categorization. However, finding acceptable examples is not that simple. There are few contexts where coordinating conjunctions appear in LSA; for instance, in questions, as in (17). However, (17) cannot be made in isolation. First, it requires the introduction of participants and background information. If the context is not adequate, the signer will disregard the question as unacceptable, and the test will appear to give evidence that the two words are in different lexical categories.

Failure in coordination provide evidence for lexical categorization, as shown in (18).

In (18), the sign *PEQUEÑO-5CM* ‘small’ cannot be conjoined with *DOS* ‘two’. This evidence suggests that they belong to different lexical categories.

Failure in coordination also provides evidence for lexical categorization. Again, finding acceptable examples is not that simple. Often signers reject sentences giving the impression they are ungrammatical when in fact they are grammatical however unacceptable, as shown comparing (19) and (20).
Example (19) was rejected creating the impression that \( O \) ‘or’ cannot link the units \( COLOR BLANCO \) ‘white-colored’ and \( COLOR ROJO \) ‘red-colored’. Here, failure in coordination seems to be evidence that the units belong to different syntactic categories. However, another signer accepted (20), which is almost identical to (19).

\[
(19) \sim^{10} TAZA IX_r-O-IX_j \quad \text{COLOR BLANCO O COLOR ROJO} \quad IX_r-O-IX_j \quad \text{¿CUÁL?}
\]

‘Which cup (do you want), the white-colored or the red-colored one?’

Example (20) was accepted by the second signer after some hesitation, suggesting that it is grammatical but somehow otherwise unsound.

Therefore, (19) is not necessarily ungrammatical but unacceptable for some signers for reasons that need to be established. Thus, (19) and (20) are not good examples for constituency tests based on principle #1.

A similar situation arises when semantic restrictions invalidate the coordination of similar syntactic elements, as in \( \sim \)-cookies and cars are delicious. Here, cookies and cars cannot be conjoined because of semantic restrictions, not because they belong to different lexical categories. The sentence is grammatical; however, it is unacceptable; therefore, it is not a good example for testing constituency based on principle #1.

\[\]

\[10\] The symbol \( \sim \) indicates that a sentence is grammatical but somehow unacceptable (Appendix A.2).
2.3.2 Principle #2

Principle #2 states that generally, signs in the same lexical category are mutually substitutable. If a sign replaces another presenting the same syntactic distribution and the resulting sentence is grammatical, then that is evidence they belong to the same lexical category. If it does not replace another because the resulting sentence is ungrammatical, then that is evidence they belong to different lexical categories.

In LSA, certain signs can be replaced with others occupying the same position in the sentence, as shown in (21) and (22).

(21) MUJER IXi COMPRAR VESTIDO HERMOSO
woman that buy dress beautiful

‘That woman bought a beautiful dress.’

(22) MUJER IXi COMPRAR VESTIDO FEO
woman that buy dress ugly

‘That woman bought an ugly dress.’

In (21) and (22), the signs HERMOSO ‘beautiful’ and FEO ‘ugly’ are mutually substitutable. This evidence suggests that they belong to the same lexical category. The application of this principle without considering the syntactic distribution of signs can lead to wrong conclusions. That applies in particular for LSAp, where variation in word order is wider than in LSAo. Sentences (23) to (25) seem to have a similar structure; however, they are different.

(23) HOMBRE DOS TRABAJAR
man two work

‘Two men work.’
(24) *HOMBRE JÓVEN TRABAJAR*
   man   young  work
   ‘A young man works.’

(25) *HOMBRE SIEMPRE TRABAJAR*
   man   always   work
   ‘A man always works.’

Examples (23) to (25) are grammatical. The signs *DOS* ‘two’, *JÓVEN* ‘young’, and
*SIEMPRE* ‘always’ seem to be mutually substitutable. According to the principle #2, they
belong to the same lexical category; however, they do not, because there is more to their
distribution than simply their occurrence in this one position.

This issue is addressed considering the overall syntactic distribution of these signs.
Examples (26) to (28) show the distribution of the sign *SIEMPRE* ‘always’.

(26) *HOMBRE DOS JÓVEN TRABAJAR SIEMPRE*
    man   two   young   work   always
    ‘Two young men always work.’

(27) *HOMBRE DOS JÓVEN SIEMPRE TRABAJAR*
    man   two   young   always   work
    ‘Two young men always work.’

(28) *SIEMPRE, HOMBRE DOS JÓVEN TRABAJAR*
    always   man   two   young   work
    ‘Two young men always work.’
In (26) to (28), SIEMPRE ‘always’ occurs at the beginning of the sentence, before the verb TRABAJAR, or after TRABAJAR. However, JÓVEN and DOS have a different distribution than SIEMPRE, as shown in (29) to (33).

(29) **HOMBRE DOS JÓVEN TRABAJAR SIEMPRE**
    man two young work always
    ‘Two young men always work.’

(30) **HOMBRE JÓVEN DOS TRABAJAR SIEMPRE**
    man young two work always
    ‘Two young men always work.’

(31) **JÓVEN HOMBRE DOS TRABAJAR SIEMPRE**
    young man two work always
    ‘Two young men always work.’

(32) **JÓVEN DOS HOMBRE TRABAJAR SIEMPRE**
    young two man work always
    ‘Two young men always work.’

(33) **DOS JÓVEN HOMBRE TRABAJAR SIEMPRE**
    two young man work always
    ‘Two young men always work.’

In (29) to (33), the signs JÓVEN ‘young’ and DOS ‘two’ occur in any possible order respect to HOMBRE ‘man’, and they together stay before\(^{11}\) TRABAJAR.

---

\(^{11}\)They can move to final sentence position but only through a process of right-dislocation; however, only neutral sentences are in focus here because only they can provide direct information about the syntactic structure of sentences, which is the goal of this research.
Hence, JÓVEN and DOS have a different distribution than SIEMPRE. They are not mutually substitutable. However, JÓVEN and DOS still seem to be mutually substitutable. This evidence suggests that they are in the same category, although other principles may still provide contrary evidence.

SIEMPRE ‘always’ presents the same distribution in LSAo, as shown in (34) to (36).

(34) **HOMBRE CUMPLIR TRABAJO SIEMPRE**

man accomplish job always

‘A man always does his job.’

(35) **HOMBRE SIEMPRE CUMPLIR TRABAJO**

man always accomplish job

‘A man always does his job.’

(36) **SIEMPRE HOMBRE CUMPLIR TRABAJO**

always man accomplish job

‘A man always does his job.’

In (34) to (36), SIEMPRE is placed after the predicate, before it, or at the beginning of the sentence. The distribution is identical to LSAp.

In LSAo, DOS and JÓVEN occur in different positions, as shown in (37).

(37) **DOS HOMBRE JÓVEN SIEMPRE CUMPLIR TRABAJO**

two man young always accomplish job

‘Two young men always do their job.’

In (37), DOS precedes HOMBRE, and JÓVEN follows it.
In both varieties, the signs *DOS* ‘two’ and *JÓVEN* ‘young’ join to the noun *HOMBRE* ‘man’ showing different syntactic distribution than *SIEMPRE* ‘always’, which can take any position except between *DOS, JÓVEN, and HOMBRE*.

Semantic restrictions can invalidate the mutual substitutability of signs belonging to the same lexical category, as in *two new cars are racing vs. ~two delicious cars are racing*. The second sentence is unacceptable, giving the impression that *new* and *delicious* belong to different lexical categories. Other examples provide evidence for a correct categorization; for example, the clauses *I ate two new muffins* and *I ate two delicious muffins*. Therefore, other tests based on this or other principles must be used to confirm negative results of tests based on principle #2.

### 2.3.3 Principle #3

Principle #3 states that certain lexical categories do not occur in isolation but as daughters of one type of phrase. If two or more head elements combine with the same dependent elements, this is evidence that the head elements belong to the same lexical category. If they do not combine with the same dependent elements because the resulting sentences are ungrammatical, this is evidence that the head elements belong to different lexical categories.

The syntactic organization of phrases becomes evident when observing how elements combine, as shown in (38) to (40).

(38) **CARNE**$_i$ **SOLO** $iX_i$ **PERSONA**$_i$ $i$ **COMPRAR**$_i$

\textit{meat only that person i-buy-j}

‘That person buys only meat.’
The sign CARNE ‘meat’ accomplishes the same syntactic function in (39) as CARNE SOLO ‘only meat’ in (38), showing that CARNE is the head of the phrase CARNE SOLO. The head is the most important element of the unit; it is “a constituent of an endocentric construction that, if standing alone, could perform the syntactic function of the whole construction” (Loos et al. 2003).

The sign SOLO, on the other hand, cannot perform the same syntactic function as the unit CARNE SOLO, as shown in (40).

Example (40) is unacceptable, showing that SOLO cannot stand alone. This type of element is usually referred as a dependent, which is “any element in a phrase that does not refer to the same entity that the whole phrase refers to” (Loos et al. 2003).

The sign CARNE can be replaced with other signs, as shown in (41).

The sign VERDURA ‘vegetable’ perform the same syntactic function in (41) as CARNE ‘meat’ in (38).
The signs VERDURA ‘vegetable’ and CARNE ‘meat’ are head elements and both combine with the dependent element SOLO ‘only’. This evidence suggests that VERDURA and CARNE belong to the same lexical category.

In certain clauses, and always given a previous context, head elements can be omitted because of ellipsis creating the impression that dependent elements can stand alone performing the same syntactic function as the whole phrase, as shown in (42).

(42) MANZANA COLOR DOS VERDE ROJO, IX₁ GUSTAR MÁS Ø VERDE

‘Apples exist in two colors, green and red; I like green ones the most.’

In the second clause of (42), the adjective¹² VERDE ‘green’ is not referring to a particular color but a particular apple introduced in the first clause. In the second clause, nominal ellipsis produces the noun phrase Ø VERDE ‘green one’ leaving the adjective VERDE as a dependent element of a silent noun head.

This principle allows a quick assessment of signs and works in many contexts. However, its application is not straightforward when dependent elements combine with multiple lexical categories. For example, the Spanish degree word muy ‘very’ combines with the adjective lindo ‘pretty’ or the adverb rápido ‘fast’. Therefore, the word muy ‘very’ does not provide direct evidence for adjectives in Spanish. However, muy ‘very’ only combines with adjectives in the noun phrase. Therefore, the word muy provides evidence in noun phrases that adjectives and adverbs are distinct lexical categories.

¹² In LSA, signs for colors are adjectives, discussed in section 3.2.1.
Moreover, within a lexical category can exist sub-categorization that may be overlooked if relying only on this principle. For instance, the Spanish adverbs *siempre* ‘always’ and *rápido* ‘fast’ are dependent elements when they combine with the verb *correr* ‘to run’. However, an attempt to conjoin them fails: *¿Él corre siempre o rápido?* (‘does he run always or fast?’). This can be accounted for by positing that they are in the same major category, which accounts for their ability to modify verbs, but different subcategories, which accounts for their inability to be coordinated.

Tests for lexical categorization based on this principle provide evidence in contexts where dependent elements combine with heads elements of one lexical category; still, sub-categorization may be overlooked if relying only on this principle.

2.3.4 Principle #4

Principle #4 states that when present, certain non-manuals mark the boundaries and extent of syntactic units. If a non-manual co-occurs simultaneously with multiple adjacent signs, this is evidence that the signs form a syntactic constituent.

This principle is based on the general tendency observed in sign languages that “in general, non-manual cues … indicate the ends of phrases (boundary markers) or their extent (domain markers)” (Wilbur 2000:196).

In LSA, certain non-manuals frequently extend over multiple signs, as shown in (43).

\[
\text{CARNE}_i \quad \text{SOLO} \quad \text{PERSONA}_i \quad \text{COMPRAR}_j \\
\text{meat} \quad \text{only} \quad \text{that person} \quad \text{i-buy-j}
\]

‘That person buys only meat.’
In (43), the non-manual body shift toward the location “j” (b:shtj\textsuperscript{13}) co-occurs simultaneously with the signs CARNE ‘meat’ and SOLO ‘only’. This evidence suggests that CARNE SOLO ‘only meat’ is a syntactic unit; a unit with a constituent structure, as shown in (38) to (40).

Non-manuals reflect changes in the structure of the clause, as shown in (44).

\begin{verbatim}
  eb:r____  eb:r____
 h:tir____  h:til____  h:tuti____  h:tir____
 b:shtj___  b:shtj____
\end{verbatim}

\textbf{(44) CARNE}\textsubscript{j}  \textbf{SIEMPRE} IX\textsubscript{i}  \textbf{PERSONA}\textsubscript{i}  \textbf{i.COMPRAR}\textsubscript{j}

‘That person always buys meat.’

The sign SIEMPRE ‘always’ seems to be placed in the same position in (44) as SOLO ‘only’ in (43). However, in (44) the non-manuals body shift toward the location “j” (b:shtj) and head tilt right (h:tir) extend over CARNE ‘meat’ but not over SIEMPRE ‘always’. The discontinuity of non-manuals is evidence that CARNE and SIEMPRE do not belong to the same constituent. This shows that SOLO ‘only’ and SIEMPRE ‘always’ are not mutually substitutable, since the different non-manuals show the context is not the same, which is evidence that they do not belong to the same lexical category.

Non-manual cues reveal the syntactic constituency of elements, which provides evidence for the lexical categorization of those elements.

\textsuperscript{13} Appendix A.3 presents a list of non-manual abbreviations.
2.3.5 Principle #5

Principle #5 states that when several elements combine to form a syntactic unit, there is a syntactic relation between them that persists when the unit moves to another place in the sentence. Given grammatical sentences, if two signs move together then that is evidence they form a unit with a constituent structure. If two signs do not move together, then that is evidence they do not form a syntactic unit.

This principle serves to test syntactic constituency, which provides evidence for lexical categorization, as shown in examples (45) to (46).

\[
\begin{align*}
\text{eg:i} & \\
\text{eb:r} & \quad \text{eb:r} \\
\text{h:tid} & \quad \text{h:tid}
\end{align*}
\]

(45) \(\text{TAZA}_i \quad \text{COLOR ROJO} \quad IX_i \quad \text{1COMPRAR}_i\)

\begin{tabular}{llll}
\text{cup} & \text{color} & \text{red} & \text{1SG} 1\text{-buy-i} \\
\end{tabular}

‘I buy a red-colored cup.’

\[
\begin{align*}
\text{eg:i} & \\
\text{eb:r} & \quad \text{eb:r} \\
\text{h:tid} & \quad \text{h:tid}
\end{align*}
\]

(46) \(\text{COLOR ROJO} \quad \text{TAZA}_i \quad IX_i \quad \text{1COMPRAR}_i\)

\begin{tabular}{llll}
\text{color} & \text{red} & \text{cup} & \text{1SG} 1\text{-buy-i} \\
\end{tabular}

‘I buy a red-colored cup.’

The signs \textit{COLOR} ‘color’ and \textit{ROJO} ‘red’ move together between (45) and (46).

According to the principle #5, this evidence suggests that they form the syntactic unit \textit{COLOR ROJO} ‘red-colored’.

Non-manuals provide additional evidence. The eyebrows raised (eb:r) and head tilt down (h:tid) mark the boundaries of \textit{COLOR ROJO} ‘color red’. According to the principle #4, this evidence suggests that \textit{COLOR ROJO} is a syntactic unit.
COLOR and ROJO do not move together in the two clauses in (47).

\[
\begin{array}{cccc}
\text{eb:r}_{} & \text{eb:r}_{} & \text{eb:r}_{} & \text{eg:i} \\
\text{h:tid}_{} & \text{h:tid}_{} & \text{h:tid}_{} & \text{h:tid}_{} \\
\end{array}
\]

(47) TAZA \ IX_i \ COLOR \ ROJO \ SIGNIFICAR \ ROJO \ COLOR \ IX_P_i \\
cup \ that \ color \ red \ mean \ red \ color \ 3SG.POSS

‘That cup's color is red meaning that red is its color.’

In (47), the non-manuals eyebrows raised (eb:r) and head tilt down (h:tid) separate the two instances of COLOR from ROJO. Also, they move separately in the two clauses of the sentence. In this case, we cannot conclude that ROJO is modifying COLOR as part of the same NP. Other tests are necessary to establish their syntactic function.

Tests based on principles #1 to #5 provide evidence for lexical categorization. The more principles that can be applied, the more compelling the evidence will be for the correct categorization of a sign.
CHAPTER 3
LEXICAL CATEGORIES

This chapter discusses eleven lexical categories of LSA and presents syntactic evidence for them. The categories are Noun, Adjective, Degree Sign, Numeral, Determiner, Personal Pronoun, Possessive Pronoun, Verb, Adverb, Preposition and Conjunction. “A lexical category is a syntactic category for elements that are part of the lexicon of a language. These elements are at the word level” (Loos et al. 2003).

In LSA, signs referring to people or things are the heads of noun phrases, and they combine with dependent elements typically considered noun modifiers, forming noun phrases. They are categorized as nouns, discussed in section 3.1. Sign names present all the syntactic features of nouns in LSAp. However, some evidence suggests that LSAo may sub-categorize them as proper nouns, discussed in section 3.1.2.

Certain signs precede or follow nouns, combining with them as dependent elements. They include adjectives, numerals, and determiners, discussed in sections 3.2.1 to 3.2.3. Signs that occur in this position are typically considered noun modifiers.

Signs expressing degree precede adjectives, combining with them as dependent elements. They are categorized as degree signs, discussed in section 3.2.1.3.

Pointing signs referring to the speaker, the addressee, or a third person are mutually substitutable with noun phrases. They are categorized as personal pronouns, discussed in section 3.2.4.
Signs expressing possession stand alone in the clause, or they combine with nouns, forming noun phrases; in these phrases, the head noun is the possessed entity. They also refer to the possessor of the entity indicating person and number. They are categorized as *possessive pronouns*, discussed in section 3.2.5.

Loos et al. (2003) claims that “[e]very language has at least two major categories: noun [and] verb”. LSA follows this universal tendency. The sign *DOS* ‘two’ can precede *SILLA* ‘chair’ in (48), but not *SENTAR* ‘sit down’ in (49).

\[
\begin{array}{ccc}
\text{h:tid} & \text{h:tid} & \text{h:tiu} \\
\text{DOS} & \text{SILLA} & \text{DOS}_t \text{ IX}_t \\
\text{two} & \text{chair} & \text{those.two} \text{1SG.POSS} \\
\end{array}
\]

‘There are two chairs; those two are mine.’

In (48), the non-manual head tilt down (h:tid) extends over the signs *DOS* ‘two’ and *SILLA* ‘chair’. According to principle #4, this is evidence that *DOS SILLA* is a syntactic unit. However, *DOS* ‘two’ cannot precede *SENTAR* ‘sit down’, as shown in (49).

\[
\begin{array}{ccc}
\text{DOS} & \text{SENTAR} & \\
\text{two} & \text{sit.down} & \\
\end{array}
\]

(‘Two sit down.’)

Example (49) is ungrammatical, showing that the sign *SILLA* ‘chair’ cannot be replaced by *SENTAR* ‘sit down’; they are not mutually substitutable. According to principle #2, this is evidence that they belong to different lexical categories. Section 3.1 provides evidence that *SILLA* ‘chair’ is a noun, and section 3.3 that *SENTAR* ‘sit down’ is a verb.
3.1  Noun

This section discusses the *Noun* category and presents syntactic evidence for the classification of certain signs, fingerspelled signs, and sign names as *nouns*.

Cross-linguistic research has established that “[e]very language has at least two major categories: noun [and] verb” (Loos et al. 2003) and that “it also seems safe to assume that Noun and Verb… are universal to sign languages” (Velupillai 2012:150). This research, therefore, started with the presumption that Noun is a universal category and proceeded to identify which signs belong in it.

The Noun category “typically refers to things, person and places, but also includes abstract notions such as feelings, ideas and so on” (Velupillai 2012:123).

Figure 1 shows two LSA signs referring to things.

![Figure 1: GATO ‘cat’ and PERRO ‘dog’](image)

Figure 1 shows the signs *GATO* ‘cat’ (left) and *PERRO* ‘dog’ (right), prompted by pictures of a cat and a dog. The form *GATO* is thumb and fingers extended and spread; fingers touching the cheek with the palm facing to the signer; then, fingers flex twice rubbing the cheek. The form *PERRO* is index and middle finger extended together; palm facing the face in front of the nose; fingers bend rubbing the nose twice.
In LSA, the signs *GATO* ‘cat’ and *PERRO* ‘dog’ refer to things. They can be conjoined, as shown in (50)\(^{14}\).

\[
\text{eg:i} \quad \text{eb:f} \quad \text{b:shl} \quad \text{b:shr}
\]

\[(50) \quad \text{RATÓN}_j \quad \text{PASAR}_i \quad \text{PERSEGUIR}_j \quad \text{¿QUIÉN?} \quad \text{PERRO}_i \quad \text{O} \quad \text{GATO}_i
\]

*mouse*  *pass*  *i-chase-j*  *who?*  *dog*  *or*  *cat*

‘A mouse passed. Which is chasing it, a dog or a cat?’

In (50), the conjunction *O* ‘or’ links the signs *GATO* and *PERRO*. According to the principle #1, this is evidence that they belong to the same lexical category.

*GATO* and *PERRO* are mutually substitutable, as shown in (51) and (52).

\[(51) \quad \text{RATÓN}_j \quad \text{GATO}_i \quad \text{PERSEGUIR}_j
\]

*mouse*  *cat*  *i-chase-j*

‘A cat chases a mouse.’

\[(52) \quad \text{GATO}_i \quad \text{PERRO}_i \quad \text{PERSEGUIR}_j
\]

*cat*  *dog*  *i-chase-j*

‘A dog chases a cat.’

The sign *GATO* performs the same syntactic function in (51) as *PERRO* in (52). Both signs exhibit the same distribution in the clause. According to the principle #2, this is evidence that they belong to the same lexical category.

*GATO* and *PERRO* are head elements that combine with the same dependent elements, as shown comparing (53) to (57) with (58) to (62).

---

\(^{14}\) (50) to (57) are examples from LSAp.
In (53) and (54), the non-manual body shift right (b:shr) extends over GATO FELIZ ‘happy cat’ and GATO NEGRO ‘black cat’. In (55), the body shift forward (b:shf) extends over GATO DOS ‘two cats’. In (56), the head tilt down (h:tid) extends over GATO P₁ ‘my cat’. According to the principle #4, this is evidence that GATO FELIZ, GATO NEGRO, GATO DOS, and GATO P₁ are syntactic units.

\[15\] In LSA, the phrases “happy cat” or “happy dog” only make sense for fictional characters.
GATO ‘cat’ performs the same syntactic function in (51) as the units GATO FELIZ, GATO NEGRO, GATO DOS, and GATO P₁ in (53) to (56). This shows that GATO is the head of the previous units, while FELIZ, NEGRO, DOS, and P₁ are dependent elements.

In LSA, GATO also combines with pointing signs, as shown in (57).

\[
\begin{array}{ccc}
  h:tutj & h:tuti & h:tutj \\
  b:shr & b:tti & b:ttj
\end{array}
\]

(57) RATÓN, IX, GATO, IX, ¡PERSEGUIR, mouse that cat that i-chase-j

‘That cat chases that mouse.’

In (57), the non-manuals body turn toward the location “i” (b:tti) and head turn toward “i” (h:tuti) co-occur simultaneously with GATO ‘cat’ and the pointing sign IX, ‘that’.

According to the principle #4, this is evidence that they form the syntactic unit GATO IX, ‘that cat’. The syntactic relation between these signs is discussed in section 3.2.3.

The sign PERRO ‘dog’ combines with the same elements in (58) to (62) as GATO ‘cat’ in (53) to (57).

\[
\begin{array}{ccc}
  h:tid & b:shti & b:shtj
\end{array}
\]

(58) GATO, PERRO, FELIZ, ¡PERSEGUIR, cat dog happy i-chase-j

‘A happy dog chases a cat.’

\[
\begin{array}{ccc}
  h:tid & b:shti & b:shtj
\end{array}
\]

(59) GATO, PERRO, NEGRO, ¡PERSEGUIR, cat dog black i-chase-j

‘A black dog chases a cat.’

38
In (58) to (62), the non-manual body shift toward “i” (b:shti) extends over PERRO FELIZ ‘happy dog’, PERRO NEGRO ‘black dog’, PERRO DOS ‘two dogs’, PERRO P₁ ‘my dog’, and PERRO IXᵢ ‘that dog’. According to the principle #4, this is evidence that PERRO FELIZ, PERRO NEGRO, PERRO DOS, and PERRO IXᵢ are syntactic units.

The sign PERRO ‘dog’ performs the same syntactic function in (52) as the units PERRO FELIZ, PERRO NEGRO, PERRO DOS, and PERRO P₁ in (58) to (61).

However, the signs FELIZ, NEGRO, DOS, and P₁ cannot stand alone because the resulting sentences are unacceptable\(^{16}\). This shows that PERRO is the head of the previous phrases, while FELIZ, NEGRO, DOS, and P₁ are dependent elements.

\(^{16}\) They are unacceptable because without a context the reference is unknown. Given a context, nominal ellipsis allows dependent elements to stand alone as noun phrases. This is discussed in section 3.2.1.
The signs *GATO* and *PERRO* are head elements and combine with the same dependent elements. According to the principle #3, this is evidence that they belong to the same lexical category.

The signs *GATO* ‘cat’ and *PERRO* ‘dog’ refer to things. They can be conjoined. They present the same distribution in the clause. These signs stand alone as single syntactic units; they combine with dependent elements, forming syntactic units; or, they combine with pointing signs, forming syntactic units. Considering this evidence, they are categorized as *nouns*.

Figure 2 shows two signs referring to people.

![Figure 2: PERSONA ‘person’ and MUJER ‘woman’](image)

The form *PERSONA* is palm facing up at the level of the face; hand moves down and holds in the position shown in Figure 2. The form *MUJER* is palm facing forward at the level of the mouth; index and middle finger extended, spread and pointing up; hand moves with ipsilateral and contralateral movement.

*PERSONA* and *MUJER* can be conjoined with nouns, as shown in (63) and (64).
In (63) and (64), the coordinating conjunction \( O \) ‘or’ links the signs \( \text{PERSONA} \) and \( \text{MUJER} \) with the noun \( \text{GATO} \). According to the principle #1, this is evidence that \( \text{PERSONA} \) and \( \text{MUJER} \) are nouns.

\( \text{PERSONA}, \text{MUJER}, \text{and GATO} \) are mutually substitutable, as shown in (65) to (67).

\begin{align*}
\text{(65) } & \text{PERSONA}_i \text{PERSEGUIR}_j \text{RATÓN}_j \\
\text{cat} & \text{i-chase-j mouse} \\
\text{‘A person chases a mouse.’} \\
\end{align*}

\begin{align*}
\text{(66) } & \text{MUJER}_i \text{PERSEGUIR}_j \text{RATÓN}_j \\
\text{cat} & \text{i-chase-j mouse} \\
\text{‘A woman chases a mouse.’} \\
\end{align*}

\begin{align*}
\text{(67) } & \text{GATO}_i \text{PERSEGUIR}_j \text{RATÓN}_j \\
\text{cat} & \text{i-chase-j mouse} \\
\text{‘A cat chases a mouse.’} \\
\end{align*}
In (65) to (67), PERSONA, MUJER, and GATO stand alone in the same position.

According to the principle #2, this is evidence that MUJER and PERSONA are nouns.

PERSONA and MUJER are head elements in the phrase, as shown in (68) to (72).

In (68), the non-manual shoulders up (sh:u) extends over MUJER FELIZ ‘happy woman’.

In (69), the body turn toward “i” (b:tti) extends over PERSONA FELIZ ‘happy person’. In
(70) and (71), the body shift left (b:shl) extends over DOS MUJER ‘two women’ and DOS PERSONA+ ‘two people’. In (72), the eyebrows raised (eb:r) extends over MUJER P1 ‘my woman’. According to the principle #4, this is evidence that MUJER FELIZ, PERSONA FELIZ, DOS MUJER, DOS PERSONA+, and MUJER P1 are syntactic units.

The sign PERSONA, on the other hand, does not combine with P1 either in LSAo or LSAp, as shown in (73) to (76).

(73)  *PERSONAi P1 PERSEGUIRj RATÓNj
      person 1SG.POSS i-chase-j mouse

(‘My person chases a mouse.’)

(74)  *P1 PERSONAi PERSEGUIRj RATÓNj
       1SG.POSS person i-chase-j mouse

(‘My person chases a mouse.’)

(75)  *RATÓNj PERSONAi P1 PERSEGUIRj
       mouse person 1SG.POSS i-chase-j

(‘My person chases a mouse.’)

(76)  *RATÓNj P1 PERSONAi PERSEGUIRj
       mouse 1SG.POSS person i-chase-j

(‘My person chases a mouse.’)

Examples (73) to (76) are ungrammatical, showing that P1 cannot co-occur with the noun PERSONA. The reasons for this constraint still have to be determined. If this constraint is syntactic, it would suggest that LSA sub-categorizes nouns according to whether they can or cannot be possessed.
The sign *MUJER* ‘woman’ performs the same syntactic function in (66) as the units
*MUJER FELIZ, DOS MUJER*, and *MUJER P₁* in (68), (70), and (72). The sign
*PERSONA* ‘person’ accomplishes the same syntactic function in (65) as the units
*PERSONA FELIZ* and *DOS PERSONA* in (69) and (71). On the other hand, the signs
*FELIZ, DOS,* and *P₁* cannot stand alone because the resulting sentences are incomplete.
This evidence suggests that *MUJER* and *PERSONA* are the heads of the previous phrases,
while *FELIZ, DOS,* and *P₁* are dependent elements.

The signs *MUJER* and *PERSONA* also combine with pointing signs, forming
syntactic units, as shown in (77) and (78).

(77) \[
\begin{array}{cccc}
  & eb:r & b:shl & b:ttj & b:shl \\
\text{MUJER}_i & \text{IX}_i & \text{PERSEGUIR}_j & \text{RATÓN}_j \\
\text{woman} & \text{that} & \text{i-chase-j} & \text{mouse} \\
\end{array}
\]

‘That woman chases a mouse.’

(78) \[
\begin{array}{cccc}
  & eb:r & b:shl & b:ttj & b:shl \\
\text{PERSONA}_i & \text{IX}_i & \text{PERSEGUIR}_j & \text{RATÓN}_j \\
\text{person} & \text{that} & \text{i-chase-j} & \text{mouse} \\
\end{array}
\]

‘That person chases a mouse.’

In (77) and (78), the non-manual eyebrows raised (eb:r) marks the boundaries of *MUJER
IXₖ* ‘that woman’ and *PERSONA IXₖ* ‘that person’. According to the principle #4, this is
evidence that *MUJER IXₖ* and *PERSONA IXₖ* are syntactic units.

The signs *MUJER* ‘woman’ and *PERSONA* ‘person’ refer to people. They conjoin
with nouns. They are mutually substitutable with nouns. They stand alone as single
syntactic units; they combine with dependent elements, forming syntactic units; or, they combine with pointing signs. Considering this evidence, they are categorized as nouns.

However, the noun PERSONA does not combine with the possessive pronoun $P_{1}$ ‘1sg.poss’ (discussed in section 3.2.5), for reasons that still need to be determined.

Figure 3 shows two more signs referring to things.

![Figure 3: SILLA ‘chair’ and VESTIDO ‘dress’](image)

Figure 3 shows the signs SILLA ‘chair’ (left) and VESTIDO ‘dress’ (right). The form SILLA is two thumbs extended and touching the chest with palms facing contra. The form VESTIDO is two hands; fingers extended and spread; palms facing contra at chest level; hands move down with forearm pronation.

The signs SILLA ‘chair’ and VESTIDO ‘dress’ can be conjoined with other nouns, as shown in (79) and (80).

\[
e:s\#eb:f\quad b:shf\quad b:shl\quad b:shr\quad b:shf
\]

(79) **MUJER COMPRAR ¿QUE? GATO O VESTIDO ¿QUE?**

‘What is the woman buying, a cat or a dress?’
[80] 

\[
\begin{array}{cccc}
\text{MUJER COMPRAR} & \mathbf{QUE?} & \mathbf{GATO} & \mathbf{O} & \mathbf{SILLA} & \mathbf{QUE?}
\end{array}
\]

woman buy what? cat or chair what?

‘What is the woman buying, a cat or a chair?’

In (79) and (80), the coordinating conjunction \textit{O} ‘or’ links \textit{SILLA} and \textit{VESTIDO} with the noun \textit{GATO}. This section presented syntactic evidence that \textit{GATO} ‘cat’ is a noun.

According to the principle #1, this is evidence that \textit{SILLA} and \textit{VESTIDO} are nouns.

\textit{GATO, SILLA, and VESTIDO} are mutually substitutable, as shown in (81) to (83).

(81) \hspace{1cm} \textit{MUJER COMPRAR GATO} \\
woman buy cat

‘A woman buys a cat.’

(82) \hspace{1cm} \textit{MUJER COMPRAR VESTIDO} \\
woman buy dress

‘A woman buys a dress.’

(83) \hspace{1cm} \textit{MUJER COMPRAR SILLA} \\
woman buy chair

‘A woman buys a chair.’

In (81) to (83), \textit{GATO, SILLA, and VESTIDO} exhibit the same distribution in the clause. According to the principle #2, this is evidence that \textit{SILLA} and \textit{VESTIDO} are nouns.

\textit{SILLA} and \textit{VESTIDO} combine with dependent elements, forming syntactic units, as shown in (84) to (89).
(84) **MUJER** **COMPRAR** **VESTIDO NUEVO**
woman buy dress new

‘A woman buys a new dress.’

(85) **MUJER** **COMPRAR** **SILLA NUEVO**
woman buy chair new

‘A woman buys a new chair.’

(86) **MUJER** **COMPRAR** **DOS** **VESTIDO**
woman buy two dress

‘A woman buys two dresses.’

(87) **MUJER** **COMPRAR** **DOS** **SILLA**
woman buy two chair

‘A woman buys two chairs.’

(88) **MUJER** **LLEVAR** **VESTIDO**
woman take dress 1SG.POSS

‘A woman buys my dress.’

(89) **MUJER** **LLEVAR** **SILLA**
woman take chair 1SG.POSS

‘A woman buys my chair.’

In (84) to (87), the non-manual body shift forward (b:shf) marks the boundaries of **VESTIDO NUEVO** ‘new dress’, **SILLA NUEVO** ‘new chair’, **DOS VESTIDO**+ ‘two dresses’, and **DOS SILLA**+ ‘two chairs’. In (88) and (89), the head tilt up and down
(h:tiud) extends over \textit{VESTIDO P}_1 ‘my dress’ and \textit{SILLA P}_1 ‘my chair’. According to the principle #4, this is evidence that \textit{VESTIDO NUEVO}, \textit{SILLA NUEVO}, \textit{DOS VESTIDO}, \textit{DOS SILLA}+, \textit{VESTIDO P}_1, and \textit{SILLA P}_1 are syntactic units.

The sign \textit{VESTIDO ‘dress’} performs the same syntactic function in (82) as the units \textit{VESTIDO NUEVO}, \textit{DOS VESTIDO}, and \textit{VESTIDO P}_1 in (84), (86), and (88). The sign \textit{SILLA ‘chair’} performs the same syntactic function in (83) as the units \textit{SILLA NUEVO}, \textit{DOS SILLA}, and \textit{SILLA P}_1 in (85), (87), and (89). The signs \textit{NUEVO}, \textit{DOS}, and \textit{P}_1 cannot stand alone because the resulting sentences are unacceptable. This evidence suggests that \textit{VESTIDO} and \textit{SILLA} are the heads of the previous phrases, while \textit{NUEVO}, \textit{DOS}, and \textit{P}_1 are dependent elements.

The sign \textit{VESTIDO} and \textit{SILLA} combine with pointing signs, forming syntactic units, as shown in (90) and (91).

\begin{verbatim}
\begin{tabular}{ll}
\textit{VESTIDO} & \textit{SILLA} \\
& \textit{P}_1 \\
\end{tabular}
\end{verbatim}

\textit{b:shl}________ \textit{b:shr}________

\begin{verbatim}
(90) \textit{MUJER}_i \textit{IX}_i \textit{LLEVAR}_i \textit{VESTIDO}_j \textit{IX}_j
\end{verbatim}

\begin{verbatim}
woman \hspace{1em} \text{that} \hspace{1em} \text{j-take} \hspace{1em} \text{dress} \hspace{1em} \text{that}
\end{verbatim}

‘That woman takes that dress.’

\begin{verbatim}
\begin{tabular}{ll}
\textit{VESTIDO} & \textit{SILLA} \\
& \textit{P}_1 \\
\end{tabular}
\end{verbatim}

\textit{b:shl}________ \textit{b:shr}________

\begin{verbatim}
(91) \textit{MUJER}_i \textit{IX}_i \textit{LLEVAR}_i \textit{SILLA}_j \textit{IX}_j
\end{verbatim}

\begin{verbatim}
woman \hspace{1em} \text{that} \hspace{1em} \text{j-take} \hspace{1em} \text{chair} \hspace{1em} \text{that}
\end{verbatim}

‘That woman takes that chair.’

In (90) and (91), the non-manual body shift right (b:shr) extends over \textit{VESTIDO IX}_j ‘that dress’ and \textit{SILLA IX}_i ‘that chair’. This evidence suggests that \textit{VESTIDO IX}_j and \textit{SILLA IX}_i are syntactic units.
The signs *VESTIDO* and *SILLA* can be conjoined with nouns. They are mutually
substitutable with nouns. They stand alone as single syntactic units; they combine with
noun dependent elements, forming syntactic units; or, they combine with pointing signs.
Considering this evidence, *VESTIDO* and *SILLA* are categorized as nouns.

In LSA, signs referring to people or things can be conjoined. They are mutually
substitutable. They stand alone as single syntactic units; they combine with dependent
elements typically considered noun modifiers, forming syntactic units; or, they combine
with pointing signs, forming syntactic units. Considering this evidence, signs referring to
people or things are categorized as *nouns*.

In LSA, certain nouns do not combine with possessive pronouns; others do not
combine with numerals. The reasons for these constraints still have to be determined.

Fingerspelled nouns are discussed in section 3.1.1.

In LSAp, sign names are categorized as nouns. In LSAo, on the other hand, they do
not conjoin with nouns, nor do they combine with possessive pronouns. This evidence
suggests that LSAo may sub-categorize them as *proper nouns*, discussed in section 3.1.2.

### 3.1.1 Fingerspelled Nouns

This section discusses certain fingerspelled forms in LSA and presents evidence for
their categorization as nouns.

In the past, fingerspelled signs were “wrongly judged as falling outside of lexicon
studies” (Orfanidou, Woll & Morgan 2015:145). Padden (1998:56) claims that
“fingerspelled words are overwhelmingly nouns”; they “do not have free distribution in
the language” meaning these forms are used only for certain lexical categories.

In LSA, some fingerspelled signs refer to things. Figure 4 shows one example.
In Figure 4, the sign *P-N* ‘bread’ (from the Spanish *pan* ‘bread’) is articulated using the signs for the letters P and N (initial and final position). The form P is index extended; middle finger flexed touching the index with the fingertip. The form N is index and middle finger extended and separated; fingers pointing downwards.

In LSAp, the sign *P-N* can be conjoined with nouns, as shown in (92).

\[
\text{\textit{IX\textsubscript{i} PERSONA IX\textsubscript{i} LLEVAR ¿QUÉ? P-N\textsubscript{j} O GATO ¿QUÉ?}}
\]

*What did that person take, a loaf bread or a cat?*

Section 3.1 provides syntactic evidence that *GATO* ‘cat’ is a noun. In (92), the coordinating conjunction *O* ‘or’ links the signs *P-N* ‘bread’ and *GATO* ‘cat’. According to the principle #1, this is evidence that *P-N* is a noun.

*P-N* ‘bread’ is mutually substitutable with other nouns, as shown in (93) and (94).
In (93) and (94), the non-manual head tilt down (h:tid) extends over $P-N$ ‘bread’ and $GATO$ ‘cat’. According to the principle #4, this is evidence that $P-N$ and $GATO$ are syntactic units. They stand alone in the same position. They are mutually substitutable.

According to the principle #2, this is evidence that $P-N$ is a noun.

$P-N$ ‘bread’ combines with dependent elements, forming syntactic units, as shown in (95) to (97). Also, it combines with pointing signs, as shown in (98).

\[
\begin{align*}
(94) & \quad GATO_j \, IX_i \quad PERSONA_i \quad \text{\texttt{LEVAR}}_j \\
& \quad \text{cat} \quad \text{that} \quad \text{persona} \quad \text{i-take-i} \\
& \quad \text{‘That person took a cat.’}
\end{align*}
\]

(95) $P-N_j \quad \text{\texttt{NEGRO}} \quad IX_i \quad PERSONA_i \quad \text{\texttt{LEVAR}}_j$

\[
\begin{align*}
& \quad \text{bread} \quad \text{black} \quad \text{that} \quad \text{persona} \quad \text{i-take-j} \\
& \quad \text{‘That person took a rye bread.’ (Lit. ‘that person took a black bread.’)}
\end{align*}
\]

(96) $P-N_j \quad \text{\texttt{DOS}} \quad IX_i \quad PERSONA_i \quad \text{\texttt{LEVAR}}_j$

\[
\begin{align*}
& \quad \text{bread} \quad \text{two} \quad \text{that} \quad \text{persona} \quad \text{i-take-j} \\
& \quad \text{‘That person took two loaves of bread.’ (Lit. ‘that person took two breads.’)}
\end{align*}
\]

(97) $P-N_j \quad P_1 \quad IX_i \quad PERSONA_i \quad \text{\texttt{LEVAR}}_j$

\[
\begin{align*}
& \quad \text{bread} \quad \text{1SG.POSS} \quad \text{that} \quad \text{persona} \quad \text{i-take-j} \\
& \quad \text{‘That person took my bread.’}
\end{align*}
\]

(98) $P-N_j \quad IX_j \quad PERSONA_i \quad \text{\texttt{LEVAR}}_j$

\[
\begin{align*}
& \quad \text{bread} \quad \text{that} \quad \text{that} \quad \text{persona} \quad \text{i-take-j} \\
& \quad \text{‘That person took that bread.’}
\end{align*}
\]
In (95) to (98), the non-manual head tilt down (h:tid) extends over \( P-N \) \( \text{NEGRO} \) ‘black bread’, \( P-N \) \( \text{DOS} \) ‘two loaves of bread’, \( P-N \) \( P_{1} \) ‘my bread’, and \( P-N_{j} IX_{j} \) ‘that bread’. According to the principle #4, this is evidence that \( P-N \) \( \text{NEGRO} \), \( P-N \) \( \text{DOS} \), \( P-N \) \( P_{1} \), and \( P-N_{j} IX_{j} \) are syntactic units.

In LSAo, the sign \( P-N \) can be conjoined with nouns, as shown in (99).

\[
\begin{align*}
\text{b:shl} & \quad \text{b:shl} & \quad \text{b:shr} \\
(99) & \quad IX_{i} & \quad \text{PERSONA}_{i} & \quad \text{LLEVAR}_{j} & \quad P-N_{j} & \quad \text{O} & \quad \text{GATO} & \quad \text{¿CUÁL?} \\
& \quad \text{that} & \quad \text{person} & \quad \text{i-take-j} & \quad \text{bread} & \quad \text{or} & \quad \text{cat} & \quad \text{which?}
\end{align*}
\]

‘What did that person take, a loaf of bread or a cat?’

In (99), the coordinating conjunction \( O \) ‘or’ links the signs \( P-N \) ‘bread’ and \( \text{GATO} \) ‘cat’. According to the principle #1, this is evidence that \( P-N \) is a noun.

In LSAo, \( P-N \) is mutually substitutable with nouns, as shown in (100) and (101).

\[
\begin{align*}
(100) & \quad IX_{i} & \quad \text{PERSONA}_{i} & \quad \text{LLEVAR}_{j} & \quad P-N_{j} \\
& \quad \text{that} & \quad \text{persona} & \quad \text{i-take-j} & \quad \text{bread} \\
& \quad \text{‘That person took a loaf of bread.’}
\end{align*}
\]

\[
\begin{align*}
(101) & \quad IX_{i} & \quad \text{PERSONA}_{i} & \quad \text{LLEVAR}_{j} & \quad \text{GATO} \\
& \quad \text{that} & \quad \text{persona} & \quad \text{i-take-j} & \quad \text{cat} \\
& \quad \text{‘That person took a cat.’}
\end{align*}
\]

In (100) and (101), \( P-N \) and \( \text{GATO} \) stand alone in the same position; they are mutually substitutable. According to the principle #2, this is evidence that \( P-N \) is a noun.

In LSAo, \( P-N \) ‘bread’ combines with dependent elements, forming syntactic units, as shown in (102) to (103).
‘That person took a rye bread.’ (Lit. ‘that person took a black bread.’)

‘That person took my bread.’

In (102), the non-manual head tilt up and down (h:tiud) extends over P-N NEGRO ‘black bread’. In (103), the body shift right (b:shr) extends over P-N PI ‘my bread’. This evidence suggests that P-N NEGRO and P-N PI are single syntactic units.

P-N combines with pointing signs, forming syntactic units, as shown in (104).

In (104), the non-manuals body shift forward (b:shf) and head tilt up and down (h:tiud) extend over P-N IXI ‘that bread’. This evidence suggests that P-N IXI is a syntactic unit.

However, in LSAo, P-N does not combine with DOS ‘two’, as shown in (105).
Example (105) is ungrammatical, showing that P-N does not combine with numerals in LSAo. However, the reason for this constraint still has to be determined.

In LSAP, the sign P-N ‘bread’ performs the same syntactic function in (93) as the units P-N NEGRO, P-N DOS, and P-N P₁ in (95) to (97). In LSAo, the sign P-N ‘bread’ performs the same syntactic function in (100) as the units P-N NEGRO and P-N P₁ in (102) to (103). The signs NEGRO, DOS, and P₁ cannot stand alone because the resulting sentences are unacceptable. This evidence suggests that P-N is the head of the previous phrases, while NEGRO, DOS, and P₁ are dependent elements.

In LSA, certain fingerspelled forms refer to things. They can be conjoined with nouns. They are mutually substitutable with nouns. They stand alone as single syntactic units; they combine with dependent elements, forming syntactic units; or, they combine with pointing signs. Considering this evidence, they are categorized as nouns.

Fingerspelled nouns, adjectives, degree signs, prepositions, and conjunctions have been observed during this research, but not fingerspelled numerals, determiners, pronouns, possessive pronouns, verbs, nor adverbs. Following cross-linguistic tendencies, fingerspelled forms exist only for some lexical categories of LSA.

3.1.2  Sign Names

This section discusses sign names and presents evidence for their categorization as nouns. Certain evidence indicates that LSAo may sub-categorize them as proper nouns.

Figure 5 to Figure 7 show signs referring to specific individuals.
Figure 5 shows the initial position of MARI, the sign name of MRO. The form MARI is palm touching the head; moving back rubbing the hair. Figure 6 shows the sign name of SC. The form SUSANA is index and thumb curved; palm facing contra; thumb touching
the cheek. Figure 7 shows the sign name for RA. The form *RITA* is two arms crossing in front of the signer; fingers extended together; thumb extended and opposed; palms facing up; fingers close with alternating movement, two hands in unison.

These forms are used for signers to introduce themselves, as shown in (106) to (108).

(106) *APODO* \( IX_1 \) \textbf{MARI}  
nickname 1SG.POSS Mari

‘My sign name is Mari.’

(107) \( IX_1 \) *APODO* \textbf{SUSANA}  
1SG.POSS nickname Susana

‘My sign name is Susana.’

(108) \( IX_1 \) *APODO* \textbf{RITA}  
1SG.POSS nickname Rita

‘My sign name is Rita.’

In (106) to (108), the signs *MARI, SUSANA*, and *RITA* are mutually substitutable. According to the principle #2, this is evidence that they belong to the same category.

In LSAp, sign names are mutually substitutable with nouns, as shown in (109) to (110).

(109) *VESTIDO NUEVO* \textbf{MARI}  \textbf{COMPRAR}  
dress new Mari buy

‘Mari is buying a new dress.’

(110) *VESTIDO* \(_i\) \textbf{NUEVO} \textbf{MUJER}_i  \textbf{iCOMPRAR}_j  
dress new woman i-buy-j

‘A woman is buying a new dress.’
Section 3.1 provides syntactic evidence that *MUJER* ‘woman’ is a noun. In (109), the sign name *MARI* stands in the same position as *MUJER* in (110). They are mutually substitutable. According to the principle #2, this is evidence that *MARI* is a noun.

The sign name *MARI* combines with dependent elements, forming syntactic units, as shown in (111) to (113).

\[
\begin{align*}
\text{(111)} & \quad VESTIDO_j \ NUEVO \ \text{MARI}_i \quad \text{FELIZ} \ j \ \text{COMPRAR}_j \ \\
& \text{dress} \quad \text{new} \quad \text{Mari} \quad \text{happy} \quad \text{i-buy-j} \\
& \text{‘A happy Mari is buying a new dress.’}
\end{align*}
\]

\[
\begin{align*}
\text{(112)} & \quad VESTIDO_j \ NUEVO \ \text{MARI}_i \quad \text{DOS} \ j \ \text{COMPRAR}_j \ \\
& \text{dress} \quad \text{new} \quad \text{Mari} \quad \text{two} \quad \text{i-buy-j} \\
& \text{‘Two Mari} \text{s are buying a new dress.’}
\end{align*}
\]

\[
\begin{align*}
\text{(113)} & \quad VESTIDO_j \ NUEVO \ \text{MARI}_i \quad P_1 \ j \ \text{COMPRAR}_j \ \\
& \text{dress} \quad \text{new} \quad \text{Mari} \quad \text{1SG.POSS} \quad \text{i-buy-j} \\
& \text{‘My Mari is buying a new dress.’}
\end{align*}
\]

In (111) to (113), the body shift toward “i” (b:shti) extends over *MARI FELIZ* ‘happy Mari’, *MARI DOS* ‘two Mari’s\(^{17}\)’, and *MARI P_1* ‘my Mari’. According to the principle #1, this is evidence that *MARI FELIZ*, *MARI DOS*, and *MARI P_1* are syntactic units.

*MARI* performs the same syntactic function in (109) as the units *MARI FELIZ*, *MARI DOS*, and *MARI P_1* in (111) to (113). The signs *FELIZ*, *DOS*, and *P_1* cannot stand alone

\(^{17}\) This means there are two women sharing the sign name Mari.
because the resulting sentences are unacceptable. This shows that MARI is the head of the previous phrases, while FELIZ, DOS, and P₁ are dependent elements.

The sign name MARI also combines with pointing signs, as shown in (114).

\[ \text{b:tti} \]

\[(114) \text{VESTIDO NUEVO MARI IXᵢ+ ,COMPRAR} \]
\[ \text{dress new Mari that i-buy-j} \]

‘That Mari is buying a new dress.’

In (114), the non-manual body turn toward “i” (b:tti) marks the boundaries of MARI IXᵢ ‘that Mari’. This evidence suggests that MARI IXᵢ is a syntactic unit.

In LSAp, the sign name MARI can be conjoined with nouns, as shown in (115).

\[ \text{eb: } r \text{eb: } l \text{b:shr b:shr} \]

\[(115) \text{VESTIDO NUEVO ,COMPRAR MARI O MUJER IXᵢ+O-IXᵢ} \]
\[ \text{dress new i-buy-j Mari or woman that-or-that} \]

‘Who bought a new dress, Mari or a woman?’

In (115), the coordinating conjunction O ‘or’ links the signs MARI and the noun MUJER. According to the principle #1, this is evidence that MARI is a noun.

However, in LSAo sign names cannot be conjoined with nouns\(^\text{18}\), as shown in (116).

\[ \text{*VESTIDO NUEVO ,COMPRAR ¿QUIÉN? SUSANA O MUJER} \]
\[ \text{dress new i-buy-j who? Susana or woman} \]

‘Who bought a new dress, Susana or a woman?’

\[ \text{\textsuperscript{18}} \text{In LSAo, it is possible to conjoin sign names with definite nouns (as in IXᵢ, MUJER ‘that woman’), but not with indefinite nouns (as in MUJER ‘a woman’). In LSAp, sign names can be conjoined with both.} \]
Example (116) is ungrammatical, showing that *SUSANA* and *MUJER* cannot be conjoined. According to the principle #1, this evidence suggests that *SUSANA* and *MUJER* belong to different lexical categories.

In LSAo, sign names are mutually substitutable with nouns, as shown in (117) and (118).

(117) **SUSANA** *COMPRAR VESTIDO NUEVO*

Susana    buy    dress    new

‘Susana is buying a new dress.’

(118) **MUJER** *COMPRAR VESTIDO NUEVO*

Woman    buy    dress    new

‘Susana is buying a new dress.’

In (117) and (118), *SUSANA* and the noun *MUJER* stand in the same position, and they are mutually substitutable. This evidence suggests that *SUSANA* is a noun.

In LSAo, *SUSANA* combines with dependent elements, forming syntactic units, as shown in (119) to (121).

\[
\begin{array}{c}
\text{b:shr} \\
\text{b:shl}
\end{array}
\]

(119) **SUSANA FELIZ** *COMPRAR VESTIDO NUEVO*

Susana    happy    buy    dress    new

‘A happy Susana is buying a new dress.’

\[
\begin{array}{c}
\text{b:tml} \\
\text{b:tmu} \\
\text{b:shr}
\end{array}
\]

(120) **DOS SUSANA** *COMPRAR VESTIDO NUEVO*

two   Susana    buy    dress    new

‘Two Susanas are buying a new dress.’
In (119), the non-manual body shift right (b:shr) extends over SUSANA FELIZ ‘happy Susana’. In (120), the body (torso) move down (b:tmd) and body shift right (b:shr) extend over DOS SUSANA ‘two Susanas’. In (121), the body shift left (b:shl) and eyebrows raised (eb:r) extend over SUSANA IXi ‘that Susana’. This evidence suggests that SUSANA FELIZ, DOS SUSANA, and SUSANA IXi are syntactic units.

In LSAo, SUSANA cannot co-occur with P1 ‘1SG.POSS’, as shown in (122).

(122) *P1  SUSANA  COMPRAR VESTIDO NUEVO
1SG.POSS Susana buy dress new

(‘My Susana is buying a new dress.’)

(122) is ungrammatical, suggesting that sign names cannot be possessed in LSAo.

The sign name SUSANA ‘Susana’ performs the same syntactic function in (117) as the units SUSANA FELIZ and DOS SUSANA in (119) to (120). FELIZ and DOS cannot stand alone because the resulting sentences are unacceptable. This shows that SUSANA is the head of the previous phrases, while FELIZ and DOS are dependent elements.

In LSAP sign names conjoin with nouns. They are mutually substitutable with nouns. They stand alone as single syntactic units; they combine with dependent elements typically considered noun modifiers, forming syntactic units; or, they combine with pointing signs, forming syntactic units. Considering this evidence, sign names are categorized as nouns.
In LSAo, on the other hand, sign names do not conjoin with nouns, nor do they combine with possessive pronouns. If this is a syntactic issue, it would suggest that LSAo sub-categorizes sign names as *proper nouns*. However, the reasons for this constraint still have to be determined.

### 3.2 Noun Phrase Related Categories

This section discusses lexical categories other than Noun, which are part of the noun phrase, or syntactically equivalent to a noun phrase. Furthermore, it presents syntactic evidence for them.

Some signs occur as noun dependent elements. They precede or follow nouns, forming noun phrases. They also occur as complements in non-active clauses. They are in the *Adjective*, *Numeral*, and *Determiner* categories, discussed in sections 3.2.1 to 3.2.3.

Certain signs expressing degree precede adjectives, and combine with them as dependent elements. They belong to the *Degree Sign* category, discussed in section 3.2.1.3.

Certain pointing signs referring to the speaker, the addressee, or a third person are mutually substitutable with noun phrases. They belong to the *Personal Pronoun* category, discussed in section 3.2.4.

Signs expressing possession occur as noun dependent elements. They precede or follow nouns, forming noun phrases where the head noun is the possessed entity. They refer to the possessor indicating person and number. These signs also occur as complements in non-active clauses. They belong to the *Possessive Pronoun* category, discussed in section 3.2.5.
3.2.1 *Adjective*

This section presents syntactic evidence for the *Adjective* category.

In LSA, signs expressing qualities or attributes occur as dependent elements or in predicative positions. Some of them occur in sequence and combine with head nouns, forming syntactic units; others combine forming syntactic units embedded in noun phrases. They precede or follow nouns in LSAp, while they follow nouns in LSAo. Considering this evidence, they are categorized as *adjectives*.

In LSAp, signs expressing qualities or attributes occur as noun dependent elements. They precede or follow nouns, forming syntactic units, as shown in (123) to (128).

\[
\text{b:shti} \quad \text{b:shtj}
\]

(123) \textit{RATÓNj} \quad \textit{GATOi} \quad \textit{FELIZ} \quad \textit{PERSEGUIRj}

mouse \quad cat \quad happy \quad i-chase-j

‘A happy cat chases a mouse.’

\[
\text{b:shti} \quad \text{b:shtj}
\]

(124) \textit{RATÓNj} \quad \textit{FELIZ} \quad \textit{GATOi} \quad \textit{PERSEGUIRj}

mouse \quad happy \quad cat \quad i-chase-j

‘A happy cat chases a mouse.’

\[
\text{b:shti} \quad \text{b:shtj}
\]

(125) \textit{RATÓNj} \quad \textit{GATOi} \quad \textit{BONITO} \quad \textit{PERSEGUIRj}

mouse \quad cat \quad pretty \quad i-chase-j

‘A pretty cat chases a mouse.’

\[
\text{b:shti} \quad \text{b:shtj}
\]

(126) \textit{RATÓNj} \quad \textit{BONITO GATOi} \quad \textit{PERSEGUIRj}

mouse \quad pretty \quad cat \quad i-chase-j

‘A pretty cat chases a mouse.’
In (123) to (128), the non-manual body shift toward “i” (b:shti) extends over the noun GATO ‘cat’ and the signs FELIZ ‘happy’, BONITO ‘pretty’, or FUERTE ‘strong’.

According to the principle #4, this is evidence that GATO FELIZ, FELIZ GATO, GATO BONITO, BONITO GATO, GATO FUERTE, and FUERTE GATO are syntactic units.

Section 3.1 presents syntactic evidence showing that GATO ‘cat’ is a noun. GATO performs the same syntactic function in (51) as the units GATO FELIZ, FELIZ GATO, GATO BONITO, BONITO GATO, GATO FUERTE, and FUERTE GATO in (123) to (128). The signs FELIZ, BONITO, and FUERTE cannot stand alone because the resulting sentences are unacceptable\(^1\). This shows that GATO is the head of the previous phrases, while FELIZ, BONITO, and FUERTE are dependent elements.

In LSAo, FELIZ ‘happy’, BONITO ‘pretty’, or FUERTE ‘strong’ follow nouns, forming single syntactic units, as shown in (129) to (131).

\(^1\) They are unacceptable because the reference is unknown. Given a context, nominal ellipsis allows dependent elements to stand alone as noun phrases.
(129) **GATO, FELIZ PERSEGUIR RATÓN IX**
cat happy i-chase-j mouse that

‘A happy cat chases that mouse.’

(130) **GATO, BONITO PERSEGUIR RATÓN IX**
cat pretty i-chase-j mouse that

‘A pretty cat chases that mouse.’

(131) **GATO, FUERTE PERSEGUIR RATÓN IX**
cat strong i-chase-j mouse that

‘A strong cat chases that mouse.’

In (129) to (131), the signs *FELIZ* ‘happy’, *BONITO* ‘pretty’, or *FUERTE* ‘strong’ follow the noun *GATO* ‘cat’; other positions are unacceptable.

The group of signs *GATO FELIZ* moves between (123) and (129), *GATO BONITO* between (125) and (130), and *GATO FUERTE* between (127) and (131). According to the principle #5, this is evidence that the previous groups are syntactic units.

The sign *GATO* ‘cat’ accomplishes the same syntactic function in (67) as the units *GATO FELIZ, GATO BONITO, and GATO FUERTE* in (129) to (131). The signs *FELIZ, BONITO, and FUERTE* cannot stand alone because the resulting sentences are unacceptable. This shows that *GATO* is the head of the previous phrases, while *FELIZ, BONITO, and FUERTE* are dependent elements.

In LSAp as well as in LSAo, the signs *FELIZ, BONITO, and FUERTE* can be conjoined, as shown in (132) and (133).
How is the cat, pretty, strong, or happy?

How is that cat, strong, happy, or pretty?

In (132) and (133), the conjunction *O* ‘or’ links *FELIZ*, *BONITO*, and *FUERTE*.

According to the principle #1, this is evidence that they belong to the same category.

In LSAp, signs for colors precede or follow nouns, as shown in (134) to (139).
In (134) to (139), the non-manual body shift toward “i” (b:shti) extends over the noun GATO ‘cat’ and the signs NEGRO ‘black’, BLANCO ‘white’, or AZUL ‘blue’. According to the principle #4, this is evidence that GATO NEGRO, NEGRO GATO, GATO BLANCO, BLANCO GATO, GATO AZUL, and AZUL GATO are syntactic units.

The sign GATO ‘cat’ performs the same syntactic function in (51) as the units GATO NEGRO, NEGRO GATO, GATO BLANCO, BLANCO GATO, GATO AZUL, and AZUL GATO in (134) to (139). However, the signs NEGRO, BLANCO, and AZUL cannot stand alone because the resulting sentences are unacceptable. This shows that GATO is the head of the previous phrases, while NEGRO, BLANCO, and AZUL are dependent elements.

In LSAo, signs for colors follow nouns, as shown in (140) to (142).

---

20 A blue Russian cat.
In (140) to (142), the signs NEGRO ‘black’, BLANCO ‘white’, or AZUL ‘blue’ follow the noun GATO ‘cat’; other positions are unacceptable.

The non-manual body shift toward “i” (b:shti) extends over the groups of signs GATO NEGRO, GATO BLANCO, and GATO AZUL. According to the principle #4, this is evidence that these groups are syntactic units.

The sign GATO ‘cat’ performs the same syntactic function in (67) as the units GATO NEGRO, GATO BLANCO, and GATO AZUL in (140) to (142). The signs NEGRO, BLANCO, and AZUL cannot stand alone because the resulting sentences are unacceptable. This shows that GATO is the head of the previous phrases, while NEGRO, BLANCO, and AZUL are dependent elements.

In LSAp as well as in LSAo, the signs NEGRO, BLANCO, and AZUL can be conjoined, as shown in (143) and (144).
In (143) and (144), the conjunction O ‘or’ links the signs NEGRO, BLANCO, and AZUL. According to the principle #1, this is evidence that these signs belong to the same lexical category.

In LSAp as well as in LSAo, signs for colors can be conjoined with other signs expressing attributes or qualities, as shown in (145) and (146).

In (145), the conjunction O ‘or’ links BONITO and NEGRO; in (146), O ‘or’ links NEGRO and FUERTE. This evidence suggests that NEGRO, BONITO, and FUERTE
belong to the same category. Therefore, by extension, *BLANCO, AZUL*, and *FELIZ* belong to the same category.

In LSAp, *FELIZ, BONITO, FUERTE, NEGRO, BLANCO*, and *AZUL* present the same distribution in the clause; they precede or follow nouns. According to the principle #2, this is evidence that these signs belong to the same lexical category. In LSAo, they present the same distribution in the clause; they follow nouns. This is evidence that they belong to the same lexical category.

In LSAp, signs expressing qualities or attributes occur *in sequence*. They precede or follow nouns, forming syntactic units, as shown in (147) to (150).

*b:shti____________________ b:shtj________

(147) *RATÓN* BONITO FUERTE PERSEGUIR
mouse cat pretty strong i-chase-j

‘A pretty strong cat chases a mouse.’

*b:shti____________________ b:shtj________

(148) *RATÓN* FUERTE BONITO PERSEGUIR
mouse cat strong pretty i-chase-j

‘A pretty strong cat chases a mouse.’

*b:shti____________________ b:shtj________

(149) *RATÓN* BONITO FUERTE GATO PERSEGUIR
mouse pretty strong cat i-chase-j

‘A pretty strong cat chases a mouse.’

*b:shti____________________ b:shtj________

(150) *RATÓN* FUERTE BONITO GATO PERSEGUIR
mouse strong pretty cat i-chase-j

‘A pretty strong cat chases a mouse.’
In (147) to (150), the signs *GATO, BONITO, and FUERTE* combine in four different positions; others result in ungrammatical sentences, showing that *BONITO* and *FUERTE* must occupy *adjacent* positions.

The non-manual body shift toward “i” (b:shti) co-occurs simultaneously with *GATO, BONITO, and FUERTE*. According to the principle #4, this is evidence that *GATO BONITO FUERTE, GATO FUERTE BONITO, BONITO FUERTE GATO, and FUERTE BONITO GATO* are syntactic units.

The sign *GATO ‘cat’* accomplishes the same syntactic function in (51) as the units *GATO BONITO FUERTE, GATO FUERTE BONITO, BONITO FUERTE GATO,* and *FUERTE BONITO GATO* in (134) to (139). The signs *BONITO and FUERTE* cannot stand alone because the resulting sentences are unacceptable. This shows that *GATO* is the head of the previous phrases, while *BONITO and FUERTE* are dependent elements.

In LSAo, signs expressing qualities or attributes occur in sequence. They follow nouns, forming syntactic units, as shown in (151) and (152).

```
(151) GATO_i BONITO FUERTE_i PERSEGUIR_j RATÓN_j IX_j
    cat     pretty     strong      i-chase-j  mouse  that

    ‘A pretty strong cat chases that mouse.’
```

```
(152) GATO_i FUERTE BONITO_i PERSEGUIR_j IX_j RATÓN_j
    cat     strong      pretty     i-chase-j  that  mouse

    ‘A pretty strong cat chases that mouse.’
```
In (151) and (152), the signs *GATO*, *BONITO*, and *FUERTE* combine in two different positions; others result in ungrammatical sentences. This shows that *BONITO* and *FUERTE* must occur in sequence, following the noun *GATO*.

The non-manual body shift toward “i” (b:shti) co-occurs simultaneously with *GATO*, *BONITO*, and *FUERTE*. According to the principle #4, this is evidence that *GATO* *BONITO* *FUERTE* and *GATO* *FUERTE* *BONITO* are syntactic units.

The sign *GATO* ‘cat’ performs the same syntactic function in (51) as the units *GATO* *BONITO* *FUERTE* and *GATO* *FUERTE* *BONITO* in (151) and (152). The signs *BONITO* and *FUERTE* cannot stand alone because the resulting sentences are unacceptable. This shows that *GATO* is the head of the previous phrases, while *BONITO* and *FUERTE* are dependent elements.

In LSAp, signs for colors combine with signs expressing other attributes, forming syntactic units. These units precede or follow nouns, forming larger syntactic units, as shown in (153) to (156).

(153) $\textit{RATÓN}_j$ $\textit{GATO}_i$ $\textit{NEGRO}$ $\textit{BRILLANTE}$ $\textit{PERSEGUIR}_j$

mouse      cat     black     bright     i-chase-j

‘A bright black cat chases a mouse.’

(154) $\textit{RATÓN}_j$ $\textit{GATO}_i$ $\textit{BRILLANTE NEGRO}$ $\textit{PERSEGUIR}_j$

mouse      cat     bright     black     i-chase-j

‘A bright black cat chases a mouse.’
In (153) to (156), the signs \textit{GATO}, \textit{NEGRO}, and \textit{BRILLANTE} combine in four different positions; others result in ungrammatical sentences, showing that \textit{NEGRO} and \textit{BRILLANTE} must occupy adjacent positions. The non-manual body shift toward “i” (b:shti) marks the boundaries of \textit{GATO NEGRO BRILLANTE}, \textit{GATO BRILLANTE NEGRO}, \textit{NEGRO BRILLANTE GATO}, and \textit{BRILLANTE NEGRO GATO}. This evidence suggests that the previous groups of signs are syntactic units.

In LSAo, signs for colors combine with signs expressing other attributes, forming syntactic units. These units follow nouns, forming larger syntactic units, as shown in (157).

(157) \begin{tabular}{l} \textit{GATO}, \textit{NEGRO} \textit{BRILLANTE} \textit{PERSEGUIR}, \textit{IX} \textit{RATÓN} \\ cat black bright i-chase-j that mouse \end{tabular}

‘A bright black cat chases that mouse.’

In (157), the signs \textit{GATO}, \textit{NEGRO}, and \textit{BRILLANTE} occur in only one position; others result in ungrammatical sentences. This shows that \textit{BRILLANTE} must follow \textit{NEGRO}, while \textit{NEGRO} must follow the noun \textit{GATO}. The signs \textit{GATO}, \textit{NEGRO}, and \textit{BRILLANTE}
move together between (153) and (157). According to the principle #5, this is evidence that *GATO NEGRO BRILLANTE* is a syntactic unit.

However, the sign *BRILLANTE* cannot accompany the noun *GATO*, either in LSAp or LSAo, as shown in (158) to (160).

(158) *RATÓN GATO BRILLANTE* \textit{iPERSEGUIR} \textit{j}
\begin{tabular}{llll}
mouse & cat & bright & i-chase-j \\
\end{tabular}

(‘A bright cat chases a mouse.’)

(159) *RATÓN BRILLANTE GATO* \textit{iPERSEGUIR} \textit{j}
\begin{tabular}{llll}
mouse & bright & cat & i-chase-j \\
\end{tabular}

(‘A bright cat chases a mouse.’)

(160) *GATO BRILLANTE* \textit{iPERSEGUIR} \textit{j} \textit{IX} \textit{j} \textit{RATÓN} \textit{j}
\begin{tabular}{lllll}
cat & bright & i-chase-j & that & mouse \\
\end{tabular}

(‘A bright cat chases that mouse.’)

Examples (158) to (160) are unacceptable, showing that *BRILLANTE* does not combine with the noun *GATO* either in LSAp or LSAo.

The sign *GATO* ‘cat’ performs the same syntactic function in (51) as the units *GATO NEGRO BRILLANTE*, *GATO BRILLANTE NEGRO*, *NEGRO BRILLANTE GATO* and *BRILLANTE NEGRO GATO BONITO* in (153) to (156). Furthermore, the sign *GATO* ‘cat’ performs the same syntactic function in (67) as the unit *GATO NEGRO BRILLANTE* in (157). *NEGRO* and *BRILLANTE* cannot stand alone because the resulting sentences are incomplete. This shows that *GATO* is the head of the previous phrases, while *NEGRO* and *BRILLANTE* are dependent elements.
The sign *NEGRO* performs the same syntactic function in (134) and (140) as *NEGRO BRILLANTE* and *BRILLANTE NEGRO* in (153) to (157). *BRILLANTE* cannot stand alone because the resulting sentences are ungrammatical. This shows that *NEGRO* is the head of the previous phrases, while *BRILLANTE* is a dependent element.

In LSAp as well as in LSAo, the signs *BRILLANTE* ‘bright’, *OSCURO* ‘dark’, and *CLARO* ‘light’ combine with *AZUL* as dependent elements, as shown in (161) to (166).

\[
\begin{align*}
(161) & \quad RATÓN_j \quad GATO_i \quad AZUL \quad BRILLANTE \quad \text{i-PERSEGUIR}_j \\
& \quad \text{mouse cat blue bright i-chase-j} \\
& \quad \text{‘A bright blue cat chases a mouse.’}
\end{align*}
\]

\[
\begin{align*}
(162) & \quad RATÓN_j \quad GATO_i \quad AZUL \quad OSCURO \quad \text{i-PERSEGUIR}_j \\
& \quad \text{mouse cat blue dark i-chase-j} \\
& \quad \text{‘A dark blue cat chases a mouse.’}
\end{align*}
\]

\[
\begin{align*}
(163) & \quad RATÓN_j \quad GATO_i \quad AZUL \quad CLARO \quad \text{i-PERSEGUIR}_j \\
& \quad \text{mouse cat blue light i-chase-j} \\
& \quad \text{‘A light blue cat chases a mouse.’}
\end{align*}
\]

\[
\begin{align*}
(164) & \quad GATO_i \quad AZUL \quad BRILLANTE \quad \text{i-PERSEGUIR}_j \quad RATÓN_j \quad IX_j \\
& \quad \text{cat blue dark i-chase-j mouse that} \\
& \quad \text{‘A bright blue cat chases that mouse.’}
\end{align*}
\]

\[
\begin{align*}
(165) & \quad GATO_i \quad AZUL \quad OSCURO \quad \text{i-PERSEGUIR}_j \quad RATÓN_j \quad IX_j \\
& \quad \text{cat blue dark i-chase-j mouse that} \\
& \quad \text{‘A dark blue cat chases that mouse.’}
\end{align*}
\]
In (161) to (163), the body shift toward “i” (b:shti) marks the boundaries of *GATO AZUL BRILLANTE, GATO AZUL OSCURO, and GATO AZUL CLARO*. According to the principle #4, this is evidence that these groups of signs are syntactic units.

The group of signs *GATO AZUL BRILLANTE, GATO AZUL OSCURO, and GATO AZUL CLARO* move together between (161) to (163) and (164) to (166). According to the principle #5, this is evidence that these group are syntactic units.

The sign *GATO* ‘cat’ performs the same syntactic function in (51) and (67), as the units *GATO AZUL BRILLANTE, GATO AZUL OSCURO, and GATO AZUL CLARO* in (153) to (156) and (164) to (166). *AZUL, BRILLANTE, OSCURO, and CLARO* cannot stand alone because the resulting sentences are unacceptable. This shows that *GATO* is the head of the previous units, while *AZUL, BRILLANTE, OSCURO, and CLARO* are dependent elements.

The sign *AZUL* accomplishes the same syntactic function in (138) and (142), as the units *AZUL BRILLANTE, AZUL OSCURO, and AZUL CLARO* in (161) to (166). *BRILLANTE, OSCURO, and CLARO* cannot stand alone because the resulting sentences are ungrammatical. This shows that *AZUL* is the head of the previous phrases, while *BRILLANTE, OSCURO, and CLARO* are dependent elements.

In LSAP as well as in LSAo, the signs *BRILLANTE, OSCURO, and CLARO* can be conjoined, as shown in (167) and (168).
In (167) and (168), the conjunction O ‘or’ links BRILLANTE, OSCURO, and CLARO. This evidence suggests that these signs belong to the same lexical category.

In LSAp as well as in LSAo, the sign BRILLANTE ‘bright’ can be conjoined with AZUL ‘blue’, as shown in (169) and (170).

In (169), the conjunction O ‘or’ links BRILLANTE and AZUL. According to the principle #1, this is evidence that BRILLANTE and AZUL belong to the same category. Therefore, by extension, OSCURO, CLARO, NEGRO, and BLANCO belong to the same category.
In LSAp, the signs *BRILLANTE*, *OSCURO*, and *CLARO* can precede or follow nouns other than *GATO*, forming syntactic units, as shown in (171) to (176).

(171) VESTIDO BRILLANTE MUJER, IX, COMPRAR
dress bright that woman buy

‘That woman is buying a bright-colored dress.’

(172) BRILLANTE VESTIDO IX MUJER, IX, COMPRAR
bright dress that woman buy

‘That woman is buying a bright-colored dress.’

(173) VESTIDO OSCURO IX MUJER, IX, COMPRAR
dress bright that woman buy

‘That woman is buying a dark-colored dress.’

(174) OSCURO VESTIDO IX MUJER, IX, COMPRAR
bright dress that woman buy

‘That woman is buying a dark-colored dress.’

(175) VESTIDO CLARO IX MUJER, IX, COMPRAR
dress bright that woman buy

‘That woman is buying a light-colored dress.’
In (171) to (173), the non-manual head tilt down (h:tid) extends over VESTIDO

BRILLANTE, BRILLANTE VESTIDO, and VESTIDO OSCURO. In (174), the body
(torso) move down (b:tmd) extends over OSCURO VESTIDO ‘dark-colored dress’. In
(175), the body shift forward (b:shf) extends over VESTIDO CLARO ‘light-colored
dress’. In (176), the eyebrows raised (eb:r) extends over CLARO VESTIDO. According
to the principle #4, this is evidence that the previous groups of signs are syntactic units.

In LSAo, the signs BRILLANTE, OSCURO, and CLARO can follow nouns other than
GATO, forming syntactic units, as shown in (177) to (179).

(177) IX,  MUJER, COMPRAR VESTIDO BRILLANTE

that woman buy dress bright

‘That woman is buying a bright-colored dress.’

(178) MUJER, IX, COMPRAR VESTIDO OSCURO

woman that buy dress dark

‘That woman is buying a dark-colored dress.’

(179) IX,  MUJER, COMPRAR VESTIDO CLARO

that woman buy dress light

‘That woman is buying a light-colored dress.’
VESTIDO BRILLANTE moves between (171) and (177), VESTIDO OSCURO between (173) and (178), and VESTIDO CLARO between (175) and (179). According to the principle #5, this is evidence that these groups are syntactic units.

Section 3.1 presents syntactic evidence showing that VESTIDO ‘dress’ is a noun. VESTIDO performs the same syntactic function as the units VESTIDO BRILLANTE, BRILLANTE VESTIDO, VESTIDO OSCURO, OSCURO VESTIDO, VESTIDO CLARO, and VESTIDO CLARO in (171) to (179). BRILLANTE, OSCURO, and CLARO cannot stand alone because the resulting sentences are unacceptable. This shows that VESTIDO is the head, while BRILLANTE, OSCURO, and CLARO are dependent elements.

In LSAP as well as in LSAO\textsuperscript{21}, BRILLANTE occurs in sequence with signs expressing qualities or attributes. They precede or follow nouns, forming syntactic units, as shown in (180) to (185).

\begin{verbatim}
VESTIDO BONITO  BRILLANTE IX_i  MUJER_i  COMPRAR

dress  pretty  bright  that  woman  buy

‘That woman is buying a beautiful bright-colored dress.’
\end{verbatim}

(181) VESTIDO BRILLANTE BONITO IX_i  MUJER_i  COMPRAR

dress  bright  pretty  that  woman  buy

‘That woman is buying a beautiful bright-colored dress.’

\textsuperscript{21} (180) to (183) are examples from LSAP, while (184) and (185) are from LSAO. The signers of LSAO and LSAP chose different forms of BONITO ‘pretty’, even though they have the same meaning.
In (180) to (185), the signs *VESTIDO*, *BONITO*, and *BRILLANTE* combine in four different positions; others result in ungrammatical sentences, showing that *BONITO* and *BRILLANTE* must occupy adjacent positions.

In (182) to (183), the non-manual head tilt down (h:tid) co-occurs simultaneously with *VESTIDO*, *HERMOSO*, and *BRILLANTE*. According to the principle #4, this is evidence that *VESTIDO BRILLANTE HERMOSO*, *HERMOSO BRILLANTE VESTIDO*, *BRILLANTE HERMOSO VESTIDO* are syntactic units.

The group *VESTIDO BONITO BRILLANTE* moves between (180) and (184), and *VESTIDO BRILLANTE BONITO* between (181) and (185). According to the principle #5, this is evidence that the previous groups are syntactic units.
VESTIDO performs the same syntactic function as the units VESTIDO BONITO
BRILLANTE, VESTIDO BRILLANTE BONITO, BONITO BRILLANTE VESTIDO, and
BRILLANTE BONITO VESTIDO in (180) to (185). BRILLANTE and BONITO cannot
stand alone because the resulting sentences are unacceptable. This shows that VESTIDO
is the head, while BRILLANTE and BONITO are dependent elements.

In LSAp as well as in LSAo, signs expressing qualities or attributes can constitute
noun phrases because of nominal ellipsis, as shown in (186) and (187).

(186) PERRO DOS BONITO FUERTE, Ø BONITO IX1 GUSTAR MÁS
    dog two pretty strong (dog) pretty 1SG like more
    ‘There are two dogs, one pretty, one strong. I like the pretty one the most.’

(187) HABER PERRO DOS BONITO FEO, IX1 GUSTAR MÁS Ø BONITO
    exist dog two pretty ugly 1SG like more (dog) pretty
    ‘There are two dogs, one pretty, one ugly. I like the pretty one the most.’

In (186) and (187), nominal ellipsis produces the noun phrase Ø BONITO ‘pretty one’.

Signs expressing colors can constitute noun phrases because of nominal ellipsis, as
shown in (188) and (189).

(188) GATO DOS NEGRO BLANCO, Ø BLANCO IX1 GUSTAR MÁS
    cat two black white (cat) white 1SG like more
    ‘There are two cats, a black one and a white one. I like the white one the most.’

(189) HABER GATO DOS BLANCO NEGRO, IX1 GUSTAR MÁS Ø BLANCO
    exist cat two white black 1SG like more (cat) white
    ‘There are two cats, a black one and a white one. I like the white one the most.’
In (188) and (189), nominal ellipsis produces the noun phrase $\emptyset$ BLANCO ‘white one’.

Signs expressing qualities or attributes occur in predicative positions in LSAp as well as in LSAo, as shown in (190) to (191), and (192) to (193).

In (190), the head jut forward (h:jf) extends over BONITO ‘pretty’. In (191), the head tilt up (h:tiu) extends over BLANCO ‘white’. In (192), the head turn left (h:tl) extends over BONITO ‘pretty’. In (193), the head tilt up (h:tiu) extends over BLANCO ‘white’. This evidence suggests that BONITO and BLANCO are single syntactic units in (190) to (193).
In (190) to (193), BONITO ‘pretty’ and BLANCO ‘white’ are not dependent elements of the nouns PERRO ‘dog’ and CATO ‘cat’, rather they are complements in non-active clauses. They are in predicative positions.

In LSAp as well as in LSAo, signs expressing qualities or attributes can be conjoined. They occur as noun dependent elements or in predicative positions. They can constitute a noun phrase because of nominal ellipsis. Some of them co-occur in sequence and combine with head nouns, forming noun phrases. Others co-occur as head-dependent elements, and combine forming syntactic units embedded in noun phrases. Considering this evidence, these signs are categorized as adjectives. “An adjective is a word that belongs to a class whose members modify nouns. An adjective specifies the properties or attributes of a noun referent” (Loos et al. 2003).

Adjectives exhibit different distributions among varieties of LSA. Adjectives precede or follow nouns in LSAp, while they follow nouns in LSAo.

3.2.1.1 Fingerspelled Adjectives

This section discusses certain fingerspelled forms in LSA and presents evidence for their categorization as adjectives.

Certain fingerspelled signs expressing qualities or attributes combine with nouns as dependent elements, forming syntactic units. In LSAp, they precede or follow nouns, as shown in (194) to (195). In LSAo, they follow nouns, as shown in (196).

\[
\text{eb:}r \quad \text{b:shti} \\
(194) \text{VESTIDO} \quad \text{U-S-A-D-O} \quad \text{MÚJER} \quad \text{COMPRAR} \\
\text{dress} \quad \text{used} \quad \text{that woman} \quad \text{buy} \\
\text{‘That woman bought a used dress.’}
\]
In (194), the non-manual eyebrows raised (eb:r) co-occurs simultaneously with VESTIDO ‘dress’ and U-S-A-D-O ‘used’. In (195), the eye squinted (e:s) and eyebrows frown (eb:f) extend over U-S-A-D-O VESTIDO. According to the principle #4, this is evidence that VESTIDO U-S-A-D-O and U-S-A-D-O VESTIDO are syntactic units.

The group of signs VESTIDO U-S-A-D-O moves between (194) and (196). According to the principle #5, this is evidence that this group is a syntactic unit.

Section 3.1 presents syntactic evidence showing that VESTIDO ‘dress’ is a noun. VESTIDO accomplishes the same syntactic function as the units VESTIDO U-S-A-D-O and U-S-A-D-O VESTIDO in (194) to (196). The sign U-S-A-D-O cannot stand alone because the resulting sentences are unacceptable. This shows that VESTIDO is the head of the previous phrases, while U-S-A-D-O is a dependent element.

In LSAp as well as in LSAo, the sign U-S-A-D-O co-occurs in sequence with adjectives and combine with nouns, forming syntactic units, as shown in (197) to (202).
‘That woman bought a used black dress.’

‘That woman bought a used black dress.’

‘That woman bought a used black dress.’

‘That woman bought a used white dress.’

‘That woman bought a used white dress.’

‘That woman bought a used white dress.’

In (197) to (200), the non-manual eyebrows raised (eb:r) extends over signs


VESTIDO, and U-S-A-D-O BLANCO VESTIDO. According to the principle #4, this is evidence that the previous groups of signs are syntactic units.

The group of signs VESTIDO BLANCO U-S-A-D-O moves between (197) and (201), and VESTIDO U-S-A-D-O BLANCO moves between (198) and (202). According to the principle #5, this is evidence that these groups are syntactic units.
The sign \textit{NUEVO} ‘new’ presents the same distribution in (203) to (205), as \textit{U-S-A-D-O} ‘used’ in (194) to (196).

\begin{align*}
\textit{h:tid} & \textit{h:tuti} \\
(203) & \textit{VESTIDO}_j \textit{NUEVO } \textit{MUJER}_i \textit{iCOMPRAR}_j \\
\text{dress} & \text{new} \text{ woman} \text{ i-buy-j} \\
\end{align*}

‘A woman is buying a new dress.’

\begin{align*}
\textit{b:shf} & \textit{b:ti} \\
(204) & \textit{NUEVO} \textit{VESTIDO}_j IX_i \textit{MUJER}_i \textit{iCOMPRAR}_j \\
\text{new} & \text{dress} \text{ that woman} \text{ i-buy-j} \\
\end{align*}

‘That woman is buying a new dress.’

\begin{align*}
\textit{b:shf} & \\
(205) & \textit{MUJER} \textit{COMPRAR VESTIDO NUEVO} \\
\text{woman} & \text{buy dress new} \\
\end{align*}

‘A woman is buying a new dress.’

In (203), the non-manual head tilt down (\textit{h:tid}) extends over \textit{VESTIDO NUEVO} ‘new dress’. In (204), the body shift toward “j” (\textit{b:shf}) extends over \textit{NUEVO VESTIDO} ‘new dress’. In (205), the body shift forward (\textit{b:shf}) extends over \textit{VESTIDO NUEVO}. This evidence suggests that \textit{VESTIDO NUEVO} and \textit{NUEVO VESTIDO} are syntactic units.

The sign \textit{VESTIDO} accomplishes the same syntactic function as the units \textit{VESTIDO NUEVO} and \textit{NUEVO VESTIDO} in (203) to (205). The sign \textit{NUEVO} cannot stand alone because the resulting sentences are unacceptable. This shows that \textit{VESTIDO} is the head of the previous phrases, while \textit{NUEVO} is a dependent element.

In LSAp as well as in LSAo, the sign \textit{NUEVO} occur in sequence with adjectives and combine with nouns, forming syntactic units, as shown in (206) to (209).
In (206), the non-manual eyebrows raised (eb:r) extends over VESTIDO BLANCO NUEVO. This evidence suggests that VESTIDO BLANCO NUEVO is a syntactic unit.

The group of signs VESTIDO BLANCO NUEVO moves between (206) and (208), and VESTIDO NUEVO BLANCO between (207) and (209). According to the principle #5, this is evidence that these groups are syntactic units.

In LSAp as well as in LSAo, the sign U-S-A-D-O can be conjoined with NUEVO, as shown in (210) and (211).

In (206), the non-manual eyebrows raised (eb:r) extends over VESTIDO BLANCO NUEVO. This evidence suggests that VESTIDO BLANCO NUEVO is a syntactic unit.

The group of signs VESTIDO BLANCO NUEVO moves between (206) and (208), and VESTIDO NUEVO BLANCO between (207) and (209). According to the principle #5, this is evidence that these groups are syntactic units.

In LS Ap as well as in LSAo, the sign U-S-A-D-O can be conjoined with NUEVO, as shown in (210) and (211).
In (210) and (211), the conjunction O ‘or’ links NUEVO and U-S-A-D-O. According to the principle #1, this is evidence that they belong to the same lexical category.

In LSAp as well as in LSAo, the signs NUEVO ‘dress’ and U-S-A-D-O ‘used’ constitute noun phrases because of nominal ellipsis, as shown in (212) and (215).

(212) VESTIDO DOS NUEVO U-S-A-D-O, Ø U-S-A-D-O IX₁ GUSTAR-NO
dress two new used (dress) used 1SG like.not
‘There are two dresses, a new one and a used one; I do not like the used one.’

(213) HABER VESTIDO DOS NUEVO U-S-A-D-O, IX₁ GUSTAR-NO Ø U-S-A-D-O
exist dress two new used 1SG like.not (dress) used
‘There are two dresses, a new one and a used one; I do not like the used one.’

(214) NUEVO U-S-A-D-O VESTIDO+ DOS, Ø NUEVO IX₁ GUSTAR MÁS
new used dress.pl. two (dress) new 1SG like more
‘There are two dresses, a new one and a used one; I like the new one the most.’

(215) HABER VESTIDO DOS NUEVO U-S-A-D-O, IX₁ GUSTAR MÁS Ø NUEVO
exist dress two new used 1SG like more (dress) new
‘There are two dresses, a new one and a used one; I like the new one the most.’

In (212) to (215), nominal ellipsis produces the noun phrases Ø U-S-A-D-O ‘used one’ and Ø NUEVO ‘new one’.
The signs *NUEVO* ‘dress’ and *U-S-A-D-O* ‘used’ occur in predicative positions in LSAp as well as in LSAo, as shown in (216) to (217), and (218) to (219).

\[
\begin{array}{c|c|c}
    h:tid & h:tiud \\
    \hline
    (216) & IX_{i} & VESTIDO \\
        & that & U-S-A-D-O \\
        & dress & used \\
    \end{array}
\]

‘That dress is used.’

\[
\begin{array}{c|c|c}
    h:tid & h:tiud \\
    \hline
    (217) & IX_{i} & VESTIDO \\
        & that & NUEVO \\
        & dress & new \\
    \end{array}
\]

‘That dress is new.’

\[
\begin{array}{c|c|c}
    b:shr & h:tiud \\
    \hline
    (218) & IX_{i} & VESTIDO \\
        & that & U-S-A-D-O \\
        & dress & used \\
    \end{array}
\]

‘That dress is used.’

\[
\begin{array}{c|c|c}
    b:shl & h:tiud \\
    \hline
    (219) & IX_{i} & VESTIDO \\
        & that & NUEVO \\
        & dress & new \\
    \end{array}
\]

‘That dress is new.’

The non-manual head tilt up and down (h:tiud) extends over *U-S-A-D-O* ‘used’ in (216) and (218), and over *NUEVO* ‘new’ in (217) and (219). This evidence suggests that *U-S-A-D-O* and *NUEVO* are single syntactic units in (216) to (219). This shows that they are not dependent elements; rather, they are complements in non-active clauses; they are in predicative positions.

The signs *U-S-A-D-O* and *NUEVO* present the same distribution in the clause. This is evidence that they are in the same lexical category.
In LSAp as well as in LSAo, fingerspelled signs expressing qualities or attributes occur as noun dependent elements or in predicative positions. They can be conjoined with adjectives. They constitute noun phrases because of nominal ellipsis. These fingerspelled signs co-occur with adjectives in sequence and combine with nouns, forming syntactic units. They precede or follow nouns in LSAp, while they follow nouns in LSAo. Considering this evidence, these fingerspelled signs are categorized as *adjectives*.

3.2.1.2 Size and Shape Specifiers

This section discusses Size and Shape Specifiers (SASSes) and provides syntactic evidence for their categorization as adjectives.

SASSes are descriptions of physical shapes and dimensions. They express the attributes *size* and *shape*. They are semantically transparent, and their form varies with the entity they describe. Figure 8 to Figure 12 show several SASSes.

![Figure 8: PEQUEÑO-30CM ‘small’](image)

Figure 8 shows a sign describing a small rounded object 30 centimeters long. The distance between the two hands (around 30 cm) represents the size. The handshapes (fingers and thumb together and curved) partially describe the shape. The non-manual
form is lips protruded, and eyes squinted. The combination of handshape and non-manuals convey the meaning ‘small’ when describing a dog.

In LSA, SASSes precede or follow nouns. They combine with nouns as dependent elements, forming syntactic units, as shown in (220) and (221).

\[
\begin{array}{ccc}
\text{\textit{b:shti}} & \text{\textit{b:shtj}} \\
(220) \text{GATO} \quad \text{PERRO} \quad \text{PEQUEÑO-30CM} \quad \text{'PERSEGUIR'} \\
\text{cat} & \text{dog} & \text{small} & \text{i-chase-j} \\
\end{array}
\]

‘A small dog chases a cat.’

\[
\begin{array}{ccc}
\text{\textit{b:shti}} & \text{\textit{b:shtj}} \\
(221) \text{GATO} \quad \text{PEQUEÑO-30CM} \quad \text{PERRO} \quad \text{'PERSEGUIR'} \\
\text{cat} & \text{small} & \text{dog} & \text{i-chase-j} \\
\end{array}
\]

‘A small dog chases a cat.’

In (220) and (221), the non-manual body shift toward “i” (b:shti) extends over PERRO ‘dog’ and PEQUEÑO-30CM ‘small’. This evidence suggests that PERRO PEQUEÑO-30CM and PEQUEÑO-30CM PERRO are syntactic units.

Section 3.1 presents syntactic evidence showing that PERRO ‘dog’ is a noun. PERRO performs the same syntactic function in (52) as the units PERRO PEQUEÑO-30CM and PEQUEÑO-30CM PERRO in (220) and (221). The sign PEQUEÑO-30CM cannot stand alone because the resulting sentences are unacceptable. This shows that PERRO is the head of the previous phrases, while PEQUEÑO-30CM is a dependent element.

In LSA, SASSes co-occur with adjectives in sequence, preceding or following nouns. They combine with nouns, forming syntactic units, as shown in (222) to (225).
In (222) to (225), the non-manual body shift toward “i” (b:shti) co-occurs simultaneously with \textit{PERRO}, \textit{NEGRO}, and \textit{PEQUEÑO-30CM}. According to the principle #4, this is evidence that \textit{PERRO}, \textit{PEQUEÑO-30CM}, \textit{NEGRO}, \textit{PERRO} \textit{PEQUEÑO-30CM}, \textit{PEQUEÑO-30CM}, \textit{NEGRO} \textit{PERRO}, and \textit{NEGRO} \textit{PEQUEÑO-30CM} \textit{PERRO} are syntactic units.

In these units, \textit{NEGRO} and \textit{PEQUEÑO-30CM} occupy adjacent positions.

Section 3.2.1 provides evidence that \textit{NEGRO} is an adjective, and that adjectives always occupy adjacent positions. This evidence suggests that \textit{PEQUEÑO-30CM} is an adjective.

In LSA, SASSes and adjectives can be conjoined, as shown in (226).
‘How is the dog, small or black?’

In (26), the SASS PEQUEÑO-30CM and the adjective NEGRO are conjoined.

According to the principle #1, this is evidence that PEQUEÑO-30CM is an adjective.

In LSAp as well as in LSAo, SASSes constitute noun phrases when the head noun is omitted because of ellipsis, as shown in (27).

‘There are two dogs, a small one and a big one. I like the small one the most.’

In (27), nominal ellipsis produces the noun phrase Ø PEQUEÑO-30CM ‘small one’.

In LSA, SASSes occur in predicative positions, as shown in (28).

‘That dog is small.’
In (228), the non-manual body shift toward “i” (b:shti) extends only over PEQUEÑO-30CM. According to the principle #4, this is evidence that PEQUEÑO-30CM is a syntactic unit. This unit is a complement in a non-active clause.

PEQUEÑO-30CM expresses size. It occurs as a noun dependent element or in a predicative position. It can be conjoined with adjectives. This SASS co-occurs with other adjectives in sequence. Considering this evidence, it is categorized as an adjective.

SASS forms vary with the entities they describe. PEQUEÑO-30CM conveys the meaning ‘small’ when describing a dog. A different form is required to convey the meaning ‘small’ when describing a mouse, as shown in Figure 9.

Figure 9: PEQUEÑO-5CM ‘small’

Figure 9 shows a SASS representing a small object 5 centimeters long. The form PEQUEÑO-5CM is index finger flexed, thumb flexed and opposed (“C” handshape); palm facing forward; mouth frown; eyes squinted. The object's size is represented by the distance between index and thumb. The combination of handshape and non-manuals conveys the meaning ‘small’ when describing a mouse. This descriptive construction is used as an adjective in (229).
In (229), the non-manual body shift toward ‘j’ (b:shtj) extends over RATÓN PEQUEÑO-5CM ‘small mouse’. This is evidence that RATÓN PEQUEÑO-5CM is a syntactic unit. RATÓN performs the same syntactic function in (51) as RATÓN PEQUEÑO-5CM in (229). PEQUEÑO-5CM cannot stand alone because the resulting clause is incomplete. This shows that PEQUEÑO-5CM is a dependent element of the head RATÓN.

Figure 10 and Figure 11 show two SASSes conveying the meaning ‘fat’.

Figure 10: GORDO ‘fat’

Figure 11: GORDO-30CM ‘fat’
Figure 11 shows a SASS describing a rounded object 30 centimeters long. The form 
GORDO-30CM is fingers and thumb spread, extended, and partially curved; lips closed 
with puffed cheeks. The handshapes describe the shape. The distance between the two 
hands (around 30 cm) represents the size. The combination of handshapes and non-
manuals conveys the meaning ‘fat’ when describing a mouse.

GORDO conveys the meaning fat when describing a human, as shown in (230).

\[
\begin{align*}
\text{b:shl} & \quad \text{b:tmd} \\
\text{(230) } & \text{IX}_i \quad \text{HOMBRE} \quad \text{GORDO} \\
\text{that} & \quad \text{man} \quad \text{fat} \\
\end{align*}
\]

‘That man is fat.’

In (230), the non-manual body (torso) move down (b:tmd) extends over GORDO ‘fat’. 
According to the principle #4, this is evidence that GORDO is a syntactic unit separated 
from the noun phrase \text{IX}_i \text{HOMBRE}. The unit GORDO is in a predicative position.

The sign GORDO-30CM is required when describing a mouse, as shown in (231).

\[
\begin{align*}
\text{b:tti} & \quad \text{b:tmd} \\
\text{(231) } & \text{IX}_i \quad \text{RATÓN} \quad \text{GORDO-30CM} \\
\text{that} & \quad \text{mouse} \quad \text{fat} \\
\end{align*}
\]

‘That mouse is fat.’

In (231), the non-manual body (torso) move down (b:tmd) marks the boundaries of 
GORDO-30CM ‘fat’. This is evidence that GORDO-30CM is a syntactic unit separated 
from the noun phrase \text{IX}_i \text{RATÓN}. GORDO-30CM is in a predicative position.

The signs GORDO and GORDO-30CM are used in similar contexts describing 
different entities. This shows that SASS forms vary with the entities they describe.
Some SASS forms are complex, as shown in Figure 12 and Figure 13.

Figure 12: *REDONDO*+*GRANDE-10CM* ‘big rounded’

The form *REDONDO* ‘rounded’ is fingers together and slightly curved, thumb extended; hands move down with ulnar wrist flexion (Figure 12, left). The form *GRANDE-10CM* is dominant hand acting as holding a cup's handle while the non-dominant hand holds the cup's base (Figure 12, right). The distance between hands represents the size of the cup, around 10 cm. The meaning conveyed is ‘big rounded’ when describing a mug.

Figure 13: *PEQUEÑO-5CM* ‘small’

---

22 The gloss *GRANDE-10CM* is used for convenience. *MANIJA-OBJETO-GRANDE* ‘big handled object’ is more accurate.
Figure 13 shows the initial position of \textit{PEQUEÑO-5CM}. The form \textit{PEQUEÑO-5CM} is dominant hand index and thumb acting as holding a tea cup's handle while the non-dominant hand is holding the cup's base. The distance between hands represents the size of the cup, around 5 centimeters. The dominant hand moves with radial wrist flexion. The meaning conveyed is ‘small’ when describing a cup.

\textit{REDONDO+GRANDE-10CM} and \textit{PEQUEÑO-5CM} can be conjoined with adjectives, as shown in (232) and (233).

\begin{align*}
\text{(232)} & \quad \text{TAZA} \quad \text{BLANCO} \quad \text{PEQUEÑO-5CM} \quad IX_{r}-O-IX_{j} \quad \text{¿CUÁL?} \\
& \quad \text{cup} \quad \text{white} \quad \text{small} \quad \text{that.or.that} \quad \text{which?} \\
& \quad \text{‘Which cup (do you want), the white one or the small one?’}
\end{align*}

\begin{align*}
\text{(233)} & \quad \text{TAZA} \quad \text{BLANCO} \quad \text{REDONDO+GRANDE-10CM} \quad IX_{r}-O-IX_{j} \quad \text{¿CUÁL?} \\
& \quad \text{cup} \quad \text{white} \quad \text{rounded-big} \quad \text{that.or.that} \quad \text{which?} \\
& \quad \text{‘Which cup (do you want), the white one or the big rounded one?’}
\end{align*}

In (232) and (233), \textit{PEQUEÑO-5CM} and \textit{REDONDO+GRANDE-10CM} are conjoined with \textit{BLANCO}. Section 3.2.1 provides syntactic evidence that \textit{BLANCO} ‘white’ is an adjective. According to the principle #4, this is evidence that \textit{PEQUEÑO-5CM} and \textit{REDONDO+GRANDE-10CM} are adjectives.

SASSes express the attributes size and shape. Their forms are semantically transparent and vary with the entity they describe. They occur as noun dependent elements or in predicative positions. SASSes can be conjoined with adjectives. They occur in sequence with adjectives and combine with nouns as dependent elements, forming syntactic units. Considering this evidence, SASSes are categorized as adjectives.
3.2.1.3 Degree Sign

This section presents syntactic evidence for the lexical category *Degree sign*.

In LSAp as well as in LSAo, certain signs expressing degree precede adjectives, forming syntactic units, as shown in (234) to (240).

(234) \[b:shr\] \[b:shti\] \[b:shtj\]

\[b:shr\] \[b:shti\] \[b:shtj\]

(235) \[RATÓN\] \[PASAR\] \[GATO\] \[M-Y\] \[FELIZ\] \[PERSEGUIR\]

mouse pass cat very happy i-chase-j

‘A mouse pass; a very happy cat chases it.’

(236) \[RATÓN\] \[GATO\] \[M-Y\] \[BONITO\] \[PERSEGUIR\]

mouse cat very pretty i-chase-j

‘A very pretty cat chases a mouse.’

(237) \[RATÓN\] \[M-Y\] \[BONITO\] \[GATO\] \[PERSEGUIR\]

mouse very pretty cat i-chase-j

‘A very pretty cat chases a mouse.’

(238) \[RATÓN\] \[GATO\] \[M-Y\] \[FUERTE\] \[PERSEGUIR\]

mouse cat very strong i-chase-j

‘A very strong cat chases a mouse.’
Section 3.2.1 provides syntactic evidence that FELIZ, BONITO, and FUERTE are adjectives. In (234) to (240), the sign M-Y precedes FELIZ, BONITO, or FUERTE; any other position results in ungrammatical sentences.

In (234) to (240), the non-manual body shift toward “i” (b:shti) extends over GATO M-Y FELIZ, M-Y FELIZ GATO, GATO M-Y BONITO, M-Y BONITO GATO, GATO M-Y FUERTE, and M-Y FUERTE GATO. According to the principle #4, this is evidence that the previous groups of signs are syntactic units.

The groups of signs M-Y FELIZ, M-Y BONITO, and M-Y FUERTE move together preceding or following the noun GATO. According to the principle #5, this is evidence that M-Y FELIZ, M-Y BONITO, and M-Y FUERTE are syntactic units.

The signs FELIZ, BONITO, and FUERTE perform the same syntactic function in (123) to (129) as the units M-Y FELIZ, M-Y BONITO, and M-Y FUERTE in (234) to (240). M-Y cannot stand alone because the resulting sentences are ungrammatical. This

---

23 In LSAo, the sign M-Y can accompany FELIZ but not BONITO or FUERTE.
shows that the adjectives *FELIZ, BONITO, and FUERTE are the heads of the previous phrases, while *M-Y* is a dependent element.

The sign *M-Y* ‘very’ precedes adjectives, forming syntactic units. These units can be embedded in other syntactic units, as shown in (241) to (244).

(241) \[ h:\text{tid} \quad b:\text{shti} \quad \text{GATO} \quad \text{M-Y} \quad \text{BRILLANTE NEGRO} \quad \text{PERSEGUIR} \quad i-chase-j \]

‘A very bright black cat chases a mouse.’

(242) \[ h:\text{tid} \quad b:\text{shti} \quad \text{RATÓN} \quad \text{GATO} \quad \text{NECO} \quad \text{M-Y} \quad \text{BRILLANTE} \quad \text{PERSEGUIR} \quad i-chase-j \]

‘A very bright black cat chases a mouse.’

(243) \[ h:\text{tid} \quad b:\text{shti} \quad \text{RATÓN} \quad \text{NEGRO} \quad \text{M-Y} \quad \text{BRILLANTE} \quad \text{GATO} \quad \text{PERSEGUIR} \quad i-chase-j \]

‘A very bright black cat chases a mouse.’

(244) \[ b:\text{shti} \quad \text{RATÓN} \quad \text{M-Y} \quad \text{BRILLANTE} \quad \text{NEGRO} \quad \text{GATO} \quad \text{PERSEGUIR} \quad i-chase-j \]

‘A very bright black cat chases a mouse.’

(245) \[ b:\text{shb} \quad h:\text{tuj} \quad b:\text{shtj} \quad \text{GATO} \quad \text{NECO} \quad \text{M-Y} \quad \text{BRILLANTE} \quad \text{PERSEGUIR} \quad \text{IX} \quad \text{RATÓN} \]

‘A very bright black cat chases a mouse.’
The section 3.2.1 presents syntactic evidence that \textit{NEGRO} ‘black’ and \textit{BRILLANTE} ‘bright’ are adjectives. In (241) to (245), the sign \textit{M-Y} precedes \textit{BRILLANTE}; other positions result in ungrammatical sentences.

In (241) to (244), the non-manual body shift toward “i” (b:shti) co-occurs simultaneously with the signs \textit{GATO} ‘cat’, \textit{NEGRO} ‘black’, \textit{M-Y} ‘very’, and \textit{BRILLANTE} ‘bright’. According to the principle #4, this is evidence that \textit{GATO M-Y BRILLANTE NEGRO, GATO NEGRO M-Y BRILLANTE, NEGRO M-Y BRILLANTE GATO, and M-Y BRILLANTE NEGRO GATO} are syntactic units.

The group of signs \textit{GATO NEGRO M-Y BRILLANTE} moves between (242) and (245). According to principle #5, this is evidence that this group forms a syntactic unit.

The group of signs \textit{M-Y BRILLANTE} ‘very bright’ moves, preceding or following \textit{NEGRO}. According to the principle #5, this is evidence that it forms a syntactic unit.

\textit{BRILLANTE} accomplishes the same syntactic function in (153) to (157) as the unit \textit{M-Y BRILLANTE} in (241) to (245). \textit{M-Y} cannot stand alone because the resulting sentences are ungrammatical. This shows that \textit{BRILLANTE} is the head of the phrase \textit{M-Y BRILLANTE}, while \textit{M-Y} is a dependent element.

In LSA, certain signs expressing degree precede some adjectives. They combine with adjectives as dependent elements, forming syntactic units. Considering this evidence, they are categorized as \textit{degree signs}.

3.2.2 Numeral

This section presents syntactic evidence for the lexical category \textit{Numeral}.

In LSA, signs expressing precise number occur as noun dependent elements or in predicative positions. Their distribution differs from adjectives. They do not occur in
sequence; rather, they are limited to one element per noun phrase. They cannot be conjoined with adjectives. Considering this evidence, they are categorized as *numerals*.

In LSA, the signs *UNO* ‘one’, *DOS* ‘two’, and *TRES* ‘three’, among others, express precise number. Their forms are described in Table 2.

<table>
<thead>
<tr>
<th>Cardinal Numeral</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNO</td>
<td>Index extended, pointing up; palm facing forward or the signer.</td>
</tr>
<tr>
<td>DOS</td>
<td>Index and middle finger extended, spread, pointing up; palm facing forward or the signer.</td>
</tr>
<tr>
<td>TRES</td>
<td>Index, middle finger, and thumb extended, spread, and pointing up; palm facing forward or the signer.</td>
</tr>
</tbody>
</table>

In LSAp, signs expressing precise number precede or follow nouns, forming syntactic units, as shown in (246) to (251). In LSAo, signs expressing precise number precede nouns, as shown in (252) to (254).

\[ h:\text{tid} \quad h:\text{tid} \quad h:\text{tutj} \]

(246) **PERSONA UNO** *CAMINAR*

person one walk

‘One person walks.’

\[ h:\text{tid} \quad h:\text{tutj} \]

(247) **UNO PERSONA** *CAMINAR*

one person walk

‘One person walks.’

---

24 In LSAp, numerals can precede or follow nouns; even though, the signer of LSAp shows a preference for post-nominal numerals.
In (246) to (251), the non-manual head tilt down (h:tid) co-occurs simultaneously with PERSONA `person’ and the signs UNO `one’, DOS `two’, or TRES `three’. This evidence suggests that PERSONA UNO, UNO PERSONA, PERSONA DOS, DOS PERSONA, PERSONA TRES, and TRES PERSONA+ are syntactic units.

In LSAo, signs expressing precise number precede nouns, forming syntactic units, as shown in (252) to (254).
In (252), the non-manual body shift right (b:shr) co-occurs simultaneously with the signs UNO ‘one’ and PERSONA ‘person’. In (253) and (254), the body shift back (b:shb) extends over DOS PERSONA+ and TRES PERSONA++. According to the principle #4, this is evidence that UNO PERSONA ‘one person’, DOS PERSONA+ ‘two people’, and TRES PERSONA++ ‘three people’ are syntactic units.

Section 3.1 provides syntactic evidence that PERSONA ‘person’ is a noun. The noun PERSONA performs the same syntactic function as the units PERSONA UNO, PERSONA DOS, PERSONA TRES, UNO PERSONA, DOS PERSONA+, and TRES PERSONA++ in (246) to (254). UNO, DOS, and TRES cannot stand alone because the resulting sentences are unacceptable. This shows that PERSONA is the head of the previous noun phrases, while UNO, DOS, and TRES are dependent elements.

In LSA, signs expressing precise number can be conjoined, as shown in (255).
In (255), the coordinating conjunction \textit{O} ‘or’ links \textit{UNO} and \textit{DOS}. According to the principle #1, this is evidence that \textit{UNO} and \textit{DOS} are in the same lexical category.

In (255), \textit{UNO} and \textit{DOS} stand alone in predicative position.

Signs expressing number cannot be conjoined with adjectives, as shown in (256).

(256) *\textit{MANZANA IX}_i \textit{PEQUEÑO-5CM} \textit{O} \textit{DOS} \textit{QUÉ}?

\begin{align*}
\text{apple} & \quad \text{that} & \quad \text{small} & \quad \text{or} & \quad \text{two} & \quad \text{what}?
\end{align*}

(‘Are those apples small or two?’)

In (256), \textit{DOS} ‘two’ cannot be conjoined with the adjective \textit{PEQUEÑO-5CM} ‘small’.

According to the principle #1, this is evidence that \textit{DOS} ‘two’ is not an adjective.

In LSA, signs expressing number cannot occur in sequence, as shown in (257).

(257) *\textit{UNO DOS} \textit{PERSONA} \textit{CAMINAR} #\textit{INVF}

\begin{align*}
\text{one} & \quad \text{two} & \quad \text{person} & \quad \text{walk-animate}
\end{align*}

(‘One two people walk.’)

Section 3.2.1 presents syntactic evidence revealing that adjectives co-occur in sequence.

Example (257) is ungrammatical, showing that \textit{UNO} ‘one’ and \textit{DOS} ‘two’ cannot co-occur in sequence. This evidence suggests that they are not adjectives; rather, they belong to a different lexical category limited to one element per noun phrase.

In LSAp, signs expressing precise number co-occur with adjectives. They combine with nouns, forming syntactic units, as shown in (258) to (263).
In (258) to (263), the non-manual body shift toward “i” (b:shti) co-occurs simultaneously with GATO, DOS, and NEGRO. According to the principle #4, this is evidence that
GATO DOS NEGRO, GATO NEGRO DOS, DOS NEGRO GATO, NEGRO DOS GATO, 
DOS GATO NEGRO, and NEGRO GATO DOS are syntactic units.

In LSAp, the noun GATO ‘cat’, the adjective NEGRO ‘black’, and the sign DOS 
‘two’ combine in every possible position. In (262) and (263), DOS precedes the noun 
GATO, while NEGRO follows GATO. Section 3.2.1 presents evidence showing that 
adjectives always occupy adjacent positions. According to the principle #2, this is 
evidence that DOS is not an adjective.

In LSAo, signs expressing exact number precede nouns. They combine with nouns, 
forming syntactic units, as shown in (264).

\[
\begin{array}{cccc}
eb{r} & b{\cdot}shtj & \\
(264) & DOS & GATO_i & NEGRO_j \ PERSEGUIR_j & RATÓN_j \\
& two & cat & black & i-chase-j & mouse \\
\end{array}
\]

‘Two black cats chase a mouse.’

In (264), the eyebrows raised (eb:r) extends over DOS, GATO, and NEGRO. According 
to the principle #4, this is evidence that DOS GATO NEGRO is a syntactic unit.

In LSAo, the signs DOS ‘two’, GATO ‘cat’, and NEGRO ‘black’ combine in only 
one sequence. DOS precedes the noun GATO, while NEGRO follows GATO. This shows 
that DOS and the adjective NEGRO have distinct distributions. According to the principle 
#2, this is evidence that DOS is not an adjective.

The sign GATO ‘cat’ performs the same syntactic function in (51) and (67) as the 
units GATO DOS NEGRO, GATO NEGRO DOS, DOS NEGRO GATO, NEGRO DOS 
GATO, DOS GATO NEGRO, and NEGRO GATO DOS in (258) to (264). UNO, DOS, and 
TRES cannot stand alone because the resulting sentences are unacceptable. This shows
that *GATO* is the head of the previous phrases, while *UNO, DOS,* and *TRES* are dependent elements.

In LSAp as well as in LSAo, signs expressing precise number do not combine with verbs, as shown (265).

(265) *(DOS SENTAR*

two  sit.down

(‘Two sit down.’)

Sentence (265) is ungrammatical, showing that *DOS* does not combine with the verb *SENTAR* ‘sit down’.

However, because of nominal ellipsis, signs expressing precise number can constitute a noun phrase and precede verbs, as shown in (266).

eg:i

(266) *IX, #PL-CIRC GRUPO #INVF #INVF*

that.PL  people.group  walk-biped.PL

eg:j

Ø *UNO CAMINAR #INVF ENCONTRAR*

(person) one  walk-biped  3DU-meet

‘Those people are walking; one is walking; and they meet each other.’

In the second clause of (266), the ellipsis of the noun *PERSONA* ‘person’ produces the noun phrase Ø *UNO* ‘one’. This NP is the subject of verb *CAMINAR #INVF* ‘walk’.

In LSAp as well as in LSAo, signs expressing precise number can be conjoined. They occur as noun dependent elements or in predicative positions. They can constitute a noun phrase because of nominal ellipsis. They do not occur in sequence; rather, they are
limited to one element per noun phrase. Their distribution differs from adjectives, and they cannot be conjoined with adjectives. Considering this evidence, signs expressing a precise number are categorized as *cardinal numerals*. “Cardinal numerals are used to express the number of individuals in a set, as in *four cars*” (Velupillai 2012).

During this research, have also been observed two types of signs that could be analyzed as ordinal numerals and quantifiers (other than numerals). Quantifiers co-occur with mass nouns, while ordinal numerals only co-occur with count nouns (as mentioned in section 3.1.1). Cardinal numerals, ordinal numerals, and quantifiers show similar distribution; however, they cannot be conjoined. Ordinal numerals and quantifiers exhibit different forms for people, things, places, and time. Due to the complexities of these forms, the data collected during this research was not sufficient to elaborate enough syntactic evidence to support their categorization. For that reason, they have not been included in this research as lexical categories of LSA.

### 3.2.3 *Determiner*

This section presents syntactic evidence for the lexical category *Determiner*.

In LSA, certain pointing signs expressing definiteness precede or follow nouns, forming syntactic units. They are noun dependent elements. These pointing signs co-occur with adjectives; however, they have a different distribution than adjectives. They do not co-occur with numerals; rather, they express number morphologically. Considering this evidence, they are categorized as *determiners*.

Figure 14 shows an example of pointing sign.
Figure 14 shows the final position of $IX_i$ ‘that’. The form $IX_i$ is index pointing toward the location “$i$”; optionally, the eyes gaze toward location “$i$”; optionally, the hand extends toward “$i$”.

In LSAP as well as in LSAo, pointing signs combine with nouns, forming syntactic units, as shown in (267) to (270).

\[
\begin{align*}
&h:tuti \quad b:tti \\
&b:shj \\
(267) &VESTIDO NUEVO IXi MUJER COMPRAR \\
&dress \quad \text{new} \quad \text{that} \quad \text{woman} \quad \text{buy} \\
&\quad \text{‘That woman is buying a new dress.’}
\end{align*}
\]

\[
\begin{align*}
&h:tuti \\
&b:tti \\
(268) &VESTIDO NUEVO MUJER IXi COMPRAR \\
&dress \quad \text{new} \quad \text{woman} \quad \text{that} \quad \text{buy} \\
&\quad \text{‘That woman is buying a new dress.’}
\end{align*}
\]

\[
\begin{align*}
&h:tuti \quad b:shl \\
(269) &IX_i \quad MUJER COMPRAR AUTO NUEVO \\
&\quad \text{that} \quad \text{woman} \quad \text{buy} \quad \text{car} \quad \text{new} \\
&\quad \text{‘That woman is buying a new car.’}
\end{align*}
\]
That woman is buying a new car.

In (267) and (268), the non-manual body turn toward “i” (b:tti) extends over $IX_i$ ‘that’ and MUJER ‘woman’. In (269), the body shift left (b:shl) extends over $IX_i$ and MUJER. This evidence suggests that $IX_i$ MUJER and $MUJER IX_i$ are syntactic units.

$MUJER IX_i$ moves between (268) and (270). According to the principle #5, this is evidence that $MUJER IX_i$ is a syntactic unit.

Section 3.1 presents syntactic evidence showing that MUJER ‘woman’ is a noun.

$MUJER$ can replace the units $IX_i$ MUJER and $MUJER IX_i$, as shown in (271).

A woman is buying a new car.

The noun MUJER performs the same syntactic function in (271) as the units $IX_i$ MUJER and $MUJER IX_i$ in (267) to (270). This shows that MUJER is the head of the units $IX_i$ MUJER and $MUJER IX_i$, while $IX_i$ ‘that’ is a dependent element.

On the other hand, the pointing sign $IX_i$ ‘3sg’ can replace the units $IX_i$ MUJER and $MUJER IX_i$, as shown in (272).

She is buying a new car.
IX\textsubscript{i} performs the same syntactic function in (272) as IX\textsubscript{i} M\textsc{UJER} ‘that woman’ and M\textsc{UJER} IX\textsubscript{i} ‘that woman’ in (267) to (270). However, the function of IX\textsubscript{i} ‘that’ in (267) to (270), and the function of IX\textsubscript{i} ‘3SG’ in (272) are different. The latter is discussed in section 3.2.4.

Other pointing signs can replace IX\textsubscript{i} M\textsc{UJER} and M\textsc{UJER} IX\textsubscript{i}, as shown in (273).

\begin{verbatim}
(273) IX\textsubscript{2} COMPRAR AUTO NUEVO
      2SG  buy    car   new

‘You are buying a new car.’
\end{verbatim}

The pointing sign IX\textsubscript{2} ‘2SG’ performs the same syntactic function in (273) as IX\textsubscript{i} M\textsc{UJER} ‘that woman’ and M\textsc{UJER} IX\textsubscript{i} ‘that woman’ in (267) to (270).

However, IX\textsubscript{2} cannot accompany nouns, as shown in (274) and (275).

\begin{verbatim}
(274) *IX\textsubscript{2} M\textsc{UJER} COMPRAR AUTO NUEVO
      2SG  woman  buy   car   new

(‘You woman are buying a new car.’)
\end{verbatim}

\begin{verbatim}
(275) *MUJER IX\textsubscript{2} COMPRAR AUTO NUEVO
       woman 2SG  buy  car   new

(‘You woman are buying a new car.’)
\end{verbatim}

(274) and (275) are ungrammatical, showing that IX\textsubscript{2} cannot co-occur with the noun M\textsc{UJER}.

IX\textsubscript{i} ‘3SG’ and IX\textsubscript{2} ‘2SG’ stand alone in the clause, and they are mutually substitutable. They present the same distribution in the clause. According to the principle #2, this
evidence suggests that $IX_1$ ‘3sg’ and $IX_2$ ‘2sg’ are in the same lexical category, discussed in section 3.2.4.

$IX_i$ ‘that’ combines with nouns, while $IX_2$ ‘2sg’ does not. They do not have the same distribution in the clause. According to the principle #2, this evidence suggests that $IX_i$ ‘that’ and $IX_2$ ‘2sg’ are in different lexical categories. This suggests that $IX_i$ ‘that’ and $IX_i$ ‘3sg’ are homonyms belonging to different lexical categories.

The pointing sign $IX_i$ ‘that’ is a noun dependent element, while $IX_i$ ‘3sg’ and $IX_2$ ‘2sg’ are mutually interchangeable with noun phrases. This is discussed in section 3.2.4.

In LSAp as well as in LSAo, pointing signs co-occur in sequence, as shown in (276) and (277).

```
(276) VESTIDO_k NUEVO IX_i IX_j MUJER +COMPRAR_k
        dress   new    that  that  woman  i-j-buy-k

‘Those two women are buying new dresses.’
```

```
(277) MUJER IX_i IX_j COMPRAR VESTIDO NUEVO
        woman  that  that  buy     dress   new

‘Those two women are buying new dresses.’
```

In (276), the non-manual head tilt down (h:tid) co-occurs simultaneously with $MUJER$, $IX_i$, and $IX_j$. In (277), the body shift right (b:shr) co-occurs with $MUJER$, $IX_i$, and $IX_j$. This evidence suggests that $IX_i$ $IX_j$ $MUJER$ ‘those two women’ and $MUJER$ $IX_i$ $IX_j$ ‘those two women’ are syntactic units.
In LSAp as well as in LSAo, some pointing signs co-occur with adjectives and combine with nouns, forming syntactic units, as shown in (278) to (283), and (284) to (286).

\[ h:\text{tid} \quad h:\text{tuti} \quad b:\text{tti} \]

(278) \text{VESTIDO NUEVO \textbf{IX}_i} \quad \text{MUJER FELIZ} \quad \textit{COMPRAR}

dress \quad new \quad that \quad woman \quad happy \quad buy

‘That happy woman is buying a new dress.’

\[ h:\text{tid} \quad h:\text{tuti} \quad b:\text{tti} \]

(279) \text{VESTIDO NUEVO \textbf{IX}_i} \quad \textit{FELIZ} \quad \text{MUJER} \quad \textit{COMPRAR}

dress \quad new \quad happy \quad woman \quad buy

‘That happy woman is buying a new dress.’

\[ h:\text{tid} \quad h:\text{tuti} \quad b:\text{tti} \]

(280) \text{VESTIDO NUEVO} \quad \textit{FELIZ} \quad \textbf{IX}_i \quad \text{MUJER} \quad \textit{COMPRAR}

dress \quad new \quad happy \quad that \quad woman \quad buy

‘That happy woman is buying a new dress.’

\[ h:\text{tid} \quad h:\text{tuti} \quad h:\text{tid} \quad b:\text{tti} \]

(281) \text{VESTIDO NUEVO} \quad \text{MUJER} \quad \textbf{IX}_i \quad \textit{FELIZ} \quad \textit{COMPRAR}

dress \quad new \quad woman \quad that \quad happy \quad buy

‘That happy woman is buying a new dress.’

\[ h:\text{tid} \quad h:\text{tid} \quad h:\text{tuti} \quad b:\text{shiti} \]

(282) \text{VESTIDO NUEVO} \quad \textit{FELIZ} \quad \text{MUJER} \quad \textbf{IX}_i \quad \textit{COMPRAR}

dress \quad new \quad happy \quad woman \quad that \quad buy

‘That happy woman is buying a new dress.’
In LSAp, the noun MUJER ‘woman’, the adjective FELIZ ‘happy’, and the pointing sign IX_i ‘that’ combine in every possible position. In (278) to (283), the body shift toward “i” (b:shti), the body turn toward “i” (b:tti), or both extend over IX_i MUJER FELIZ, IX_i FELIZ MUJER, MUJER IX_i FELIZ, FELIZ IX_i MUJER, MUJER FELIZ IX_i, and FELIZ MUJER IX_i. This evidence suggests that these groups of signs are syntactic units.

Section 3.2.1 presents syntactic evidence showing that adjectives must occupy adjacent positions. In (278) and (282), IX_i and the adjective FELIZ are not in sequence; they have distinct distributions in the clause. According to the principle #2, this is evidence that IX_i ‘that’ is not an adjective.

In LSAo, some pointing signs co-occur with adjectives and combine with nouns, forming syntactic units, as shown in (284) to (286).

(284) IX_i MUJER FELIZ COMPRAR UNO AUTO NUEVO
that woman happy buy one car new
‘That happy woman is buying a new car.’

(285) MUJER IX_i FELIZ COMPRAR UNO AUTO NUEVO
woman that happy buy one car new
‘That happy woman is buying a new car.’

(286) MUJER FELIZ IX_i COMPRAR UNO AUTO NUEVO
woman happy that buy one car new
‘That happy woman is buying a new car.’
The group of signs $IX_i MUJER FELIZ$ moves between (278) and (284), $MUJER IX_i FELIZ$ between (281) and (285), and $MUJER FELIZ IX_i$ between (283) and (286).

According to the principle #5, this is evidence that these groups are syntactic units.

In LSAo, $IX_i$ ‘that’ precedes or follows the noun $MUJER$, while the adjective $FELIZ$ must follow $MUJER$; $IX_i$ and $FELIZ$ have distinct distributions in the clause. According to the principle #2, this is evidence out $IX_i$ ‘that’ is not an adjective.

In LSA, pointing signs do not co-occur with numerals, as shown in (287) and (288).

(287) *AUTO NUEVO UNO  MUJER FELIZ  IX_i  COMPRAR
    car  new  one  woman  happy  that  buy

    (‘That one happy woman is buying a new car.’)

(288) *UNO  MUJER FELIZ  IX_i  COMPRAR AUTO  NUEVO
    one  woman  happy  that  buy  car  new

    (‘That one happy woman is buying a new car.’)

(287) and (288) are unacceptable. This shows that pointing signs cannot co-occur with numerals; instead, they express number morphologically, as shown in (289) to (291).

$h:tid$

(289) PERSONA  IX_i  CAMINAR
    person  that  walk

    ‘That person walks.’

$h:tid$

(290) PERSONA DOS_i  CAMINAR
    person  those.two  walk

    ‘Those two people walk.’
In (289) to (291), the non-manual head tilt down (h:tid) extends over PERSONA IX, ‘that person’, PERSONA DOS, ‘those two people’, and PERSONA TRES, ‘those three people’. This is evidence that PERSONA IX, PERSONA DOS, and PERSONA TRES are syntactic units.

The pointing signs IX ‘that (one)’, DOS ‘that two’, and TRES ‘that three’ incorporate number in their forms, described in Table 3.

Table 3. Determiners in LSA

<table>
<thead>
<tr>
<th>Singular</th>
<th>Dual</th>
<th>Trial</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index points toward “i”, optionally the arm moves toward “i”. Gloss: IX</td>
<td>Index and middle fingers point toward “i”, palm up or down, forearm horizontal; elbow pivots between the two referents. Gloss: DOS</td>
<td>Index, middle finger, and thumb point toward “i”, palm down, forearm horizontal; hand moves contra in a small circle on the horizontal plane. Gloss: TRES</td>
<td>Index points toward “i”, palm down, forearm horizontal; wrist moves ipsi or contra in circles on the vertical plane. Gloss: IXi#PL-CIRC</td>
</tr>
</tbody>
</table>

In LSA, pointing signs also present plural forms, as shown in (292).

h:tid_________

(292) IXi#PL-CIRC CHICO#PL 1:CONTAR, GUSTAR
that.PL child.PL 1-tell-i like

‘I tell (stories) to those children; and they like it.’

In (292), the non-manual head tilt down (h:tid) extends over IXi#PL-CIRC CHICO#PL ‘those children’. This evidence suggests that IXi#PL-CIRC CHICO#PL is a syntactic unit.
In LSAp as well as in LSAo, the combination of pointing signs and nouns has the semantic effect of making nouns definite. On the other hand, the absence of pointing signs leaves nouns indefinite. In (269) and (270), AUTO ‘car’ is a non-identifiable entity. The presence of a determiner makes it definite in (293).

\[
\text{\textit{b:shl}}
\]

(293) \textit{UNO MUJER COMPRAR IXj AUTO NUEVO}

one woman buy that car new

‘One woman is buying that new car.’

In (293), the non-manual body shifts left (b:shl) extends over \textit{IXj AUTO NUEVO ‘that new car’ providing evidence that it is a syntactic unit. This unit refers to a definite entity.}

In LSA, some pointing signs expressing definiteness precede or follow nouns, forming syntactic units. They are noun dependent elements. They occur in sequence. These signs can co-occur with adjectives; however, their distribution differs from adjectives. They cannot co-occur with numerals; rather, they express number morphologically. Considering this evidence, they are categorized as determiners. “A determiner is a word or affix that belongs to a class of noun modifiers that expresses the reference, including quantity, of a noun.” (Crystal 1980:108). In sign languages, determiners are “pointing signs that co-occur with nouns” (Sandler & Lillo-Martin 2006:339).

3.2.4 Personal Pronoun

This section presents syntactic evidence for the \textit{Personal Pronoun} category.

In LSA, certain pointing signs with referential function are mutually interchangeable with noun phrases, as shown in (294) and (295).
‘One woman is buying a new car.’

‘She is buying a new car.’

In (294), the non-manuals head tilt down (h:tid) and head turn left (h:tul) co-occur simultaneously with UNO ‘one’ and MUJER ‘woman’. This evidence suggests that UNO MUJER ‘one woman’ is a syntactic unit.

Section 3.1 presents evidence that MUJER ‘woman’ is a noun. Section 3.2.2 presents evidence that UNO ‘one’ is a numeral, and that numerals combine with nouns, forming noun phrases. This evidence shows that UNO MUJER ‘one woman’ is a noun phrase.

The pointing sign IX, ‘3sg’ performs the same syntactic function in (295) as UNO MUJER in (294), showing that IX, ‘3sg’ is mutually interchangeable with noun phrases.

In (295), the pointing sign IX, refers to a third person agent.

IX, ‘3sg’ can be replaced with other pointing signs, as shown in (296) and (297).

‘I am buying a new car.’

‘You are buying a new car.’
The pointing sign \(IX_1\) ‘3sg’ performs the same syntactic function in (295) as \(IX_1\) ‘1sg’ in (296) and \(IX_2\) ‘2sg’ in (297). They are mutually interchangeable. According to the principle \#2, they belong to the same lexical category. In (296), \(IX_1\) ‘1sg’ refers to the speaker. In (297), \(IX_2\) ‘2sg’ refers to the addressee.

Pointing signs can be conjoined with others or with noun phrases, as shown in (298) and (299).

(298) ¿QUIÉN? LLEVAR AUTO NUEVO ¿QUIÉN? IX₁ O IX₂ O IXᵢ

who? take car new who? 1SG or 2SG or 3SG

‘Who took a new car, me, you, or her?’

(299) ¿QUIÉN? LLEVAR AUTO NUEVO ¿QUIÉN? IX₁ O IX₂ O UNO PERSONA

who? take car new who? 1SG or 2SG or one person

‘Who took a new car, me, you, or a person?’

The coordinating conjunction \(O\) ‘or’ links the pointing signs \(IX_1\) ‘1sg’, \(IX_2\) ‘2sg’, and \(IXᵢ\) ‘3sg’ in (298); and \(IX_1\) ‘1sg’, \(IX_2\) ‘2sg’, and the noun phrase \(UNO PERSONA\) ‘a person’ in (299). According to the principle \#1, this is evidence that \(IX_1\) ‘1sg’, \(IX_2\) ‘2sg’, \(IXᵢ\) ‘3sg’, and \(UNO PERSONA\) ‘a person’ are in the same syntactic category.

The pointing signs \(IX_1\) ‘1sg’, \(IX_2\) ‘2sg’, and \(IXᵢ\) ‘3sg’ are mutually interchangeable; they are also mutually interchangeable with noun phrases. They have a referential function. Considering this evidence, they are categorized as pronouns.

“A pronoun is a pro-form which functions like a noun and substitutes for a noun or noun phrase” (Crystal 1980:287). “Personal pronouns typically refer to the speaker(s) (I, we), the addressee(s) (you), as well as other things that the context makes clear (s/he, it,
they)” (Velupillai 2012:133). In sign languages, pronouns are referential devices tied to locations in space. Pointing signs are the commonest form of pronouns.

In sign language linguistics, locations in space are defined according to the relative position of the signer and the addressee(s): (1) The location of the signer, specified by the number “1”; (2) the location of the addressee(s), specified by the number “2”; and (3) any other location, specified by letters or words (“i”, “j”, up, down, etc.). The three types of locations and the pointing signs associated with them are shown in Figure 15.

![Figure 15: Pointing signs IX₁, IX₂, and IXᵢ](image)

The IX₁, IX₂ and IXᵢ forms are indexes pointing to locations “1”, “2” and “i”. These forms indicate singular referents. Plural referents are also marked morphologically, as shown in (300) to (302).

(300) **IX₁#PL-CIRC**  **COMPRA**

1.PL buy

‘We are buying.’

(301) **IX₂#PL-ARC**  **COMPRA**

2.PL buy

‘You are buying.’
In (300) to (302), the pointing signs $IX_i#PL-CIRC$ ‘1pl’, $IX_2#PL-ARC$ ‘2pl’, and $IX_i#PL-CIRC$ ‘3pl’ incorporate the morphemes $PL-CIRC$ or $PL-ARC$ to express plurality. Their forms are described in Table 4 (page 124). $IX_i#PL-CIRC$ ‘1pl’ is a first person plural exclusive form.

In LSA, pointing signs also present dual forms, as shown in (303) to (305).

In (303), $DOS_{1,2}$ is the first person dual inclusive form, described in Table 4.

In (304), $DOS_{1,i}$ is the first person dual exclusive form, described in Table 4.

In (305), $DOS_{i,j}$ is the third person dual form, described in Table 4.

Table 4 describes LSA pointing sign forms, including types Index (IX), Dual (DOS), Trial (TRES), Quadral (CUATRO), and Pental (CINCO).
Table 4. LSA pointing signs types Index (IX), Dual (DOS), Trial (TRES), Quadral (CUATRO), and Pental (CINCO)

<table>
<thead>
<tr>
<th>Person</th>
<th>Singular</th>
<th>Dual INCL</th>
<th>Dual EXCL</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Index points to the signer, optionally touching the chest.</td>
<td>Index extended, middle finger bent, palm up, forearm vert., wrist bends back and forth between “1” and “2”.</td>
<td>Index extended, middle finger bent, palm up, forearm vert., wrist bends back and forth between “1” and “i”.</td>
<td>Index points up; starting close to the signer, it moves ipsi-laterally in circles on the horizontal plane.</td>
</tr>
<tr>
<td>2</td>
<td>Index points toward “2”, palm down; the arm optionally moves toward “2”.</td>
<td>Index and middle finger extended and spread, pointing toward “2”, palm up, forearm horizontal; elbow pivots between the two referents.</td>
<td>Gloss: IX_1 Gloss: DOS_1,2 Gloss: DOS_1,i</td>
<td>Gloss: IX_2 Gloss: IX_2#PL-CIRC</td>
</tr>
<tr>
<td>3</td>
<td>Index points toward “i”, optionally the arm moves toward “i”.</td>
<td>Index and middle fingers point toward “i”, palm up or down, forearm horizontal; elbow pivots between the two referents.</td>
<td>Index, middle finger, and thumb point toward “i”, palm down, forearm horizontal; hand moves contra in a small circle on the horiz. plane.</td>
<td>Index points toward “i”, palm down, forearm horizontal; wrist moves ipsi or contra in circles on the vert. plane.</td>
</tr>
</tbody>
</table>
3.2.5 Possessive Pronoun

This section presents syntactic evidence for the Possessive Pronoun category.

In LSA, certain signs expressing possession stand alone in the clause or combine with nouns, forming noun phrases where the head noun is the possessed entity. They also refer to the possessor of the entity indicating person and number. There are three types: (1) The sign $P_1$ (from Palm) shown in Figure 16; (2) the pointing signs type IXP (from IndeX Possessor) described in Table 5; and, (3) in certain contexts, pointing signs type IX (from IndeX) described in Table 4, section 3.2.4.

<table>
<thead>
<tr>
<th>Person</th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Index and thumb curved; fingertips touching; palm facing the signer; lips closed with puffed cheeks; the index finger extends pointing to the signer; rapid release of air with a small pop sound.</td>
<td>Not observed.</td>
</tr>
<tr>
<td></td>
<td>Gloss: IXP$_1$</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Index and thumb curved; fingertips touching; palm facing “2”; lips closed with puffed cheeks (optional); the index finger extends pointing to “2”; rapid release of air with a small pop sound (optional).</td>
<td>Index and thumb curved; fingertips touching; palm facing “2”; lips closed with puffed cheeks (optional); the index finger extends pointing to “2”; rapid release of air with a small pop sound (optional). Then, elbow pivots; forearm moves ipsi and contra.</td>
</tr>
<tr>
<td></td>
<td>Gloss: IXP$_2$</td>
<td>Gloss: IXP$_2$+IX$_2$#PL-ARC</td>
</tr>
<tr>
<td>3</td>
<td>Index and thumb curved; fingertips touching; palm facing “3”; lips closed with puffed cheeks (optional); the index finger extends pointing to “3”; rapid release of air with a small pop sound (optional).</td>
<td>Index and thumb curved; fingertips touching; palm facing “3”; lips closed with puffed cheeks (optional); the index finger extends pointing to “3”; rapid release of air with a small pop sound (optional). Then, elbow pivots; forearm moves ipsi and contra. Then, wrist moves ipsi in circles on the vertical plane.</td>
</tr>
<tr>
<td></td>
<td>Gloss: IXP$_3$</td>
<td>Gloss: IXP$_3$+IX$_3$#PL-ARC</td>
</tr>
</tbody>
</table>

Table 5. LSA possessive pronouns. Index Possessive (IXP) type
Figure 16 shows the pointing sign $P_1$.

![Figure 16: $P_1$ ‘1SG.POSS’](image)

The form $P_1$ ‘1SG.POSS’ is palm facing the signer and touching the chest. This form only exists for the first-person singular.

Figure 17 shows a pointing sign type IXP.

![Figure 17: $IXP_i$ ‘3SG.POSS’](image)

Figure 17 shows the initial and final position of $IXP_i$. The form $IXP_i$ is index and thumb curved; fingertips touching; palm facing “i”; the index extends pointing toward “i”.

In LSAp as well as in LSAo, signs expressing possession precede or follow nouns, forming syntactic units, as shown in (306) to (309).
In (306) and (307), the non-manuals head tilt down (h:tid) and body shift toward “i” (b:shti) co-occur simultaneously with GATO and P₁. In (308) and (309), the eyebrows raised (eb:r) extends over P₁ GATO and GATO P₁. According to the principle #4, this is evidence that GATO P₁ ‘my cat’ and P₁ GATO ‘my cat’ are syntactic units.

The sign GATO accomplishes the same syntactic function in (51) and (67), as P₁ GATO and GATO P₁ in (306) to (309). The sign P₁ cannot stand alone because the resulting sentences are unacceptable. This shows that GATO ‘cat’ is the head of the
phrases $GATO\, P_1$ and $P_1\, GATO$, while $P_1\, '1SG.Poss'$ is a dependent element. In these units, the first person is the possessor, while $GATO$ is the possessed noun.

In LSA, signs expressing possession co-occur with adjectives and combine with nouns, forming syntactic units. However, signs expressing possession and adjectives have distinct distributions in the clause, as shown in (310) to (315).

\begin{verbatim}
(310) RATÓN\_\_ P₁ GATO₁ NEGRO \_PERSEGUIR\_ mouse 1SG.POSS cat black i-chase-j ‘My black cat chases a mouse.’
\end{verbatim}

\begin{verbatim}
(311) RATÓN\_\_ P₁ NEGRO GATO₁ \_PERSEGUIR\_ mouse 1SG.POSS black cat i-chase-j ‘My black cat chases a mouse.’
\end{verbatim}

\begin{verbatim}
(312) RATÓN\_\_ GATO₁ P₁ NEGRO \_PERSEGUIR\_ mouse cat 1SG.POSS black i-chase-j ‘My black cat chases a mouse.’
\end{verbatim}

\begin{verbatim}
(313) RATÓN\_\_ NEGRO P₁ GATO₁ \_PERSEGUIR\_ mouse black 1SG.POSS cat i-chase-j ‘My black cat chases a mouse.’
\end{verbatim}

\begin{verbatim}
(314) RATÓN\_\_ GATO₁ NEGRO P₁ \_PERSEGUIR\_ mouse cat black 1SG.POSS i-chase-j ‘My black cat chases a mouse.’
\end{verbatim}
In LSAp, the noun GATO ‘cat’, the adjective NEGRO ‘black’, and P₁ ‘1SG.POSS’ combine in every possible sequence, as shown in (310) to (315). The non-manual body shift toward “i” (b:shti) co-occurs simultaneously with these signs. This evidence suggests that P₁ GATO NEGRO, P₁ NEGRO GATO, GATO P₁ NEGRO, NEGRO P₁ GATO, GATO NEGRO P₁, and NEGRO GATO P₁ are syntactic units.

Section 3.2.1 presents syntactic evidence showing that adjectives must occupy adjacent positions. In (310) and (315), P₁ and NEGRO are not adjacent. According to the principle #2, this is evidence that P₁ is not an adjective.

In LSAo, signs expressing possession co-occur with adjectives and combine with nouns, forming syntactic units, as shown in (316) to (318).

(315) RATÓN NEGRE GATO_P₁ PERSEGUIR
mouse black cat 1SG.POSS i-chase-j

‘My black cat chases a mouse.’

(316) P₁ GATO NEGRO PERSEGUIR RATÓN
1SG.POSS cat black i-chase-j mouse

‘My black cat chases a mouse.’

(317) GATO_P₁ NEGRO PERSEGUIR RATÓN
cat 1SG.POSS black i-chase-j mouse

‘My black cat chases a mouse.’

(318) GATO NEGRO P₁ PERSEGUIR RATÓN
cat black 1SG.POSS i-chase-j mouse

‘My black cat chases a mouse.’
In (316), the non-manual body shift right (b:shr) co-occurs simultaneously with $P_I$, $GATO$, and $NEGRO$. This evidence suggests that $P_I GATO NEGRO$ is a syntactic unit. $GATO P_I NEGRO$ moves between (312) and (317), and $GATO NEGRO P_I$ between (314) and (318). According to the principle #5, this is evidence that these groups are syntactic units.

In LSAo, $P_I$ precedes or follows the noun $GATO$, while $NEGRO$ must follow $GATO$. According to the principle #2, this is evidence that $P_I$ is not an adjective.

The noun $GATO$ ‘cat’ performs the same syntactic function in (51) and (67), as the units $P_I GATO NEGRO$, $P_I NEGRO GATO$, $GATO P_I NEGRO$, $NEGRO P_I GATO$, $GATO NEGRO P_I$, and $NEGRO GATO P_I$ in (310) to (318). The signs $P_I$ and $NEGRO$ cannot stand alone because the resulting sentences are unacceptable. This shows that $GATO$ is the head of the previous phrases, while $P_I$ and $NEGRO$ are dependent elements.

In LSAP as well as in LSAo, signs expressing possession cannot be conjoined with adjectives, as shown in (319) and (320).

(319) *IX$_i$ $GATO_i$ ¿QUIÉN? $P_I$ O $NEGRO$

that cat who? 1SG.POSS or black

(‘Whose cat is that, mine or black?’)

(320) *IX$_i$ $GATO_i$ ¿QUIÉN? $P_I$ O $NEGRO$

that cat who? 1SG.POSS or black

(‘Whose cat is that, mine or black?’)

Examples (319) and (320) are ungrammatical, showing that $P_I$ cannot be conjoined with adjectives. According to the principle #1, this is evidence that $P_I$ is not an adjective.
In LSAp as well as in LSAo, signs expressing possession co-occur with determiners and combine with nouns, forming syntactic units, as shown in (321) to (332). Section 3.2.3 presents syntactic evidence revealing that determiners do not co-occur with numerals. Determiners co-occur with signs expressing possession, as shown in (321) to (332). This evidence suggests that signs expressing possession are not numerals.

(321) \( RÁTÓN \_ P_1 \text{GATO} \_ \text{DOS}^{26} \) \_PERSEGUIR\_j

mouse 1SG.POSS cat those.two i-chase-j

‘Those two cats of mine chase a mouse.’

(322) \( RÁTÓN \_ P_1 \text{DOS} \_ \text{GATO} \_ \_PERSEGUIR\_j\)

mouse 1SG.POSS those.two cat i-chase-j

‘Those two cats of mine chase a mouse.’

(323) \( RÁTÓN \_ \text{GATO} \_ P_1 \_ \text{DOS} \_ \_PERSEGUIR\_j \)

mouse cat 1SG.POSS those.two i-chase-j

‘Those two cats of mine chase a mouse.’

(324) \( RÁTÓN \_ \text{DOS} \_ P_1 \_ \text{GATO} \_ \_PERSEGUIR\_j \)

mouse those.two 1SG.POSS cat i-chase-j

‘Those two cats of mine chase a mouse.’

---

25 (321) to (326) are examples from LSAp, while (327) to (332) are from LSAo.

26 DOSi is a determiner, not a number. In this thesis, co-referentially is never indicated on numerals.
In (321) to (326), the non-manual body shift toward “i” (b:shti) extends over $P_1 GATO DOS_i$, $P_1 DOS_i GATO$, $GATO P_1 DOS_i$, $DOS_i P_1 GATO$, $GATO DOS_i P_1$, and $DOS_i GATO P_1$. According to the principle #4, this is evidence that these groups are syntactic units.

In LSAp, the noun $GATO$ ‘cat’, the determiner $DOS_i$ ‘those two’, and $P_1$ ‘1SG.POSS’ combine in every possible sequence. Evidence presented in section 3.2.3 shows that $DOS_i$ is a determiner, and that determiners do not co-occur with numerals. In (321) to (326), $DOS_i$ co-occurs with $P_1$, showing that $P_1$ is not a numeral.

In LSAo, signs expressing possession co-occur with determiners and combine with nouns, forming syntactic units, as shown in (327) to (328).
In LSAo, the noun \textit{GATO} ‘cat’, the determiner \textit{DOS} ‘those two’, and \textit{P} \textit{1} ‘1SG.POSS’ combine in every possible sequence. In (327), (329), and (332), the non-manual body shift left (b:shl) extends over \textit{P} \textit{1} \textit{GATO DOSi}, \textit{GATO P} \textit{1 DOSi}, and \textit{DOSi GATO P} \textit{1}. The group of signs \textit{P} \textit{1 DOSi GATO} moves between (322) and (328), \textit{GATO P} \textit{1 DOSi} between (323) and (329), \textit{DOSi P} \textit{1 GATO} between (324) and (330), and \textit{GATO DOSi P} \textit{1} between (325) and (331). This is evidence that these groups are syntactic units.

In LSAp as well as in LSAo, \textit{P} \textit{1} co-occurs with the determiner \textit{DOSi} and combines with the noun \textit{GATO}, forming syntactic units. Evidence presented in section 3.2.3 shows that \textit{DOSi} is a determiner, and that determiners do not co-occur with numerals. In (321) to (332), the determiner \textit{DOSi} co-occurs with \textit{P} \textit{1}, showing that \textit{P} \textit{1} is not a numeral.
In LSAp as well as in LSAo, signs expressing possession cannot be conjoined with determiners, as shown in (333) and (334).

(333) *IX_i GATO_i ¿QUIÉN? P_1 O DOS_i  
that cat who? 1SG.Poss or those two  
(‘Whose cat is that, mine or those two?’)

(334) *IX_i GATO_i ¿QUIÉN? P_1 O DOS_i  
that cat who? 1SG.Poss or those two  
(‘Whose cat is that, mine or those two?’)

In (333) and (334), the coordinating conjunction O ‘or’ cannot link P_I and DOS_i.

Section 3.2.3 presents syntactic evidence showing that DOS_i is a determiner. According to the principle #1, this is evidence that P_I is not a determiner.

In LSA, signs expressing possession co-occur with numerals and combine with nouns, forming syntactic units, as shown in (335) to (340). Section 3.2.3 presents syntactic evidence that numerals do not co-occur with determiners. This evidence shows that signs expressing possession are not determiners.

```
(335) RATÓN_i P_1 GATO_i DOS_i PERSEGUIR_i  
mouse 1SG.Poss cat two i-chase  
‘My two cats chase a mouse.’
```

```
(336) RATÓN_i GATO_i P_1 DOS_i PERSEGUIR_i  
mouse cat 1SG.Poss two i-chase  
‘My two cats chase a mouse.’
```
In (335) to (339), the non-manual body shift toward “i” (b:shti) marks the boundaries of $P_1 \text{GATO}\text{DOS}$, $\text{GATO}_i \text{DOS}$, $\text{GATO}\text{DOS} \ P_1$, $P_1 \text{DOS} \text{GATO}$, and $\text{DOS} \ P_1 \text{GATO}$. In (340), the head tilt down (h:tid) extends over $\text{DOS} \text{GATO} \ P_1$. According to the principle #4, this is evidence that the previous groups of signs are syntactic units.

In LSAo, signs expressing possession co-occur with numerals and combine with nouns, forming syntactic units, as shown in (341) and (342).

In (337) $\text{RATÓN}_j \text{GATO}_i \text{DOS} \ P_1$ \text{i-PERSEGUIR}_j

mouse cat two 1SG.POSS i-chase-j

‘My two cats chase a mouse.’

In (338) $\text{RATÓN}_j \ P_1 \text{DOS} \text{GATO}_i$ \text{i-PERSEGUIR}_j

mouse 1SG.POSS two cat i-chase-j

‘My two cats chase a mouse.’

In (339) $\text{RATÓN}_j \text{DOS} \ P_1 \text{GATO}_i$ \text{i-PERSEGUIR}_j

mouse two 1SG.POSS cat i-chase-j

‘My two cats chase a mouse.’

In (340) $\text{RATÓN}_j \text{DOS} \text{GATO}_i \ P_1$ \text{i-PERSEGUIR}_j

mouse two cat 1SG.POSS i-chase-j

‘My two cats chase a mouse.’

In LSAo, signs expressing possession co-occur with numerals and combine with nouns, forming syntactic units, as shown in (341) and (342).

In (341) $P_1 \text{DOS} \text{GATO}_i$ \text{i-PERSEGUIR}_j \text{RATÓN}_j \text{iX}_j

1SG.POSS two cat i-chase-j mouse that

‘My two cats chase that mouse.’
(342) **DOS**  **GATO**₁  **P₁**  **¿PERSEGUIR?**  **RATÓN**₁

two  cat  1SG.POSS  i-chase-j  mouse

‘My two cats chase a mouse.’

In (341) and (342), the sign **P₁** precedes or follows the noun **GATO**, while the numeral **DOS** precedes **GATO**; **P₁** and the numeral **DOS** have distinct distributions.

According to the principle #2, this is evidence that **P₁** is not a numeral.

In (335) to (342), the numeral **DOS** co-occurs with **P₁**. Section 3.2.3 presents syntactic evidence indicating that numerals do not co-occur with determiners either in LSAp or LSAo. This evidence shows that **P₁** is not a determiner.

In LSAp as well as in LSAo, signs expressing possession cannot be conjoined with numerals, as shown in (343) and (344).

(343) *[IXᵢ  GATOᵢ  ¿QUIÉN?  **P₁**  O  DOS

that cat who?  1SG.POSS  or  two

(‘Whose cat is that, mine or two?’)

(344) *[IXᵢ  GATOᵢ  ¿QUIÉN?  **P₁**  O  DOS

that cat who?  1SG.POSS  or  two

(‘Whose cat is that, mine or two?’)

In (343) and (344), the conjunction O ‘or’ cannot link **P₁** and the numeral **DOS** ‘two’.

According to the principle #1, this is evidence that **P₁** is not a numeral.

Signs expressing possession can be conjoined, as shown in (345) and (346).

\[
\begin{array}{cccc}
\text{h:tid} & \text{h:tid} & \text{h:tid} & \text{h:tiu} \\
\end{array}
\]

(345) **TAZAᵢ**  **IXᵢ**  **IXPᵢ**  ¿QUIÉN?  **IXᵢ**  **IXP₂**  O  **P₁**

cup  that  3SG.POSS who?  that  2SG.POSS  or  1SG.POSS

‘Whose is that cup, yours or mine?’
‘Whose is that cup, yours or mine?’

The conjunction *O* ‘or’ links *IXP*₂ ‘2SG.POSS’ and *Pᵢ* ‘1SG.POSS’ in (345), and it links *IXP*₂ ‘2SG.POSS’ and *IXᵢ* ‘1SG.POSS’ in (346). According to the principle #1, this is evidence that *IXP*₂, *Pᵢ*, and *IXᵢ* are in the same lexical category.

In certain contexts, the forms *IXPᵢ* and *IXᵢ* are mutually substitutable, as shown in (347) and (348).

*b:shl*

(347)  
*TAZAᵢ*  
*IXᵢ*  
*IXPᵢ*  
¿QUIÉN?  
*IXP*₂  
*O*  
*IX₁*  

cup  
that  
3SG.POSS who?  
2SG.POSS or  
1SG.POSS

‘Whose is that cup, yours or mine?’

(346)

The non-manual body shift left (*b:shl*) co-occurs simultaneously with the sign *IXᵢ* ‘3SG.POSS’ in (347), and with *IXPᵢ* ‘3SG.POSS’ in (348). This suggests that *IXᵢ* and *IXPᵢ* are single syntactic units. They are complements of non-active clauses; therefore, they present the same distribution in the clause. According to the principle #2, this is evidence that *IXᵢ* ‘3SG.POSS’ and *IXPᵢ* ‘3SG.POSS’ are in the same lexical category.

In certain contexts, the forms *Pᵢ* and *IXᵢ* are mutually substitutable, as shown in (349) and (350).
‘There are two chairs; those two are mine.’

‘There are two chairs; those two are mine.’

The non-manual head tilt up (h:tiu) extends over $P_1$ ‘1SG.POSS’ in the second clause of (349), and over $IX_1$ ‘1SG.POSS’ in the second clause of (350). This suggests that $P_1$ and $IX_1$ are single syntactic units. They are complements of non-active clauses. They are mutually substitutable. This is evidence that they are in the same lexical category.

In LSA, signs expressing possession incorporate morphology to refer to a plural possessor, as shown in (351) to (353).

‘A house is ours.’

‘A house is yours.’

‘A house is theirs.’
In (351), the form $IX_i#PL-CIRC \, '1PL.Poss'$ incorporates the morpheme $PL-CIRC$ to express plurality. In (352) and (353), the pointing signs $IXP_2+IX_2#PL-ARC \, '2SG.Poss-2PL'$ and $IXP_i+IX_i#PL-CIRC \, '3SG.Poss-3PL'$ express plurality through compound forms, described in Table 5 and Table 4.

In LSAp as well as in LSAo, signs expressing possession combine with nouns as dependent elements, forming syntactic units where the head noun is the possessed entity. Alternatively, they occur as complements of non-active clauses. They refer to the possessor indicating person and number. They co-occur with adjectives; however, they have a distinct distribution. These signs co-occur with numerals or determiners, showing they are not numerals or determiners. Signs expressing possession cannot be conjoined with adjectives, numerals, or determiners. Considering this evidence, signs expressing possession have been categorized as possessive pronouns. “A possessive pronoun is a pronoun that expresses ownership and relationships like ownership, such as kinship, and other forms of association.” (Loos et al. 2003).

3.3 Verb

This section discusses the Verb category and presents syntactic evidence for verbs in LSA. Also, it briefly discusses verbal agreement morphology.

In LSA, signs expressing events occur in intransitive, transitive or ditransitive clauses. Depending on their transitivity, they obligatorily take one, two, or three noun phrases with the role of subject, object, or indirect object; if any of these noun phrases are omitted, they still have pronominal meaning in the clause. Signs describing events co-occur with other elements typically considered verb modifiers, placing selectional restrictions on them. Given a context, they can constitute minimal clauses.
Some verbs incorporate spatial morphemes marking agreement with subjects and objects in person and number. Certain morphologically complex verbs include morphemes referring to classes of entities, marking agreement with subjects and objects.

Figure 18 shows two signs expressing actions.

![Figure 18: CORRER ‘run’ and CAMINAR ‘walk’](image)

Figure 18 shows the sign CORRER ‘run’ (left) and CAMINAR ‘walk’ (right). The form CORRER is two fists; palm facing the signer; fists alternate touching the chest. The form CAMINAR is index and middle finger extended and pointing down; fingers alternatively bend and extend; hand moves forward.

The signs CORRER and CAMINAR can be conjoined, as shown in (354).

\[
\text{eg}: i \\
(354) \quad \text{PERSONA} \quad \text{¿QUÉ?} \quad \text{CORRER} \quad \text{O} \quad \text{CAMINAR} \quad \text{¿QUÉ?} \\
\quad \text{that person} \quad \text{what?} \quad \text{run} \quad \text{or} \quad \text{walk} \quad \text{what?}
\]

‘Is that person running or walking?’

In (354), the coordinating conjunction O ‘or’ links CORRER and CAMINAR. According to the principle #1, this is evidence that they belong to the same lexical category.

CORRER and CAMINAR occur in intransitive clauses, as shown in (355) and (356).
eg: i

(355) \(IX_i\) PERSONA, CORRER
that person run

‘That person runs.’

eg: i

(356) \(IX_i\) PERSONA, CAMINAR
that person walk

‘That person walks.’

In (355) and (356), CORRER and CAMINAR co-occur with the noun phrase \(IX_i\) PERSONA ‘that person’, forming intransitive clauses.

Given a context, CORRER and CAMINAR constitute minimal clauses in (357).

eg: i

(357) \(IX_i\) PERSONA, PARAR pro\(^27\) CAMINAR pro CORRER
that person stand.up (3SG) walk (3SG) run

‘That person stands up; he walks; and he runs.’

In (357), the noun phrase \(IX_i\) PERSONA ‘that person’ is omitted through ellipsis in the second and third clause, leaving the signs CORRER and CAMINAR as the only element. Their subjects have a pronominal meaning; however, they are phonologically absent, which is indicated by the silent pronouns pro ‘3sg’. This is a well-known phenomenon associated with verbs in languages allowing pro-drop subjects. In (357), CORRER and CAMINAR constitute minimal clauses, which is evidence that they are verbs.

\(^{27}\) A silent pronoun (pro) is a pronoun present in the meaning but no overtly signed (Bickford 1998:87-88).
CORRER and CAMINAR cannot occur in transitive clauses, as in (358) and (359).

(358) *IXᵢ PERSONAᵢ CORRER IXᵢ PERRO

that person run that dog

(‘That person is running that dog.’)

(359) *IXᵢ PERSONAᵢ CAMINAR IXᵢ PERRO

that person walk that dog

(‘That person is walking that dog.’)

Examples (358) and (359) are ungrammatical, showing that CORRER and CAMINAR cannot co-occur with a second noun phrase functioning as a grammatical object.

CORRER and CAMINAR co-occur with elements other than noun phrases, as shown in (360) to (367).

(360) IXᵢ PERSONAᵢ CORRER SIEMPRE

that person run always

‘That person always runs.’

(361) IXᵢ PERSONAᵢ CAMINAR SIEMPRE

that person walk always

‘That person always walks.’

(362) IXᵢ PERSONA CORRER VELOZMENTE

that person run at.a.fast.speed

‘That person runs fast.’

(363) IXᵢ PERSONA CAMINAR VELOZMENTE

that person walk at.a.fast.speed

‘That person walks fast.’
(364) \( \text{IX}_i \) \( \text{PERSONA}_i \) \text{CORRER MUCHO}  
that person run a lot  
‘That person runs a lot.’  

(365) \( \text{IX}_i \) \( \text{PERSONA}_i \) \text{CAMINAR MUCHO}  
that person walk a lot  
‘That person walks a lot’  

(366) \( \text{IX}_i \) \( \text{PERSONA}_i \) \text{CORRER NO}  
that person run not  
‘That person does not run.’  

(367) \( \text{IX}_i \) \( \text{PERSONA}_i \) \text{CAMINAR NO}  
that person walk not  
‘That person does not walk.’  

In (360) to (367), \text{Caminar} and \text{Correr} co-occur with the same elements. They have the same distribution in the clause. According to the principle #2, this is evidence that they belong to the same lexical category.  

\text{Correr} ‘run’ and \text{Caminar} ‘walk’ express actions. They can be conjoined. They present the same distribution in the clause. These signs constitute minimal clauses, or they co-occur with a noun phrase and elements typically considered verb modifiers. Considering this evidence, they are categorized as \textit{verbs}.  

\text{Correr} and \text{Caminar} only occur in intransitive clauses; they co-occur with one noun phrase or pronoun functioning as the \textit{subject}; however, they cannot co-occur with a second noun phrase or pronoun functioning as an object. Considering this evidence, they are sub-categorized as \textit{intransitive verbs}.  

Figure 19 shows two more signs describing actions.
Figure 19: BAILAR ‘dance’ and TRABAJAR ‘work’

Figure 19 shows the signs BAILAR ‘dance’ and TRABAJAR ‘work’. The form BAILAR is two hands; indexes flexed around the thumbs; palms facing up; the hands alternatively move in circles on the midsagittal axis of the body. The form TRABAJAR is two fists; palms facing contra; dominant hand repeatedly moves down hitting the other hand.

The signs BAILAR and TRABAJAR can be conjoined with verbs, as shown in (368).

\[(368) \text{iX} \text{ PERSONA, } \text{¿QUÉ? TRABAJAR CORRER CAMINAR O BAILAR } \text{¿QUÉ?} \]

\[
\text{that person what? work run walk or dance what?}
\]

‘Is that person working, running, walking, or dancing?’

This section provided evidence that CORRER and CAMINAR are verbs. In (368), the signs BAILAR, TRABAJAR, CORRER and CAMINAR are conjoined. According to the principle #1, this is evidence that BAILAR and TRABAJAR are verbs.

BAILAR and TRABAJAR occur in intransitive clauses, as shown in (369) and (370).

\[(369) \text{iX} \text{ PERSONA, BAILAR} \]

\[
\text{that person dance}
\]

‘That person is dancing.’
(370) $IX_i \quad PERSONA_i \quad TRABAJAR$
that person work

‘That person is working.’

In (369) and (370), BAILAR and TRABAJAR co-occur with the noun phrase $IX_i$
PERSONA ‘that person’, forming intransitive clauses. They constitute minimal
predicates. This shows that BAILAR and TRABAJAR are verbs.

Given a context, BAILAR and TRABAJAR constitute minimal clauses in (371).

(371) $IX_i \quad PERSONA_i \quad CORRER \ pro \quad TRABAJAR \ pro \quad BAILAR$
that person run (3SG) work (3SG) dance

‘That person runs; he dances; and he works.’

In (371), $IX_i \quad PERSONA$ ‘that person’ is omitted through ellipsis in the second and third
clause. BAILAR and TRABAJAR constitute minimal clauses, showing that they are verbs.

In LSAo, BAILAR ‘dance’ also occurs in transitive clauses, as shown in (372).

(372) $IX_i \quad MUJER \quad BAILAR \quad TANGO$
that woman dance tango

‘That woman dances tango.’

In (372), BAILAR co-occurs with the noun phrases $IX_i \quad MUJER$ ‘that woman’ and $TANGO$
‘tango’, forming a transitive clause. This is possible but not used in LSAp; the verb
BAILAR is usually omitted.

In LSAP, TRABAJAR occurs in transitive clauses, as shown in (373).

(373) $MADERA \quad IX_i \quad PERSONA \quad TRABAJAR$
wood that persona work

‘That person works the wood.’
In (373), *TRABAJAR* co-occurs with the noun phrases *IX; PERSONA* ‘that person’ and *MADERA* ‘wood’, forming a transitive clause.

In LSAo, *TRABAJAR* ‘work’ cannot occur in transitive clauses, as shown in (374).

(374) *IX; PERSONA* TRABAJAR MADERA

that persona work wood

(‘That person works the wood.’)

*BAILAR* and *TRABAJAR* co-occur with elements other than NPs, as in (375) to (381).

(375) IX; PERSONA; BAILAR SIEMPRE

that person dance always

‘That person always dances.’

(376) IX; PERSONA; TRABAJAR SIEMPRE

that person work always

‘That person always works.’

(377) IX; PERSONA; TRABAJAR RÁPIDAMENTE

that person work at.a.fast.pace

‘That person works fast.’

(378) IX; PERSONA; BAILAR MUCHO

that person dance a.lot

‘That person dances a lot.’

(379) IX; PERSONA; TRABAJAR MUCHO

that person work a.lot

‘That woman works a lot.’
In (375) to (381), BAILAR and TRABAJAR co-occur with the same elements except for RÁPIDAMENTE ‘at a fast pace’. BAILAR does not allow signs expressing manner.

BAILAR and TRABAJAR place selectional restrictions on signs typically considered verb modifiers. This evidence suggests that BAILAR and TRABAJAR are verbs.

BAILAR and TRABAJAR are mutually substitutable in several contexts. This is evidence that they belong to the same category.

The signs BAILAR ‘dance’ and TRABAJAR ‘work’ express actions. They can be conjoined. They present the same distribution in the clause. These signs constitute minimal clauses, or they co-occur with noun phrases and other elements typically considered adverbs, placing selectional restrictions on them. Considering this evidence, they are categorized as verbs.

BAILAR occurs in intransitive and transitive clauses. Therefore, it is sub-categorized as an intransitive-transitive verb.

TRABAJAR occurs in intransitive and transitive clauses in LSAp, while it occurs only in intransitive clauses in LSAo. Therefore, it is sub-categorized as an intransitive-transitive in LSAp and intransitive in LSAo.

Figure 20 shows another sign referring to an action.
Figure 20: *SENTAR* ‘sit down’ or ‘sit on’.

Figure 20 shows the final position of *SENTAR* ‘sit down’ or ‘sit on’. The form *SENTAR* is two hands with thumbs extended and touching the chest; palms facing contra; torso and shoulders slightly move down.

The sign *SENTAR* can be conjoined with verbs, as shown in (382).

\[
\text{\textit{b:shf___ b:shb____ b:shl______ b:shf___}}
\]

\[
\begin{array}{llll}
(382) & \text{\textit{IX, PERSONA, ¿QUÉ? SENTAR O CAMINAR ¿QUÉ?}} \\
& \text{that person what? sit.down or walk what?}
\end{array}
\]

‘Is that person sitting down or walking?’

This section presented syntactic evidence that *CAMINAR* is a verb. In (382), *SENTAR* and *CAMINAR* are conjoined. This is evidence that *SENTAR* is a verb.

In LSAP as well as in LSAo, *SENTAR* occurs in intransitive clauses with meaning ‘someone is in a position resting on something’, as shown in (383).

\[
\begin{array}{lll}
(383) & \text{\textit{IX, PERSONA, SENTAR}} \\
& \text{that person sit.down}
\end{array}
\]

‘That person is sitting down.’
*SENTAR* also occurs in transitive clauses with meaning ‘someone sits on something’, as shown in (384).

(384) \(IX_i \) \textit{PERSONA}_i \textbf{SENTAR} \(IX_j \) \textit{BANCO}
\[
\text{that person sit.on that stool}
\]

‘That person sits on that stool.’

In LSAp, *SENTAR* also occurs in ditransitive clauses with meaning ‘to cause to someone to sit on something’, as shown in (385).

(385) \(IX_i \) \textit{PERSONA}_i \(IX_j \) \textit{CHICO}_j \textit{BANCO}_k \textbf{SENTAR}
\[
\text{that person that boy stool sit.on}
\]

‘That person sat that boy on a stool.’

In (385), *SENTAR* co-occurs with the noun phrases \(IX_i \) \textit{PERSONA} ‘that person’, \(IX_j \) \textit{CHICO} ‘that boy’, and \textit{BANCO} ‘stool’, forming a ditransitive clause.

In LSAo, *SENTAR* cannot occur in ditransitive clauses, as shown in (386).

(386) \(*IX_i \) \textit{PERSONA}_i \(IX_j \) \textit{CHICO} \textbf{SENTAR} \(IX_j \) \textit{BANCO}
\[
\text{that person that boy sit.on that stool}
\]

(‘That person sat that boy on that stool.’)

*SENTAR* occurs in all types of clauses in LSAp, while it occurs in intransitive and transitive clauses in LSAo.

Given a context, *SENTAR* constitutes a minimal clause in (387).

(387) \(IX_i \) \textit{PERSONA}_i \textit{CAMINAR pro} \textbf{SENTAR} \textit{pro}
\[
\text{that person walk (3SG) sit.on (3SG)}
\]

‘That person walked; and she sat on it.’
In (387), $IX_i$ $PERSONA$ ‘that person’ is omitted through ellipsis in the second clause. As a result, $SENTAR$ constitutes a minimal clause, showing that it is a verb.

$SENTAR$ co-occurs with elements other than NPs, as shown in (388) to (391).

\begin{enumerate}
\item[(388)] $(IX_i \ PERSONA_i) \hspace{1em} \begin{array}{l} SENTAR \\ SIENTRE \end{array} \\
that \hspace{1em} \begin{array}{l} person \\ sit.down \hspace{1em} always \end{array} \\
\vspace{1em}
\begin{array}{l} ‘\text{That person always sits down.’} \end{array}
\item[(389)] $(IX_i \ PERSONA_i) \hspace{1em} \begin{array}{l} SENTAR \\ MUCHO^{28} \end{array} \\
that \hspace{1em} \begin{array}{l} person \\ sit.down \hspace{1em} a.lot \end{array} \\
\vspace{1em}
\begin{array}{l} ‘\text{That person sits down a lot’} \end{array}
\item[(390)] $(IX_i \ PERSONA_i) \hspace{1em} \begin{array}{l} SENTAR \hspace{1em} NO \end{array} \\
that \hspace{1em} \begin{array}{l} person \\ sit.down \hspace{1em} not \end{array} \\
\vspace{1em}
\begin{array}{l} ‘\text{That person is not sitting down.’} \end{array}
\item[(391)] $(IX_i \ PERSONA) \hspace{1em} \begin{array}{l} SENTAR \#INTS \hspace{1em} REPENTINAMENTE \end{array} \\
that \hspace{1em} \begin{array}{l} person \\ sit.down\#INTS \hspace{1em} suddenly \end{array} \\
\vspace{1em}
\begin{array}{l} ‘\text{That person suddenly sat down.’} \end{array}
\end{enumerate}

$SENTAR$ co-occurs with the same elements in (388) to (390), as $CAMINAR$ in (361), (365), and (367). However, $SENTAR$ co-occurs with $REPENTINAMENTE$ ‘suddenly’, while $CAMINAR$ co-occurs with $VELOZMENDE$ ‘at a fast speed’. They place different selectional restrictions on verb modifiers.

The sign $SENTAR$ ‘sit down’ or ‘sit on’ can express different actions. It can be conjoined with verbs. Given a context, it can constitute a minimal clause, or it co-occurs

\footnote{$MUCHO$ ‘a lot’ co-occurs with $SENTAR$ ‘sit on’ only in LSAo.}
with noun phrases and elements typically considered verb modifiers, placing selectional restrictions on them. Considering this evidence, SENTAR is categorized as a verb.

SENTAR occurs in every type of clause in LSAp, while it occurs in intransitive and transitive clauses in LSAp.

Figure 21 shows two signs for events related to feelings.

![Figure 21: AMAR ‘love’ and ODIAR ‘hate’](image)

Figure 21 shows the initial position of AMAR ‘love’ (left). The form AMAR is palm facing the signer and touching the chest; hand moves up with slightly forearm supination.

Figure 21 shows the initial position of ODIAR ‘hate’ (right). The form ODIAR is two hands; fingers extended; palm face the location “i”; fingers flex while hands move toward “i”.

In LSA, the signs AMAR and ODIAR can be conjoined, as shown in (392).

(392) $IX_i$ MUJER, $IX_j$ ¿QUÉ? AMAR O ODIARj ¿QUÉ?
that woman 3SG what? love or i-hate what?

‘Does that woman love or hate him?’

In (392), the signs AMAR ‘love’ and ODIAR ‘hate’ are conjoined. According to the principle #1, this is evidence that they belong to the same lexical category.

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AMAR and ODIAR\textsubscript{j} occur in transitive clauses, as shown in (393) and (394).

(393) \textit{IX\textsubscript{i} MUJER AMAR HOMBRE IX\textsubscript{j}}

that woman love man that

‘That woman loves that man.’

(394) \textit{IX\textsubscript{i} MUJER, ODIAR\textsubscript{j} HOMBRE IX\textsubscript{j}}

that woman i-hate-j man that

‘That woman hates that man.’

In (393) and (394), AMAR and ODIAR\textsubscript{j} co-occur with the noun phrases \textit{IX\textsubscript{i} MUJER} ‘that woman’ and \textit{HOMBRE IX\textsubscript{j}} ‘that man’, forming transitive clauses.

The form ODIAR\textsubscript{j} incorporates agreement morphology with the subject \textit{IX\textsubscript{i} MUJER\textsubscript{i}} ‘that woman’ and the object \textit{HOMBRE IX\textsubscript{j}} ‘that man’. This shows that ODIAR\textsubscript{j} is a verb.

Given a context, ODIAR\textsubscript{j} ‘hate’ can constitute a minimal clause; however, AMAR ‘love’ cannot, as shown in (395).

\begin{verbatim}
(395) MUJER\textsubscript{i} IX\textsubscript{i} HOMBRE\textsubscript{j} IX\textsubscript{j} DOS\textsubscript{j} TRABAJAR JUNTOS pro AMAR IX\textsubscript{j}^{29}
\end{verbatim}

\begin{verbatim}
pro ODIAR\textsubscript{j} pro
(3SG) i-hate-j (3SG)
\end{verbatim}

‘That woman and that man work together; she loves him; and she hates him.’

\small
\textsuperscript{29} The verb \textit{AMAR} ‘love’ is one of the few verbs in LSA that does not allow the omission of the object. Therefore, it is indisputably a transitive verb. The form AMAR\textsubscript{j} (incorporating agreement morphology) exists in LS\textit{Ap} but not in LS\textit{Ao}.
The noun phrase $IX_i$ MUYER ‘that woman’ is omitted through ellipsis in the second clause of (395). As a result, AMAR constitutes a minimal predicate. The noun phrases $IX_i$ MUYER ‘that woman’ and $IX_i$ HOMBRE ‘that man’ are omitted in the third clause. As a result, $i$ODIAR$_j$ constitutes a minimal clause. This is evidence that AMAR and $i$ODIAR$_j$ are verbs.

AMAR and $i$ODIAR$_j$ co-occur with verb modifiers, as shown in (396) to (401).

(396) $IX_i$ MUYER$_i$ SIEMPRE AMAR $IX_j$ HOMBRE$_j$ $IX_j$

that woman always love that man that

‘That woman has always loved that man.’

(397) $IX_i$ MUYER$_i$ SIEMPRE $i$ODIAR$_j$ $IX_j$ HOMBRE$_j$

that woman always i-hate-j that man

‘That woman has always hated that man.’

(398) $IX_i$ MUYER$_i$ AMAR MUCHO HOMBRE$_j$ $IX_j$

that woman love a.lot man that

‘That woman loves a lot that man.’

(399) $IX_i$ MUYER$_i$ $i$ODIAR$_j$ MUCHO HOMBRE$_j$ $IX_j$

that woman i-hate-j a.lot man that

‘That woman hates a lot that man.’

(400) $IX_i$ MUYER$_i$ AMAR NO HOMBRE$_j$ $IX_j$

that woman love not man that

‘That woman does not love that man.’

(401) $IX_i$ MUYER$_i$ $i$ODIAR$_j$ NO HOMBRE$_j$ $IX_j$

that woman i-hate-j not man that

‘That woman does not hate that man.’
In (396) to (401), AMAR and ODIAR occur with the same elements; however, they do not co-occur with signs expressing frequency, discussed in section 3.4.1. AMAR and ODIAR place selectional restrictions on signs typically considered verb modifiers. This is evidence that AMAR and ODIAR are verbs.

AMAR and ODIAR exhibit the same distribution in the clause. This is evidence that they are in the same lexical category.

The signs AMAR and ODIAR express events related to feelings. ODIAR incorporates verbal agreement morphology. They can be conjoined. They present the same distribution in the clause. These signs can co-occur with two noun phrases, and elements typically considered verb modifiers, placing selectional restrictions on them. Considering this evidence, they are categorized as verbs.

AMAR ‘love’ and ODIAR ‘hate’ only occur in transitive clauses. AMAR does not allow the omission of the object. Therefore, they are sub-categorized as transitive verbs.

Figure 22 shows two signs expressing actions.

Figure 22: COMPRAR ‘buy’ and GUSTAR ‘like’

Figure 22 (left) shows the initial position of COMPRAR ‘buy’. The form COMPRAR is thumb and index extended and touching; palm facing the signer; hand moves forward
while the index rubs the thumb until it closes. Figure 22 (right) shows the initial position of GUSTAR ‘like’. The form GUSTAR is fingers extended and spread; pinky close to the chin; fingers close in succession; upper teeth bite the lower lip.

In LSA, the signs COMPRAR and GUSTAR can be conjoined, as shown in (402).

(402) \( Ix_i \) MUJER ¿QUÉ? GUSTAR O COMPRAR VESTIDO ¿QUÉ?
that woman what? like or buy dress what?

‘Did the woman like or buy the dress?’

In (402), the coordinating conjunction O ‘or’ links COMPRAR and GUSTAR. According to the principle #1, this is evidence that they belong to the same lexical category.

COMPRAR and GUSTAR occur in transitive clauses, as shown in (403) and (404).

(403) \( Ix_j \) VESTIDO, NUEVO \( Ix_i \) MUJER, COMPRAR
that dress new that woman buy

‘That woman buys that new dress.’

(404) \( Ix_j \) VESTIDO, NUEVO \( Ix_i \) MUJER, GUSTAR
that dress new that woman like

‘That woman likes that new dress.’

In (403) and (404), COMPRAR and GUSTAR co-occur with the noun phrases \( Ix_j \) VESTIDO NUEVO ‘that new dress’ and \( Ix_i \) MUJER ‘that woman’, forming transitive clauses.

In LSA, \( iCOMPRAR \) ‘buy’ is used interchangeably with COMPRAR ‘buy’ in many transitive clauses with the same meaning, as shown (405).
\[(405) \text{IX}_j \quad \text{VESTIDO}_j \quad \text{NUEVO}_j \quad \text{IX}_i \quad \text{MUJER}_i \quad \text{COMPRAR}_j \]

\[
\text{that \hspace{0.5em} dress \hspace{0.5em} new \hspace{0.5em} that \hspace{0.5em} woman \hspace{0.5em} i-buy-j}
\]

‘That woman buys that new dress.’

In (405), the form \text{COMPRAR}_j\text{\textit{j}} incorporates agreement morphology with the subject \text{IX}_j \text{\textit{MUJER}}\text{\textit{j}} ‘that woman’ and the object \text{IX}_j \text{\textit{VESTIDO NUEVO}} ‘that new dress’. This shows that \text{COMPRAR}_j\text{\textit{j}} is a verb.

Given a context, \text{COMPRAR} and \text{GUSTAR} constitute minimal clauses in (406).

\[(406) \text{IX}_j \quad \text{VESTIDO}_j \quad \text{NUEVO}_j \quad \text{IX}_i \quad \text{MUJER}_i \quad \text{VER}_j \quad \text{pro}_j \quad \text{pro}_j \quad \text{GUSTAR} \]

\[
\text{that \hspace{0.5em} dress \hspace{0.5em} new \hspace{0.5em} that \hspace{0.5em} woman \hspace{0.5em} i-see-j \hspace{0.5em} (3SG) \hspace{0.5em} (3SG) \hspace{0.5em} like}
\]

\[
\text{pro}_j \quad \text{pro}_j \quad \text{COMPRAR}_j \]

\[
(3SG) \quad (3SG) \quad i-buy-j
\]

‘A woman saw a new dress; she liked it; and she bought it.’

In (406), the noun phrases \text{IX}_j \text{\textit{VESTIDO NUEVO}} ‘that new dress’ and \text{IX}_j \text{\textit{MUJER}} ‘that woman’ are omitted through ellipsis in the second and third clauses. As a result, \text{COMPRAR}_j\text{\textit{j}} and \text{GUSTAR} constitute minimal clauses\textsuperscript{30}, showing that they are verbs.

In LSAp as well as in LSAo, \text{COMPRAR}_j\text{\textit{j}} and \text{COMPRAR} also occur in ditransitive clauses, as shown in (407) and (408).

\[(407) \text{CAMISA}_j \quad \text{MUJER}_i \quad \text{IX}_i \quad \text{COMPRAR}_j \quad \text{HOMBRE}_k \quad \text{IX}_k \]

\[
dress \hspace{0.5em} woman \hspace{0.5em} that \hspace{0.5em} i-buy-j \hspace{0.5em} man \hspace{0.5em} that
\]

‘That woman bought a shirt from that man.’

\textsuperscript{30} The form \text{COMPRAR} can also constitute a minimal clause.
(408) \( IX_i HOMBRE_i \) \textbf{COMPRAR} \( VESTIDO_j NUEVO \) \( MUJER_k IX_k \)

that man buy dress new woman that

‘That man bought a new dress from that woman.’

In (407), \( \textbf{COMPRAR} \) ‘buy’ co-occurs with the noun phrases \( \textit{CAMISA} \) ‘shirt’, \( \textit{MUJER} \) \( IX_i \) ‘that woman’, and \( \textit{HOMBRE} \) \( IX_j \) ‘that man’, forming a ditransitive clause. In (408), \( \textbf{COMPRAR} \) co-occurs with the noun phrases \( IX_i HOMBRE \) ‘that man’, \( \textit{VESTIDO} \) \( NUEVO \) ‘new dress’, and \( \textit{MUJER} \) \( IX_k \) ‘that woman’, forming a ditransitive clause.

\( \textbf{COMPRAR} \) and \( \textbf{GUSTAR} \) allow elements other than noun phrases in (409) to (414).

(409) \( IX_i \) \( \textit{MUJER} \) \textbf{COMPRAR SIEMPRE} \( VESTIDO BLANCO \)

that woman buy always dress white

‘That woman always buys white dresses.’

(410) \( IX_i \) \( \textit{MUJER} \) \textbf{GUSTAR SIEMPRE} \( VESTIDO BLANCO \)

that woman like always dress white

‘That woman has always liked white dresses.’

(411) \( IX_i \) \( \textit{MUJER} \) \textbf{COMPRAR REPENTINAMENTE} \( VESTIDO BLANCO \)

that woman buy suddenly dress white

‘That woman quickly bought a white dress.’

(412) \( IX_i \) \( \textit{MUJER} \) \textbf{GUSTAR MUC}HO \( VESTIDO NUEVO \)

that woman like a lot dress new

‘That woman likes new dresses a lot.’

(413) \( IX_i \) \( \textit{MUJER} \) \( \textbf{NO} \) \textbf{COMPRAR} \( VESTIDO NUEVO \)

that woman not buy dress new

‘That woman does not buy new dresses.’
In (409), (411), and (413), COMPRAR co-occurs with signs expressing frequency, manner, and negation. In (410) and (412), GUSTAR co-occurs with signs expressing frequency and degree. COMPRAR and GUSTAR place distinct selectional restrictions on verb modifiers.

The signs COMPRAR ‘buy’, COMPRAR ‘buy’, and GUSTAR ‘like’ express actions. COMPRAR incorporates agreement morphology. These signs can be conjoined. They constitute minimal clauses, or they co-occur with noun phrases and other elements typically considered verb modifiers, placing selectional restrictions on them. Considering this evidence, they are categorized as verbs.

GUSTAR occurs in transitive clauses; therefore, it is sub-categorized as a transitive verb. COMPRAR occurs in transitive or ditransitive clauses; therefore, it is sub-categorized as a transitive-ditransitive verb.

In LSAs as well as in LSAs, PERSEGUIR ‘chase’ occurs in transitive clauses, as shown in (415) and (416).

(415) RATÓN GATO PERSEGUIR
mouse cat i-chase-j

‘A cat chases a mouse.’

---

31 GUSTAR cannot co-occur with the negation NO ‘not’; rather, it takes the irregular negated form GUSTAR-NO.
(416) $GATOf$, $\text{PERSEGUIR}_f$, $RATÓNf$

\begin{tabular}{ll}
cat & i-chase-j mouse \\
\end{tabular}

‘A cat chases a mouse.’

$\text{PERSEGUIR}$ can be conjoined with other verbs, as shown in (417).

\begin{tabular}{ll}
\textit{eg:} & \textit{b:shl} \\
\hline
(417) $\text{PERSONA} IX_i$ & $¿QUÉ? \text{SENTAR} O$ $\text{PERSEGUIR}_f$ $¿QUÉ?$
\end{tabular}

\begin{tabular}{ll}
person & that what? sit.down or i-chase-j what?
\end{tabular}

‘Is that person sitting down or chasing it?’

In (417), $\text{PERSEGUIR}_f$ ‘chase’ and $\text{SENTAR}$ ‘sit on’ are conjoined. According to the principle #1, this is evidence that they belong to the same lexical category.

$\text{PERSEGUIR}_f$ ‘chase’ occurs in transitive clauses, as shown in (418).

\begin{tabular}{ll}
(418) $\text{RATÓN}_f$ $IX_j$ $GATOf$ $IX_i$ $\text{PERSEGUIR}_f$
\end{tabular}

\begin{tabular}{ll}
mouse & that cat that i-chase-j
\end{tabular}

‘That cat chases that mouse.’

In (418), $\text{PERSEGUIR}_f$ co-occurs with the noun phrases $IX_j$ $\text{RATÓN}$ ‘that mouse’ and $IX_i$ $\text{GATO}$ ‘that cat’, forming a transitive clause. The form $\text{PERSEGUIR}_f$ incorporates agreement morphology with the subject $IX_i$ $\text{GATO}$, ‘that cat’ and the object $IX_j$ $\text{RATÓN}_f$ ‘that mouse’. This shows that $\text{PERSEGUIR}_f$ is a verb.

Given a context, $\text{PERSEGUIR}_f$ constitutes a minimal clause in (419).

\begin{tabular}{ll}
(419) $\text{RATÓN}_f$ $IX_j$ $\text{GATO}_i$ $IX_i$ $\text{VER}_f$ $pro$ $pro$ $\text{PERSEGUIR}_f$
\end{tabular}

\begin{tabular}{ll}
mouse & that cat that i-see-j (3SG) (3SG) i-chase-j
\end{tabular}

‘That cat saw the mouse; and it chased it.’
The noun phrases \(IX_j \text{RATÓN} \) ‘that mouse’ and \(IX_j \text{GATO} \) ‘that cat’ are omitted through ellipsis in the second clause of (419). As a result, \(j\text{PERSEGUIR}_j \) constitutes a minimal clause, showing that it is a verb.

\(j\text{PERSEGUIR}_j \) co-occurs with elements other than NPs, as shown in (420) to (422).

(420) \( \text{RATÓN}_j \, IX_j \, \text{GATO}_j \, IX_j \, j\text{PERSEGUIR}_j \, \text{SIEMPRE} \)

\( \text{mouse} \, \text{that} \, \text{cat} \, \text{that} \, \text{i-chase-j} \, \text{always} \)

‘That cat always chases that mouse.’

(421) \( \text{RATÓN}_j \, IX_j \, \text{GATO}_j \, IX_j \, j\text{PERSEGUIR}_j \, \text{REPENTINAMENTE} \)

\( \text{mouse} \, \text{that} \, \text{cat} \, \text{that} \, \text{i-chase-j} \, \text{suddenly} \)

‘That cat suddenly chased that mouse.’

(422) \( \text{RATÓN}_j \, IX_j \, \text{GATO}_j \, IX_j \, j\text{PERSEGUIR}_j \, \text{NO} \)

\( \text{mouse} \, \text{that} \, \text{cat} \, \text{that} \, \text{i-chase-j} \, \text{not} \)

‘That cat did not chase that mouse.’

In (420) to (422), \(j\text{PERSEGUIR}_j \) co-occurs with signs expressing frequency, manner and negation; however, it cannot co-occur with signs expressing degree. \(j\text{PERSEGUIR}_j \) places selectional restrictions on signs typically considered verb modifiers. This evidence suggests that \(j\text{PERSEGUIR}_j \) is a verb.

\(j\text{PERSEGUIR}_j \) ‘chase’ expresses an action. It incorporates verbal agreement morphology. It can be conjoined with verbs. Given a context, it can constitute a minimal clause, or it co-occurs with noun phrases and elements typically considered verb modifiers, placing selectional restrictions on them. Considering this evidence, it is categorized as a verb. \(j\text{PERSEGUIR}_j \) only occurs in transitive clauses; therefore, it is subcategorized as a transitive verb.
Figure 23 and Figure 24 show two signs expressing actions.

Figure 23: ı\textit{DAR}j ‘give’

Figure 23 shows the initial (left) and final (right) position of ı\textit{DAR}j ‘give’. The form ı\textit{DAR}j is index flexed around the thumb; thumb pointing to the location “j”; palm facing the signer; hand moves from location “i” to “j.”

Figure 24: ı\textit{REGALAR}j ‘gift’ or ‘give a gift’

Figure 24 shows the initial (left) and final (right) position of ı\textit{REGALAR}j ‘give a gift’. The form ı\textit{REGALAR}j is index flexed around the thumb; thumb pointing up; palm facing toward “j”; hand moves from location “i’ to “j.”

ı\textit{DAR}j ‘give’ and ı\textit{REGALAR}j ‘gift’ can be conjoined, as shown in (423).
‘Did the woman give a shirt to that man, or did she give it to him as a gift?’ (Lit. ‘Did the woman give or gift a shirt to that man?’)

In (423), the conjunction O ‘or’ links $\text{DAR}_j$ and $\text{REGALAR}_j$. According to the principle #1, this is evidence that they belong to the same lexical category.

$\text{DAR}_j$ and $\text{REGALAR}_j$ occur in ditransitive clauses, as shown in (424) to (425).

(424) $\text{IX}_k \text{CAMISA}_k \text{IX}_i \text{MUJER}_i \text{DAR}_j \text{IX}_j \text{HOMBRE}_j$

that shirt that woman i-give-j that man

‘That woman gives that shirt to that man.’

(425) $\text{IX}_k \text{CAMISA}_k \text{IX}_i \text{MUJER}_i \text{REGALAR}_j \text{HOMBRE}_j \text{IX}_j$

that shirt that woman i-give.a.gift-j man that

‘That woman gives that shirt to that man as a gift.’

In (424) to (425), $\text{DAR}_j$ and $\text{REGALAR}_j$ co-occur with the noun phrases $\text{IX}_k \text{CAMISA}$ ‘that shirt’, $\text{IX}_i \text{MUJER}$ ‘that woman’, and $\text{IX}_j \text{HOMBRE}$ ‘that man’, forming ditransitive clauses.

In (424) to (425), $\text{DAR}_j$ and $\text{REGALAR}_j$ incorporate agreement morphology with the subject $\text{IX}_i \text{MUJER}_i$ ‘that woman’ and the indirect object $\text{IX}_j \text{HOMBRE}_j$ ‘that man’. This is evidence that $\text{DAR}_j$ and $\text{REGALAR}_j$ are verbs.

Given a context, $\text{DAR}_j$ and $\text{REGALAR}_j$ can constitute minimal clauses, as shown in (426) and (427).
(426) CAMISAₖ MUJERᵢ IXᵢ COMPRAR PIXᵢ HOMBREᵢ,
    shirt          woman      that      buy      for.that man

    pro    pro  iDARᵢ      pro
(3SG)    (3SG)   i-give-j    (3SG)

‘That woman bought a shirt for that man; and she gave it to him.’

(427) CAMISAₖ IXᵢ MUJERᵢ iCOMPRARᵢ PIXᵢ HOMBREᵢ,
    shirt          that woman  i-buy-j   for.that man

    pro    pro  iREGALARᵢ pro
(3SG)    (3SG)   i-give.a.gift-j  (3SG)

‘That woman bought a shirt for that man; and she gave it to him as a gift.’

In (426) and (427), the noun phrases IXₖ CAMISA ‘that shirt’, IXᵢ MUJER ‘that woman’, and PIXᵢ HOMBRE ‘for that man’ are omitted through ellipsis in the second clause. As a result, iDARᵢ and iREGALARᵢ constitute minimal clauses. This is evidence that iDARᵢ and iREGALARᵢ are verbs.

iDARᵢ and iREGALARᵢ co-occur with elements other than NPs, as in (428) to (433).

(428) CAMISA MUJERᵢ iDARᵢ ++ SIEMPRE HOMBREᵢ,
    shirt          woman      i-give-j  always    man

    ‘A woman always gives shirts to a man.’

(429) CAMISA MUJERᵢ iREGALARᵢ++ SIEMPRE HOMBREᵢ,
    shirt          woman      i-give.as.a.gift-j always    man

    ‘A woman always gives shirts as a gift to a man.’
In (428) to (433), \( \text{\textit{DAR}} \) ‘give’ and \( \text{\textit{REGALAR}} \) ‘give as a gift’ co-occur with the same elements. They present the same distribution in the clause. According to principle #2, this is evidence that \( \text{\textit{DAR}} \) and \( \text{\textit{REGALAR}} \) are in the same lexical category.

\( \text{\textit{DAR}} \) and \( \text{\textit{REGALAR}} \) cannot co-occur with signs expressing degree. They place selectional restrictions on signs typically considered verb modifiers. This shows that \( \text{\textit{DAR}} \) and \( \text{\textit{REGALAR}} \) are verbs.
The signs \( i\text{DAR} \) and \( i\text{REGAL} \) express actions. They incorporate verbal agreement morphology. They can be conjoined. They present the same distribution in the clause. Given a context, these signs can constitute minimal clauses; or, they co-occur with noun phrases and other elements considered verb modifiers, placing selectional restrictions on them. Considering this evidence, they are categorized as verbs.

\( i\text{DAR} \) and \( i\text{REGAL} \) occur in ditransitive clauses; therefore, they are sub-categorized as \textit{ditransitive verbs}.

Table 6 presents the verbs discussed so far, distinguishing between LSAp and LSAo, and organizing the verbs into sub-categories.

<table>
<thead>
<tr>
<th>Sub-category</th>
<th>LSAp</th>
<th>LSAo</th>
</tr>
</thead>
<tbody>
<tr>
<td>intransitive</td>
<td>\textit{CORRER, CAMINAR}</td>
<td>\textit{CORRER, CAMINAR, TRABAJAR}</td>
</tr>
<tr>
<td>intransitive or transitive</td>
<td>\textit{BAILAR, TRABAJAR}</td>
<td>\textit{BAILAR}</td>
</tr>
<tr>
<td>transitive</td>
<td>\textit{AMAR, \textit{ODIAR}, GUSTAR}</td>
<td>\textit{AMAR, \textit{ODIAR}, GUSTAR}</td>
</tr>
<tr>
<td>transitive or ditransitive</td>
<td>\textit{COMPRAR}</td>
<td>\textit{SENTAR, COMPRAR}</td>
</tr>
<tr>
<td>ditransitive</td>
<td>( i\text{DAR}, i\text{REGAL} )</td>
<td>( i\text{DAR}, i\text{REGAL} )</td>
</tr>
<tr>
<td>intransitive, transitive or ditransitive</td>
<td>\textit{SENTAR}</td>
<td></td>
</tr>
</tbody>
</table>

In LSA, certain signs express actions or events. They can be conjoined. Given a context, they can constitute minimal clauses; or, they co-occur with noun phrases and other elements typically considered verb modifiers, placing selectional restrictions on them. Considering this evidence, they are categorized as \textit{verbs}.

In LSA, verbs occur in intransitive, transitive or ditransitive clauses. Certain verbs occur in more than one type of clause.
3.3.1 Verbs Incorporating Agreement Affixes Representing Entities

This section discusses certain morphologically complex forms and presents syntactic evidence for their categorization as verbs.

These forms have received several names in the linguistic bibliography. Engberg-Pedersen (1993) refers to them as poly-morphemic verbs. However, verbs incorporating spatial agreement morphology are also poly-morphemic. Probably, the term most widely used is classifier constructions (Emmorey 2003), where morphemes representing entities are analyzed as classifiers. For the purpose of this research, these forms are simply described as verbs incorporating agreement affixes representing entities.

Figure 25 shows a morphologically complex form.

Figure 25: SENTAR-EN #INVF #PVF ‘sit biped on a seat’

Figure 25 shows the initial position of SENTAR-EN$^{32}$ #INVF #PVF$^{33}$. The form of the affix INVF (from INdex Vertical Flexed) is dominant hand index and middle flexed;

$^{32}$ The Spanish gloss SENTAR-EN ‘sit on’ indicates the existence of an entity that undergoes the action.

$^{33}$ The forms INVF and PVF, and the forms of the nouns that they represent are radically different (i.e. INVF vs. PERSONA ‘person’; PVF vs. BANCO ‘stool’). Appendix B describes verbal affixes in LSA.
palm facing downwards. In this construction, it represents a two-legged animate or ‘biped’. The affix PVF (from Palm Vertical pointing Forward) form is non-dominant hand palm facing contra; pointing forward. In this construction, it represents a generic ‘seat’. The SENTAR-EN ‘sit on’\textsuperscript{34} form is dominant hand moving down until it touches the non-dominant hand. In every case, the morphological analysis is based on the signer’s analysis into sub-components.

In LSA, the sign SENTAR-EN #INVF #PVF ‘biped sit on a seat’ can be conjoined with verbs, as shown in (434)\textsuperscript{35}.

\begin{equation}
\text{(434)} \quad I_X \ \text{PERSON}_{i} \ \text{SENTAR-EN #INVF #PVF} \ \text{O CAMINAR} \ \text{¿QUÉ?}
\end{equation}

\begin{align*}
\text{that person} & \quad \text{sit.on-biped-seat} & \quad \text{or walk} & \quad \text{what?}
\end{align*}

‘Is that person sitting on it or walking?’

In (434), SENTAR-EN #INVF #PVF and CAMINAR are conjoined. Section 3.3 presents syntactic evidence showing that CAMINAR is a verb. According to the principle #1, this is evidence that SENTAR-EN #INVF #PVF is a verb.

SENTAR-EN #INVF #PVF occurs in ditransitive clauses, as shown in (435).

\begin{equation}
\text{(435)} \quad I_X \ \text{PERSON}_{i} \ \text{CHICO} \ \text{I}_X \ \text{BANCO}_{k} \ \text{SENTAR-EN #INVF #PVF}
\end{equation}

\begin{align*}
\text{that person} & \quad \text{boy} & \quad \text{that stool} & \quad \text{sit.on-biped-seat}
\end{align*}

‘That person sits a boy on that stool.’

\textsuperscript{34} The meaning ‘sit on’ is not conveyed only for the hand movement; it also relies on the sub-components INVF and PV. Probably, the gloss PONER #INVF #PV ‘put biped on a seat’ is more precise.

\textsuperscript{35} Examples for SENTAR-EN #INVF #PVF are from LSAp.
In (435), \textit{SENTAR-EN #INVF #PVF} co-occurs with the noun phrases $I_X$ \textit{PERSONA} ‘that person’, \textit{CHICO} ‘boy’, and $I_X$ \textit{BANCO} ‘that stool’, forming a ditransitive clause.

Given a context, \textit{SENTAR-EN #INVF #PVF} constitutes a minimal clause in (436).

(436) \textit{SILLA} $I_X$ $IX_i$ \textit{CAMILAR #INV #HACIA}_j

\begin{tabular}{lll}
  chair & that & 1SG \end{tabular}
\begin{tabular}{l}
  walk-biped-toward.j
\end{tabular}

\textit{pro} \textit{pro} \textit{SENTAR-EN #INVF #PVF}

\begin{tabular}{ll}
  (1SG) & (3SG)
\end{tabular}
\begin{tabular}{l}
  sit.on-biped-seat
\end{tabular}

‘I walked to that chair; and I sat myself on it.’

In (436), the pronoun $I_X$ ‘1SG’ and the noun phrase \textit{SILLA} $I_X$ ‘that chair’ are omitted through ellipsis in the second clause. As a result, \textit{SENTAR-EN #INVF #PVF} constitutes a minimal clause. This shows that \textit{SENTAR-EN #INVF #PVF} is a verb.

\textit{SENTAR-EN #INVF #PVF} co-occurs with elements other than noun phrases, as shown in (437) to (439).

(437) $I_X$ \textit{PERSONA}_i \textit{SENTAR-EN #INVF #PVF SIEMPRE}

\begin{tabular}{lll}
  that & person & sit.on-biped-seat \end{tabular}
\begin{tabular}{l}
  always
\end{tabular}

‘That person always sits on it.’

(438) $I_X$ \textit{PERSONA}_i \textit{SENTAR-EN #INVF #PVF REPENTINAMENTE}

\begin{tabular}{lll}
  that & person & sit.on-biped-seat \end{tabular}
\begin{tabular}{l}
  suddenly
\end{tabular}

‘That person suddenly sat on it.’

(439) $I_X$ \textit{PERSONA}_i \textit{SENTAR-EN #INVF #PVF NO}

\begin{tabular}{lll}
  that & person & sit.on-biped-seat \end{tabular}
\begin{tabular}{l}
  not
\end{tabular}

‘That person did not sit on it.’
SENTAR-EN #INVF #PVF co-occurs with the same elements\textsuperscript{36} in (437) to (439) as SENTAR in (388), (390) and (391). SENTAR-EN #INVF #PVF and SENTAR exhibit the same distribution in the clause. According to the principle #2, this is evidence that SENTAR-EN #INVF #PVF is a verb.

SENTAR-EN #INVF #PVF expresses an action. It can be conjoined with verbs. Given a context, it can constitute a minimal predicate or even a minimal clause; or, it co-occurs with noun phrases, and other elements considered verb modifiers, placing selectional restrictions on them. It is mutually substitutable with the verb SENTAR. Considering this evidence, SENTAR-EN #INVF #PVF is categorized as a verb.

SENTAR-EN #INVF #PVF occurs in ditransitive clauses; therefore, it is subcategorized as \textit{ditransitive verb}.

Figure 26 shows another morphologically complex form.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure26.png}
\caption{MANEJAR #ZIGZAG #CPO #VTE ‘someone drives a vehicle in zigzag’}
\end{figure}

Figure 26 shows three positions of the form MANEJAR #ZIGZAG #CPO\textsuperscript{37} #VTE ‘someone drives a vehicle in zigzag’. The form of the affix ZIGZAG ‘zigzag’ is body

\textsuperscript{36} In LSAp, the adverb of degree MUCHO ‘a lot’ cannot co-occur with SENTAR-EN #INVF #PVF or SENTAR.

\textsuperscript{37} Appendix B describes verbal affixes in LSA.
leans right and left. It modifies the verbal root \textit{MANEJAR} ‘drive$^{38}$’, which form is body leans forward. The form of the affix \textit{CPO} (from \textit{CuerPO} ‘body’) is the signer body; it represents an animate being. The form of the affix \textit{VTE}$^{39}$ (from \textit{Volante} ‘steering wheel’) is two fists; palm facing the signer; arms placed as holding a steer-wheel. It represents a steering wheel.

\textit{MANEJAR \#ZIGZAG \#CPO \#VTE} can be conjoined with verbs, as shown in (440).

\begin{displaymath}
(440) \mathit{PANTERA \ ROSA \ IX} \quad \mathit{CAMINAR \ O} \quad \mathit{MANEJAR \#ZIGZAG \#CPO \#VTE}
\end{displaymath}

\text{panther} \quad \text{pink} \quad \text{that} \quad \text{walk} \quad \text{or} \quad \text{drive-zigzag-animate-steering.wheel}

‘Is the pink panther walking or driving a car in zigzag.’

Section 3.3 presented syntactic evidence showing that \textit{CAMINAR} is a verb. In (440), \textit{MANEJAR \#ZIGZAG \#CPO \#VTE} and \textit{CAMINAR} are conjoined. According to the principle \#1, this is evidence that \textit{MANEJAR \#ZIGZAG \#CPO \#VTE} is a verb.

\textit{MANEJAR \#ZIGZAG \#CPO \#VTE} occurs in transitive clauses, as shown in (441).

\begin{displaymath}
(441) \mathit{IX} \quad \mathit{AUTO} \quad \mathit{IX} \quad \mathit{PANTERA} \quad \mathit{ROSA} \quad \mathit{MANEJAR \#ZIGZAG \#CPO \#VTE}
\end{displaymath}

\text{that car} \quad \text{that panther} \quad \text{pink} \quad \text{drive-zigzag-animate-steering.wheel}

‘The pink panther is driving that car in zigzag.’

\textit{MANEJAR \#ZIGZAG \#CPO \#VTE} constitutes a minimal clause in (442).

\footnote{$^{38}$The meaning ‘drive’ is not only conveyed by body leaning forward but also for the sub-components \textit{CPO} and \textit{VTE}. Perhaps, the gloss \textit{MOVER \#ZIGZAG \#CPO \#VTE} ‘animate moves a vehicle in zigzag’ is more accurate.}

\footnote{$^{39}$The forms \textit{VTE} and \textit{AUTO} ‘car’ are similar; however, \textit{VTE} lacks movement.}
(442) AUTO IX, PANTERA ROSA SENTAR-EN #INVF #PVF,
car that panther pink sit.in-animate-seat

pro pro MANEJAR #ZIGZAG #CPO #VTE
(3SG) (3SG) drive-zigzag-animate-steering.wheel

‘The pink panther sits in that car; and she drives it in zigzag.’

The noun phrases AUTO IX, ‘that car’ and PANTERA ROSA ‘pink panther’ are omitted through ellipsis in the second clause of (442). As a result, MANEJAR #ZIGZAG #CPO #VTE constitutes a minimal clause, showing that it is a verb.

MANEJAR #ZIGZAG #CPO #VTE co-occurs with elements other than noun phrases, as shown in (443) to (445).

(443) AUTO IX, PANTERA ROSA MANEJAR #ZIGZAG #CPO #VTE SIEMPRE
car that panther pink drive-zigzag-animate-steering.wheel always

‘The pink panther always drives that car in zigzag.’

(444) AUTO IX, PANTERA ROSA MANEJAR #ZIGZAG #CPO VELOZMENTE
#VTE
car that panther pink drive-zigzag-animate-steering.wheel at.a.fast.speed

‘The pink panther drives that car fast in zigzag.’

(445) AUTO IX, PANTERA ROSA MANEJAR #ZIGZAG #CPO #VTE NO
car that panther pink drive-zigzag-animate-steering.wheel not

‘The pink panther is not driving that car in zigzag.’

In (443) to (445), MANEJAR #ZIGZAG #CPO #VTE co-occurs with two noun phrases and other elements typically considered verb modifiers, placing selectional restrictions on
them. It presents the same distribution as the verb \textit{PERSEGUIR} ‘chase’. According to the principle #2, this is evidence that \textit{MANEJAR ZIGZAG CPO VTE} is a verb.

\textit{MANEJAR ZIGZAG CPO VTE} ‘someone drives a vehicle in zigzag’ expresses an action. It can be conjoined with verbs. Given a context, it can constitute a minimal clause; or, it co-occurs with noun phrases and other elements typically considered verb modifiers, placing selectional restrictions on them. Considering this evidence, \textit{MANEJAR ZIGZAG CPO VTE} is categorized as a \textit{verb}

\textit{MANEJAR ZIGZAG CPO VTE} only occurs in transitive clauses; therefore, it is sub-categorized as a \textit{transitive} verb.

Figure 27 shows another morphologically complex form.

Figure 27: \textit{DAR CV} ‘give a cup’

Figure 27 shows the final position of \textit{DAR CV}. The form of the affix \textit{CV} (from “C” Vertical) is index and thumb flexed (“C” handshape). It represents a \textit{container 5 cm tall}, labeled for convenience \textit{cup}. The form \textit{DAR} ‘give’ is hand move from “i” to “j.”

\textsuperscript{40} The forms \textit{CV} and \textit{TASA} ‘cup’ are similar; however, the form \textit{CV} lacks movement. Appendix B describes verbal affixes.
In LSA, the sign \( \text{DAR}_j \#CV \) can be conjoined with verbs, as shown in (446).

\[
\text{(446) } \text{TAZA}_j \ HOMBRE\ IX_i \ ¿QUÉ? \ \text{COMPRAR}_j \ \text{O} \ \text{DAR}_k \ #CV
\]

\[
\text{cup} \ \text{man} \ \text{that} \ \text{what} \ \text{buy-}j \ \text{or} \ \text{give}^{-}k\text{-cup}
\]

‘Is that man buying or giving the cup?’

Section 3.3 presents syntactic evidence showing that \( \text{COMPRAR}_j \) is a verb. In (446), \( \text{DAR}_j \ #CV \) and \( \text{COMPRAR}_j \) are conjoined. This is evidence that \( \text{DAR}_j \ #CV \) is a verb.

\( \text{DAR}_j \ #CV \) occurs in ditransitive clauses, as shown in (447).

\[
\text{(447) } \text{TZA} \text{A}_k \ IX_i \ HOMBRE\ IX_i \ \text{DAR}_j \ #CV \ IX_j \ MUJER_j
\]

\[
\text{cup} \ \text{that} \ \text{man} \ \text{i-give-}j\text{-cup} \ \text{that} \ \text{woman}
\]

‘That man gives a cup to a woman.’

In (447), \( \text{DAR}_j \ #CV \) co-occurs with the noun phrases \( IX_i \ HOMBRE_j \) ‘that man’, \( \text{TZA} \text{A}_k \) ‘cup’, and \( IX_j \ MUJER_j \) ‘that woman’, forming a ditransitive clause.

Given a context, \( \text{DAR}_j \ #CV \) constitutes a minimal clause in (448).

\[
\text{(448) } \text{TZA} \text{A}_k \ IX_i \ HOMBRE\ IX_i \ \text{COMPRAR}_k \ IX_j \ MUJER_j
\]

\[
\text{cup} \ \text{that} \ \text{man} \ \text{i-buy-}j \ \text{that} \ \text{woman}
\]

\[
\text{pro} \ \text{pro} \ \text{DAR}_j \ #CV \ \text{pro}
\]

(3SG) (3SG) k-give-j-cup (3SG)

‘That man bought a cup for that woman; and he gave it to her.’

In (448), the noun phrases \( \text{TZA} \text{A}_k \) ‘cup’, \( IX_i \ HOMBRE\ IX_i \) ‘that man’, and \( IX_j \ MUJER_j \) ‘that woman’ are omitted through ellipsis in the second clause. As a result, \( \text{DAR}_j \ #CV \) constitutes a minimal clause, showing that it is a verb.

\( \text{DAR}_j \ #CV \) co-occurs with signs other than NPs, as shown in (449) to (451).
\( (449) \) \( TAZA \_k \) \( IX \_i \) \( HOMBRE \_i \) \( kDAR \_j \) \#CV \( MUJER \_j \) \( SIEMPRE \)

\[ \text{cup that man k-give-j-cup woman always} \]

‘That man always gives a cup to that woman.’

\( (450) \) \( TAZA \_k \) \( IX \_i \) \( HOMBRE \_i \) \( kDAR \_j \) \#CV \( MUJER \_j \) \( REPENTINAMENTE \)

\[ \text{cup that man k-give-j-cup woman suddenly} \]

‘That man suddenly gave a cup to that woman.’

\( (451) \) \( TAZA \_k \) \( IX \_i \) \( HOMBRE \_i \) \( kDAR \_j \) \#CV \( MUJER \_j \) \( NO \)

\[ \text{cup that man k-give-j-cup woman not} \]

‘That man is not giving a cup to that woman.’

\( \_DAR \_j \) \#CV co-occurs with the same elements in (449) to (451), as \( \_DAR \_j \) ‘give’ and \( \_REGALAR \_j \) ‘give as a gift’ in (428) to (433). They exhibit the same distribution in the clause. This is evidence that they are verbs.

\( \_DAR \_j \) \#CV expresses an action. It can be conjoined with verbs. Given a context, it can constitute a minimal clause; or, it co-occurs with noun phrases and other elements typically considered verb modifiers, placing selectional restrictions on them. Considering this evidence, it is categorized as a verb.

\( \_DAR \_j \) \#CV only occurs in ditransitive clauses; therefore, it is sub-categorized as a ditransitive verb.

Certain morphologically complex verbs place a selectional restriction on the adverb \( NUNCA \) ‘never’ (section 3.4.1.) even when mono-morphemic verbs expressing similar meaning do not place such restriction. This suggests that the reality of the events represented by these morphologically complex forms cannot be negated, as shown in (452) to (454).
In (452) and (453), the adverbs *CASI* ‘almost’ and *SIEMPRE* ‘always’ modify the verb *CHOCAR* `PV` `PV` ‘two vehicles crash into each other’. However, *NUNCA* ‘never’ cannot modify this verb, as shown in (454). Instead, another verb must be used, as shown in (455).

In (455), the morphologically complex verb *PASAR-EN-DIRECCIÓN-OPUESTA* `PV` `PV` ‘two vehicles pass each other going in opposite direction’ expresses an equivalent proposition to that in (454). In the second clause of (455), the mono-morphemic verb *CHOCAR* ‘crash’ allows the adverb *NUNCA* ‘never’.

\[(452) \text{IX}_{i} \quad \text{CURVA} \quad \text{CHOCAR} \quad \text{PV} \quad \text{PV} \quad \text{CASI} \]
\[
\quad \text{that} \quad \text{curve} \quad \text{crash-vehicle.R-vehicle.R} \quad \text{almost}
\]

‘Two cars almost crash into each other on that curve.’

\[(453) \text{IX}_{i} \quad \text{CURVA} \quad \text{CHOCAR} \quad \text{PV} \quad \text{PV} \quad \text{SIEMPRE} \]
\[
\quad \text{that} \quad \text{curve} \quad \text{crash-vehicle.R-vehicle.R} \quad \text{always}
\]

‘Cars always crash into each other on that curve.’

\[(454) \text{*IX}_{i} \quad \text{CURVA} \quad \text{CHOCAR} \quad \text{PV} \quad \text{PV} \quad \text{NUNCA} \]
\[
\quad \text{that} \quad \text{curve} \quad \text{crash-vehicle.R-vehicle.R} \quad \text{never}
\]

(‘Cars never crash into each other on that curve.’)

\[(455) \text{IX}_{i} \quad \text{CURVA} \quad \text{PASAR-EN-DIRECCIÓN-OPUESTA} \quad \text{PV} \quad \text{PV} \]
\[
\quad \text{that} \quad \text{curve} \quad \text{pass.in.opposite.direction-vehicle.R-vehicle.R}
\]

\[
\quad \text{IX}_{i} \quad \text{SIGNIFICAR} \quad \text{pro} \quad \text{pro} \quad \text{CHOCAR} \quad \text{NUNCA} \]
\[
\quad \text{that} \quad \text{mean} \quad (3SG) \quad (3SG) \quad \text{crash} \quad \text{never}
\]

‘Two cars passed each other going in opposite direction in that curve; it means that they never crashed into each other.’

In (455), the morphologically complex verb *PASAR-EN-DIRECCIÓN-OPUESTA* `PV` `PV` ‘two vehicles pass each other going in opposite direction’ expresses an equivalent proposition to that in (454). In the second clause of (455), the mono-morphemic verb *CHOCAR* ‘crash’ allows the adverb *NUNCA* ‘never’.
The verb *CHOCAR #PV #PV* seems to be expressing the reality of the event in a similar way that verbs in the *realis mood* do. “*Realis* is typically used when the speaker is very sure that the event has happened or that the state of affairs holds true” (Vellupilai 2012:214). If this is the case, the affix *PV ‘vehicle.R’* could be analyzed as an agreement marker and also as marking realis mood. However, this analysis exceeds the purpose of this research.

Certain morphologically complex forms express events. They incorporate affixes for marking agreement with the subject and objects. They can be conjoined with verbs. Given a context, these forms can constitute minimal clauses; or, they co-occur with noun phrases and other elements typically considered verb modifiers, placing selectional restrictions on them. Considering this evidence, they are categorized as *verbs*.

### 3.3.2 Verb Agreement

This section discusses verbal agreement in LSA.

“Agreement refers to a formal relationship between elements whereby a form of one word requires a corresponding form of another” (Crystal 1991:13,71). In LSA, certain verbs incorporate agreement morphology with subjects and objects. This evidence supports their categorization as verbs.

In sign language linguistics, the grammatical feature *person* is associated with spatial locations called *loci*. The first person corresponds to the physical location of the signer, represented in Figure 28 with the number “1”. The second person corresponds to the physical location of the addressee, represented with the number “2” in front of the signer. The third person corresponds to a generic “i” or “j” location in any point of space except “1” and “2”. 
The default direction of the eye gaze is toward “2”. The eye gaze can be temporarily directed toward “i” or “j”, establishing the position of an entity or referring to it.

In LSA, certain verbs incorporate agreement morphology with subject and object, as shown in (456).

\[
\begin{align*}
\text{eg:i} & \quad \text{b:shti} \\
\text{eg:j} & \quad \text{b:ttj}
\end{align*}
\]

\[(456) \quad \text{COMIDA CHICO}_\#\text{PL} \quad \text{TRES POBRE ROGAR}_j \quad \text{pro}
\]

food child.pl three poor i-beg-j (3sg)

‘Three poor boys begged (him) for food.’

In (456), the signer establishes the subject CHICO\#PL ‘children’ at the location “i” directing her eye gaze toward “i” (eg:i). At the same time, she takes the role of the subject shifting her body toward “i” (b:shti). Then, the signer establishes a third person object at the location “j” directing her eye gaze toward “j” (eg:j) and turning her body toward “j” (b:ttj) while she is signing ROGAR\textsubscript{j} ‘beg’.

The form ROGAR\textsubscript{j} includes agreement with subject and object in person and number, indicated in the sign gloss by the sub-indexes “i” and “j”. This shows that ROGAR\textsubscript{j} is a verb.
Two locations can be associated with one verbal argument, as shown in Figure 29.

![Figure 29: 1,2ENCONTRAR ‘we (I and you) meet’](image)

Figure 29 shows the initial position of 1,2ENCONTRAR ‘we (I and you) meet’. The form 1,2ENCONTRAR is two hands; index and middle finger extended and spread; dominant hand placed in front of the signer (location “2”) with palm facing the signer; non-dominant hand placed close to the signer (location “1”) with palm facing forward; hands move toward each other until fingertips touch.

The form 1,2ENCONTRAR incorporates agreement morphology involving two locations, which serves to mark agreement with dual person subjects, as shown in (457).

\[(457) \text{DOS}_{1,2} \quad 1,2\text{ENCONTRAR} \]
\[
\text{1DU.INCL} \quad \text{1DU.INCL-meet}
\]

‘We (I and you) meet.’

In (457), the dual inclusive pronoun DOS_{1,2} ‘we (I and you)’ is the subject. 1,2ENCONTRAR agrees with the subject in person and number. In the sign gloss, the agreement morphology is represented by the sub-index “1,2”. This shows that 1,2ENCONTRAR is a verb.
Certain morphologically complex verbs incorporate agreement affixes referring to classes of entities, as shown in (458) and (460).

(458) $MUJER_i$ $MATE$ $\text{\texttt{iDAR}_j \#A}$ pro $MATE$ NADA
woman mate$^{41}$ i-give-j-A (3SG) mate empty

‘A woman gives a mate to him; the mate is empty.’

In (458), the form $\text{\texttt{iDAR}_j \#A}$ ‘give a mate’ includes the affix $A$ (from the handshape “A”), which refers to the entity class “A$^{42}$” and points to the noun phrase $MATE$ ‘mate’. It also incorporates agreement with the subject (“i”) and indirect object (“j”) in person and number. This shows that $\text{\texttt{iDAR}_j \#A}$ is a verb.

In LSA, $A$ is a bound morpheme found in certain morphologically complex verbs. The forms $A$ and $MATE$ ‘mate’ are very similar; however, $A$ lacks movement and place of articulation. In view of this, the morpheme $A$ is analyzed as a verbal affix for marking agreement$^{43}$ with the direct object $MATE$ ‘mate’.

The root $\text{\texttt{iDAR}_i}$ can incorporate other affixes, as shown in (459).

(459) $PEDRO_i$ $TAZÓN_k$ $\text{\texttt{iDAR}_j \#MANIJA-OBJETO}$ $MUJER_j$
Peter mug i-give-j-handled.object woman

‘Peter gives a mug to a woman.’

$^{41}$ *Mate* is a traditional Argentine caffeine-rich infused drink and the name of the container used to serve the infusion, which is commonly a calabash gourd.

$^{42}$ The entity class “A” includes mate and animate beings, described in Appendix B.

$^{43}$ In a sense, this affix can be analyzed as marking agreement in gender. The gender system of Ju’hoan (Khoisan (Northern Khoisan): Angola, Namibia, Botswana) includes five genders. Two of them based on the criteria “long things” and “body parts” (Vellupilai 2012:169). Perhaps, LSA has a shape-based gender system even more sophisticated than Ju’hoan.

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In (459), the form \textit{\textsc{DAR}j \#MANIJA-OBJETO}\textsuperscript{44} ‘give a handled object’ includes the morpheme \textit{MANIJA-OBJETO}, which refers to the entity class \textit{handled object} and points to the object \textit{TAZÓN} ‘mug’. In LSA, \textit{MANIJA-OBJETO} is a bound morpheme found in some morphologically complex verbs. Considering this, \textit{MANIJA-OBJETO} is analyzed as a verbal affix for marking agreement with the object \textit{TAZÓN}.

The verb \textit{SENTAR-EN} \#\textsc{INVF} \#\textsc{PVF} ‘biped sit on a seat’ (Figure 25) incorporates two affixes for marking agreement, as shown in (460).

(460) \textit{SILLA IXj} \quad \textit{IX1} \quad \textit{CAMINAR \#INV \#HACIAj} \quad \textit{SENTAR-EN \#INVF \#PVF}  
\begin{tabular}{ll}
chair & that \\
\textit{1SG} & \textit{walk-biped-toward.j}
\end{tabular} \quad \begin{tabular}{l}
\textit{sit.on-biped-seat}
\end{tabular}

‘I walked to that chair and sat down on it.’

In (460), the verb \textit{SENTAR-EN} \#\textsc{INVF} \#\textsc{PVF}\textsuperscript{45} incorporates the morphemes \textsc{INVF} and \textsc{PVF}. \textsc{INVF} points to the subject \textit{IX1} ‘\textit{1SG}’, and \textsc{PVF} points to the object \textit{SILLA} ‘chair’.

In LSA, the morphemes \textsc{INVF} and \textsc{PVF} are morphemes bound to certain verbs. \textsc{INVF} refers to the class \textit{biped} and \textsc{PVF} to the class \textit{seat}. In (460), \textsc{INVF} points to the subject \textit{IX1} \textit{PERSONA} ‘that person’ and \textsc{PVF} points to the indirect object \textit{SILLA IXj} ‘that chair’. In view of this, they are analyzed as verbal affixes marking agreement with the subject and indirect object.

\textsuperscript{44} The forms \textit{MANIJA-OBJETO} and \textit{TAZÓN} are similar; however, the former lacks movement.

\textsuperscript{45} The forms \textsc{INVF} and \textsc{PVF}, and the forms \textit{PERSONA} ‘person’ and \textit{SILLA} ‘chair’ are radically different.
The verb \textit{MANEJAR #ZIGZAG} can also be analyzed as incorporating agreement markers. In LSA, \textit{CPO} and \textit{VTE} are morphemes bound to certain verbs. \textit{CPO} refers to the class \textit{animate}, and \textit{VTE} refers to the class \textit{steering wheel}.

In (441), \textit{CPO} points to the subject \textit{PANERA ROSA} ‘pink panther’, and \textit{VTE} points to the object \textit{AUTO IX} ‘that car’. Considering this, \textit{CPO} and \textit{VTE} are analyzed as verbal affixes marking agreement with the subject and object.

LSA sub-categorizes verbs according to whether they include agreement morphology or not. The verbal agreement is marked through spatial affixes or affixes referring to entity classes. The former marks agreement with subject and object in \textit{person} and \textit{number}. However, the way in which the latter marks agreement with subjects and objects still has to be established.

3.3.3 \textit{Silent Copulas}

In LSA, copulas are silent, as shown in (461) and (462).

\begin{align*}
\textit{h:tid} & \quad \textit{h:jf} \\
(461) & \textit{IX} \quad \textit{PERRO} \quad \textit{BONITO} \quad \emptyset \\
& \text{that} \quad \text{dog} \quad \text{pretty} \quad \text{(be)}
\end{align*}

‘That dog is pretty.’

3.1 presents syntactic evidence that \textit{PERRO} ‘dog’ is a noun. Section 3.2.1 shows that \textit{BONITO} ‘pretty’ is an adjective. In (461), \textit{BONITO} ‘pretty’ is an adjectival complement

\footnote{The affix \textit{ZIGZAG} can be analyzed as a verbal modifier.}

\footnote{The forms \textit{VTE} and \textit{AUTO} ‘car’ are very similar; however, \textit{VTE} lacks movement.}
of a non-active clause. This evidence suggests that the copular verb in (461) is omitted, indicated by $\emptyset$ ‘(be)’.

The proposition in (461) is negated in (462).

$$
h:tid\quad b:tm\quad h:tu$$

(462) $IX_i$ PERRO BONITO $\emptyset$ NO

that dog pretty (be) not

‘That dog is not pretty.’

Section 3.4.4 presents evidence that NO ‘not’ is an adverb. Section 3.4 shows that verbs place selectional restrictions on adverbs. This evidence suggests that the copular verb in (462) is omitted, indicated by $\emptyset$ ‘(be)’.

Mouthing provide additional evidence, as shown in (463).

$$
IX_i\quad VESTIDO\quad IX_i\quad NUEVO\quad \emptyset\quad NO
$$

that dress that new (be) not

no es

‘That dress is not new.’

In (463), the mouthing no es ‘is not’ co-occurs simultaneously with the adverb NO ‘not’. The signer “verbally” attaches a copula to the negation NO. This is evidence for a silent copula in (463).

A similar phenomenon happens in relative clauses, as shown in (464).

$$
eg:gi\quad es\quad b:shti$$

(464) VESTIDO NUEVO MUJER $IX_i$ CARA BONITA $\emptyset$ NO COMPRAR
dress new woman that face pretty (be) not buy

no es

‘That woman who is not pretty, bought a new dress.’
In (464), the non-manuals eye squinted (e:s) and body shift toward “i” (b:shti) mark the boundaries of BONITA NO ‘is not pretty’. This evidence suggests that BONITA NO is a syntactic unit. The mouthing no es ‘is not’ co-occurs simultaneously with the negation NO ‘not’. The signer verbally assigns a copula to the negation NO ‘not’, indicated by Ø ‘(be)’.

During this research, overt copulas have never been observed. In LSA, copular verbs are always omitted in non-active clauses. The mouthing no es sometimes co-occurs with negation in non-active clauses. This is evidence for silent copulas in LSA.

3.3.4 The Verb HABER

In LSA, the verb HABER expresses possession or existence.

Figure 30: HABER ‘have’ or ‘exist’

Figure 30, shows the initial position of HABER ‘have’ or ‘exist’. The form HABER is pinky extended and pointing up; palm facing the signer; hand moves down and holds. The sign HABER presents an irregular negated form, shown in Figure 31.

48 BONITA Ø NO ‘is not pretty’ is a relative clause. It modifies the noun CARA ‘face’, which is in juxtaposition to MUJER IXi ‘that woman’. A more literal meaning is ‘that woman whose face is not pretty.’
Figure 31: HABER-NO ‘have not’ or ‘does not exist’

Figure 31 shows the sign HABER-NO ‘have not’ or ‘does not exist’. Its form is index extended pointing forward; thumb extended; palm facing contra; forearm rotates with a slight trill movement; head turns left and right with an optional mouth frown.

The forms HABER and HABER-NO can be conjoined, as shown in (465).

(465) MESA TAZA: HABER O HABER-NO
    table cup exist or exist.not

    ‘Is there a cup on the table or not?’

In (465), the forms HABER and HABER-NO are conjoined. According to the principle #1, this is evidence that they belong to the same lexical category.

    HABER and HABER-NO occur in transitive clauses, as shown in (466) and (467).

(466) IX, PERSONA HABER DOS TRABAJO
    that person have two job

    ‘That person has two jobs.’

(467) IX, PERSONA HABER-NO DOS TRABAJO
    that person have.not two job

    ‘That person does not have two jobs.’

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In (466) and (467), HABER and HABER-NO co-occur with the noun phrases IX
PERSONA ‘that person’ and DOS TRABAJO ‘two jobs’, forming transitive clauses. In
these clauses, HABER expresses possession.

HABER also occur in intransitive clauses, as shown (468) and (469).

(468) GATO NEGRO HABER
    cat black exist
        ‘Black cats exists.’

(469) GATO AMARILLO HABER-NO
    cat yellow exist.not
        ‘Yellow cats do not exist.’

In (468), HABER co-occurs with the noun phrase GATO NEGRO ‘black cat’, while in
(469) HABER-NO ‘exist not’ co-occurs with the noun phrase GATO AMARILLO ‘yellow
cat’, forming intransitive clauses. In both clauses, HABER expresses existence.

HABER and HABER-NO are mutually substitutable. According to the principle #2,
this is evidence that they are in the same lexical category.

Given a context, HABER and HABER-NO can constitute minimal predicates, as
shown in (470) and (471).

(470) IX PERSONA HABER TRABAJO OTRO HABER-NO pro
    that person have job that.other have.not (3SG)
        ‘That person has a job; that other one does not.’

(471) IX PERSONA HABER-NO TRABAJO OTRO HABER pro
    that person have.not job that.other have (3SG)
        ‘That person does not have a job; that other one does.’
In (470) and (471), the noun phrase *TRABAJO* ‘job’ is omitted through ellipsis in the second clause. As a result, *HABER* and *HABER-NO* constitute minimal predicates. This is evidence that *HABER* and *HABER-NO* are verbs.

*HABER* co-occurs with elements other than noun phrases, as shown in (472).

(472) \( IX_1 \)  
\( \text{PERSONA} \quad \text{SIEMPRE HABER} \quad \text{TRABAJO} \)  
\( \text{that person always have job} \)  
‘That person always has work to do.’

In (472), *HABER* co-occurs with *SIEMPRE* ‘always’. *HABER* allows adverbs of frequency in the clause, while *HABER-NO* does not allow any adverb. *HABER* and *HABER-NO* place selectional restrictions on verb modifiers. This evidence suggests that *HABER* and *HABER-NO* are verbs.

*HABER* can be omitted, as shown in (473) and (474)\(^{49}\).

(473) \( IX_1 \)  
\( \text{ADENTRO} \quad \text{PAZ} \quad \text{HABER} \)  
\( 1SG \quad \text{inside} \quad \text{peace} \quad \text{have} \)  
‘I have peace inside.’

(474) \( IX_1 \)  
\( \text{ADENTRO} \quad \text{PAZ} \quad \emptyset \)  
\( 1SG \quad \text{inside} \quad \text{peace} \quad (have) \)  
‘I have peace inside.’

*HABER* is omitted in (474) keeping the same meaning as in (473).

\(^{49}\) (473) and (474) are examples from LSAo. Here, the word order is SOV.
The signs HABER and HABER-NO express possession or existence. They can be conjoined. They present the same distribution in the clause. They can co-occur with noun phrases. Given a context, these signs can constitute minimal predicates. They place selectional restrictions on signs typically considered verb modifiers. Considering this evidence, they are categorized as verbs.

The verbs HABER and HABER-NO occur in transitive and intransitive clauses. They express existence in the former, while they express possession in the latter. Therefore, they are sub-categorized as intransitive-transitive verbs.

3.3.5 Overlap with Noun Forms

In LSA, a significant number of verb-noun pairs share the same form; they are hardly distinguished in isolation. One example is the verb AMAR ‘love’ and the noun AMOR ‘love’, shown in Figure 32.

![Figure 32: AMOR ‘love’ (noun) and AMAR ‘love’ (verb)](image)

Figure 32 shows the initial positions of AMOR ‘love’ and AMAR ‘love’. The form is palm facing the signer and touching the chest; hand moves up with slight forearm supination.

These signs can be identified depending on the syntactic structure of the clause. For example, in (475) it is not possible to distinguish what lexical category is AMAR/AMOR.
The transitive clause (475) can be rendered as ‘I love him’ or ‘I have a love for him’, because the verb HABER ‘have’ is optionally silent in LSA, discussed in section 3.3.4. Therefore, it is not possible to distinguish if the sign in question is the noun AMOR ‘love’ or the verb AMAR ‘love’.

The proposition in (475) can be negated in two ways, as shown in (476) and (477).

(475) $IX_i$ AMAR/AMOR $IX_i$
1SG love 3SG

‘I love him’ or ‘I have a love for him.’

In (476), the non-manual body shift right (b:shr) marks the boundaries of the predicate $AMAR IX_i$ NO ‘do not love him’. The adverb of negation NO ‘not’ co-occurs with verbs, discussed in section 3.4.4. This evidence suggests that AMAR ‘love’ is a verb.

The proposition in (475) can also be negated as shown in (477).

(477) $IX_i$ AMOR $IX_i$ HABER-NO
1SG love 3SG have.not

‘I do not have any love for him.’

In (477), the non-manual body shift right (b:shr) marks the boundaries of the predicate $AMOR IX_i$ HABER-NO ‘do not have love for him’. The verb HABER-NO ‘have not’
occurs in transitive clauses, discussed in section 3.3.4. In (477), HABER-NO takes two arguments\(^{50}\), the subject \(IX_1\) ‘1SG’ and the object AMOR ‘love’. This evidence suggests that AMOR ‘love’ is a noun.

The pair of signs TRABAJAR ‘work’ and TRABAJO ‘job’ also share the same form; they cannot be distinguished in (478).

\[(478) \quad IX_1 \quad \text{TRABAJAR/TRABAJO} \]
\[1\text{SG} \quad \text{work/job} \]

‘I work’ or ‘I have a job.’

(478) can be rendered as ‘I work’ or ‘I have a job’. Here, it is not possible to establish if the sign in question is the verb TRABAJAR ‘work’ or the noun TRABAJO ‘job’.

The proposition in (478) can be negated in two ways, as shown in (479) and (480).

\[(479) \quad IX_1 \quad \text{TRABAJAR NO} \]
\[1\text{SG} \quad \text{work} \quad \text{not} \]

‘I do not work.’

\[(480) \quad \text{TRABAJO} \quad IX_1 \quad \text{HABER-NO} \]
\[\text{job} \quad 1\text{SG} \quad \text{have.not} \]

‘I do not have a job.’

In (479), the co-occurrence of the adverb of negation NO ‘not’ (discussed in section 3.4.4) is evidence for the verb TRABAJAR ‘work’. In (480), the occurrence of the

\(^{50}\) IX, ‘3SG’ is an adjunct.
transitive verb *Haber-No* ‘have not’ (discussed in section 3.3.4) is evidence that
*Trabajo* ‘job’ is the object, and therefore a noun phrase.

In LSA, noun-verb pair of signs sharing the same form are hardly distinguished in isolation. However, they can be identified in negative clauses.

### 3.4 Adverb

This section discusses the *Adverb* category and presents syntactic evidence for adverbs in LSA.

In LSA, certain signs expressing *frequency, manner, degree,* or *negation* co-occur with verbs, taking different positions in the clause *except for inside noun phrases.* They exhibit the same distribution in the clause. They are optional elements. They freely co-occur with all sub-categories of verbs; they are adjuncts. Verbs place selectional restrictions on them. Considering this evidence, they are categorized as *adverbs.*

However, signs expressing *frequency, manner, degree,* and *negation* cannot be conjoined. They cannot occur in sequence with elements of the same kind; only one of each kind can occur at the same time in the same clause. Considering this evidence, they are sub-categorized as *adverbs of frequency, manner, degree,* and *negation.*

#### 3.4.1 Adverb of Frequency

In LSA, signs expressing frequency occur in different positions, as in (481) to (492).

(481) **SIEMPRE SÁBADO HOMBRE TRABAJAR**
always Saturday that man work

‘That man always works on Saturdays.’
(482) SÁBADO SIEMPRE IX$_i$ HOMBRE TRABAJAR
Saturday always that man work
‘That man always works on Saturdays.’

(483) SÁBADO IX$_i$ HOMBRE SIEMPRE TRABAJAR
Saturday that man always work
‘That man always works on Saturdays.’

(484) SÁBADO IX$_i$ HOMBRE TRABAJAR SIEMPRE
Saturday that man work always
‘That man always works on Saturdays.’

(485) NUNCA SÁBADO IX$_i$ HOMBRE TRABAJAR
never Saturday that man work
‘That man never works on Saturdays.’

(486) SÁBADO NUNCA IX$_i$ HOMBRE TRABAJAR
Saturday never that man work
‘That man never works on Saturdays.’

(487) SÁBADO IX$_i$ HOMBRE NUNCA TRABAJAR
Saturday that man never work
‘That man never works on Saturdays.’

(488) SÁBADO IX$_i$ HOMBRE TRABAJAR NUNCA
Saturday that man work never
‘That man never works on Saturdays.’

(489) A-VECES SÁBADO IX$_i$ HOMBRE TRABAJAR
sometimes Saturday that man work
‘That man sometimes works on Saturdays.’
In (481) to (492), SIEMPRE ‘always’, NUNCA ‘never’, and A-VECES ‘sometimes’ exhibit the same distribution in the clause. According to the principle #2, this is evidence that they belong to the same lexical category.

The intransitive clauses (481) to (492) show all the possible positions of SIEMPRE, NUNCA, and A-VECES. They occur in any position except between IX, ‘that’ and HOMBRE ‘man’ because the resulting sentences are ungrammatical. This evidence suggests that signs expressing frequency do not occur in the noun phrase, ruling out these signs as nouns or any other noun phrase related category.

SIEMPRE, NUNCA, and A-VECES can be conjoined, as shown in (493).

In (493), the coordinating conjunction O ‘or’ links SIEMPRE, NUNCA, and A-VECES. This evidence suggests that they belong to the same lexical category.
Signs expressing frequency cannot occur in sequence, as shown in (494).

\[(494) \ast SÁBADO \text{ \emph{IX}, HOMBRE TRABAJAR SIEMPRE NUNCA \emph{A-VECES}}\]

Saturday that man work always never sometimes

(‘That man always never sometimes works on Saturdays.’)

Example (494) is ungrammatical, showing that signs expressing frequency cannot occur in sequence; only one can occur at the same time in the same clause.

The sign \emph{SIEMPRE} ‘always’ co-occurs with the intransitive verb \emph{TRABAJAR} ‘work’ in (481), the transitive verb \emph{AMAR} ‘love’ in (411), and the ditransitive verb \emph{DAR} ‘give’ in (428). \emph{SIEMPRE} is not required or ruled out by any verb sub-category. However, the verb \emph{MORIR} ‘die’ does not allow the sign \emph{SIEMPRE} ‘always’ in the clause. The sign \emph{SIEMPRE} freely co-occurs with all sub-categories of verbs. At the same time, verbs place selectional restrictions on it. This evidence suggests that \emph{SIEMPRE} is an \textit{adjunct}.

Signs expressing frequency can be conjoined. They can be placed in different positions except for inside noun phrases. They are adjuncts. Considering this evidence, signs expressing frequency are categorized as \textit{adverbs}.

Adverbs expressing frequency cannot occur in sequence; only one can occur at the same time in the same clause. However, they can co-occur with other sub-categories of adverbs, discussed in sections 3.4.2, 3.4.3, and 3.4.4. Adverbs expressing frequency present the same distribution as other sub-categories of adverbs. However, they cannot be conjoined with other sub-categories. Considering this evidence, they are sub-categorized as \textit{adverbs of frequency}.
3.4.2 *Adverb of Manner*

In LSA, signs expressing *manner* occur in different positions, as in (495) to (500).

(495) **RÁPIDAMENTE** \(IX_i\) **HOMBRE** **TRABAJAR**
\(\text{at.a.fast.pace} \quad \text{that} \quad \text{man} \quad \text{work}\)

‘That man works fast.’

(496) \(IX_i\) **HOMBRE** **RÁPIDAMENTE** **TRABAJAR**
\(\text{that} \quad \text{man} \quad \text{at.a.fast.pace} \quad \text{work}\)

‘That man works fast.’

(497) \(IX_i\) **HOMBRE** **TRABAJAR** **RÁPIDAMENTE**
\(\text{that} \quad \text{man} \quad \text{work} \quad \text{at.a.fast.pace}\)

‘That man works fast.’

(498) **LENTAMENTE** \(IX_i\) **HOMBRE** **TRABAJAR**
\(\text{at.a.slow.pace} \quad \text{that} \quad \text{man} \quad \text{work}\)

‘That man works slowly.’

(499) \(IX_i\) **HOMBRE** **LENTAMENTE** **TRABAJAR**
\(\text{that} \quad \text{man} \quad \text{at.a.slow.pace} \quad \text{work}\)

‘That man works slowly.’

(500) \(IX_i\) **HOMBRE** **TRABAJAR** **LENTAMENTE**
\(\text{that} \quad \text{man} \quad \text{work} \quad \text{at.a.slow.pace}\)

‘That man works slowly.’

In (495) to (500), **RÁPIDAMENTE** ‘at a fast speed’ and **LENTAMENTE** ‘at a slow speed’ present the same distribution in the clause. According to the principle #2, this is evidence that they belong to the same lexical category.
The intransitive clauses (495) to (500) show all the possible positions of RÁPIDAMENTE and LENTAMENTE. They occur in any position except between IXᵢ ‘that’ and HOMBRE ‘man’ because the resulting sentences are ungrammatical. This evidence suggests that signs expressing manner do not occur in the noun phrase, ruling out these signs as nouns or any other noun phrase related category.

RÁPIDAMENTE and LENTAMENTE can be conjoined, as shown in (501).

(501) IXᵢ HOMBRE TRABAJAR
    that man work

RÁPIDAMENTE LENTAMENTE O TRANQUILAMENTE
    at.a.fast.pace at.a.slow.pace or at.a.normal.pace

‘Does the man work fast, slowly, or at a normal pace?’

In (501), RÁPIDAMENTE, LENTAMENTE, and TRANQUILAMENTE are conjoined. This evidence suggests that they belong to the same lexical category. However, signs expressing frequency and manner cannot be conjoined because the resulting sentences are ungrammatical, suggesting that they belong to different sub-categories.

Signs expressing manner cannot occur in sequence, as shown in (502).

(502) *IXᵢ HOMBRE TRABAJAR RÁPIDAMENTE LENTAMENTE
    that man works at.a.slow.pace at.a.slow.pace

(‘That man works fast slowly.’)

(502) is ungrammatical, showing that signs expressing manner cannot occur in sequence; only one can occur at the same time in the same clause. However, they co-occur with signs expressing frequency, as shown in (503) and (504).
In (503) and (504), the sign expressing manner *RÁPIDAMENTE* ‘at a fast pace’ co-occurs with the adverb of frequency *SIEMPRE* ‘always’. This evidence suggests that LSA sub-categorizes signs expressing frequency and manner.

The sign *RÁPIDAMENTE* co-occurs with the intransitive verb *TRABAJAR* ‘work’ in (377), the transitive verb *COMPRA* ‘buy’ in (411), and the ditransitive verb *DAR* ‘give’ in (430). *RÁPIDAMENTE* is not required or ruled out by any verb sub-category. On the other hand, the verb *CORRER* ‘run’ allows *VELOZMENTE* or *DESPACIO* in the clause, while *TRABAJAR* ‘work’ does not. This evidence suggests that signs expressing manner are *adjuncts*.

Signs expressing manner can be conjoined. They can be placed in different positions except for inside noun phrases. They are adjuncts. Considering this evidence, signs expressing manner are categorized as *adverbs*.

Adverbs expressing manner cannot occur in sequence; only one can occur at the same time in the same clause. However, they can co-occur with other sub-categories of adverbs, discussed in sections 3.4.1, 3.4.3, and 3.4.4. Adverbs expressing manner exhibit the same distribution as other sub-categories. However, they cannot be conjoined with other sub-categories. Considering this evidence, they are sub-categorized as *adverbs of manner*.
3.4.3 Adverb of Degree

In LSA, certain signs expressing degree\(^{51}\) occur in different positions except for inside noun phrases, as shown in (505) to (513).

(505) **DURO** \(IX_i\) **HOMBRE** **TRABAJAR**

hard that man work

‘That man works hard.’

(506) **IX\(_i\)** **HOMBRE** **DURO** **TRABAJAR**

that man hard work

‘That man works hard.’

(507) **IX\(_i\)** **HOMBRE** **TRABAJAR** **DURO**

that man work hard

‘That man works hard.’

(508) **FLOJO** **IX\(_i\)** **HOMBRE** **TRABAJAR**

lazily that man work

‘That man works lazily.’

(509) **IX\(_i\)** **HOMBRE** **FLOJO** **TRABAJAR**

that man lazily work

‘That man works lazily.’

(510) **IX\(_i\)** **HOMBRE** **TRABAJAR** **FLOJO**

that man work lazily

‘That man works lazily.’

\(^{51}\) Other signs expressing degree occur inside noun phrases, they are in the Degree Sign category, discussed in section 3.2.1.3.
(511) **NADA**  \(IX_i\)  **HOMBRE**  **TRABAJAR**  
not.at.all  that  man  work  

‘That man does not work at all.’ (Lit. ‘that man works not at all.’)

(512) **IX_i**  **HOMBRE**  **NADA**  **TRABAJAR**  
that  man  not.at.all  work  

‘That man does not work at all.’ (Lit. ‘that man works not at all.’)

(513) **IX_i**  **HOMBRE**  **TRABAJAR**  **NADA**  
that  man  work  not.at.all  

‘That man does not work at all.’ (Lit. ‘that man works not at all.’)

In (505) to (513), **DURO** ‘hard’, **FLOJO** ‘lazily’, and **NADA** ‘not at all’ present the same distribution in the clause. According to the principle #2, this is evidence that they belong to the same lexical category.

(505) to (513) present all the possible positions of **DURO**, **FLOJO**, and **NADA** in the intransitive clause **IX_i** **HOMBRE**  **TRABAJAR** ‘that man works’. They occur in any place except between **IX_i** ‘that’ and **HOMBRE** ‘man’ because the resulting sentences are ungrammatical. This evidence suggests that these signs expressing degree cannot occur inside noun phrases, ruling out them as nouns or any noun phrase related category.

**DURO**, **FLOJO**, and **NADA** can be conjoined, as shown in (514).

(514) **IX_i**  **HOMBRE**  **TRABAJAR**  **DURO**  **FLOJO**  **O**  **NADA**  
that  man  work  hard  lazily  or  not.at.all  

‘Does the man work hard, lazily, or not at all?’

In (514), the coordinating conjunction **O** ‘or’ links **DURO**, **FLOJO**, and **NADA**. This evidence suggests that they belong to the same lexical category. However, signs
expressing degree, frequency, and manner cannot be conjoined because the resulting sentences are ungrammatical, suggesting that they belong to different sub-categories.

Signs expressing degree cannot occur in sequence, as shown in (515).

\[(515) \text{IX}_i \ HOMBRE \ TRABAJAR \ DURO \ FLOJO \ NADA\]
 That man works hard lazily not.at.all

(‘That man works hard lazily not at all.’)

(515) is ungrammatical, showing that signs expressing degree cannot occur in sequence; only one can occur at the same time in the same clause.

Certain signs expressing degree co-occur with signs expressing frequency and manner, as shown in (516).

\[(516) \text{IX}_i \ HOMBRE \ TRABAJAR \ SIEMPRE \ RÁPIDAMENTE \ DURO\]
 That man work always at.a.fast.pace hard

‘That man always works fast and hard.’

In (516), the sign expressing degree DURO ‘hard’ co-occurs with SIEMPRE ‘always’ and RÁPIDAMENTE ‘at a fast pace’. This suggests that LSA sub-categorizes signs expressing frequency, manner, and degree.

MUCHO ‘a lot’ co-occurs with the intransitive verb CORRER ‘run’ in (364), the transitive verb AMAR ‘love’ in (398), and the ditransitive verb SENTAR ‘sit on’.

MUCHO is not required or ruled out by any sub-category. However, the verb TRABAJAR ‘work’ does not allow MUCHO to co-occur with it. MUCHO freely co-occurs with all sub-categories of verbs. At the same time, verbs place selectional restrictions on it. This evidence suggests that MUCHO is an adjunct.
In LSA, signs certain expressing degree can be conjoined. They can be placed in different positions except for inside noun phrases. They are adjuncts. Considering this evidence, they are categorized as *adverbs*.

Adverbs expressing degree cannot occur in sequence; only one can occur at the same time in the same clause. They co-occur with and present the same distribution as other sub-categories of adverbs, discussed in sections 3.4.1, 3.4.2, and 3.4.4. However, they cannot be conjoined with other sub-categories. Considering this evidence, they are sub-categorized as *adverbs of degree*.

### 3.4.4 Adverb of Negation

In LSA, verbs typically considered *irregular* express negation morphologically. On the other hand, the sign *NO* ‘not’ (Figure 33) expresses negation in clauses including *regular* verbs.

![Figure 33: NO ‘not’](image)

Figure 33 shows the sign *NO* ‘not’. The form *NO* is index extended and pointing up; palm facing forward; hand alternates left-right pivoting on the wrist; head turns left and right with optional mouth frown.

In LSA, *NO* ‘not’ occurs in different positions, as shown in (517) to (519).
(517) \( \text{NO} \quad IX_i \quad \text{HOMBRE TRABAJAR} \)
\[
\text{not} \quad \text{that} \quad \text{man} \quad \text{work}
\]
‘That man does not work.’

(518) \( IX_i \quad \text{HOMBRE} \quad \text{NO} \quad \text{TRABAJAR} \)
\[
\text{that} \quad \text{man} \quad \text{not} \quad \text{work}
\]
‘That man does not work.’

(519) \( IX_i \quad \text{HOMBRE TRABAJAR} \quad \text{NO} \)
\[
\text{that} \quad \text{man} \quad \text{work} \quad \text{not}
\]
‘That man does not work.’

In (517) to (519), \( \text{NO} \) presents the same distribution as other adverbs. According to principle #2, this evidence suggests that \( \text{NO} \) ‘not’ is an adverb.

The intransitive clauses (517) to (519) present all the possible positions of \( \text{NO} \). It can occur in any place except between \( IX_i \) ‘that’ and \( \text{HOMBRE} \) ‘man’ because the resulting sentences are ungrammatical, showing that \( \text{NO} \) can occur in any place except for inside noun phrases. This evidence rules out \( \text{NO} \) as a noun or any noun phrase related category.

\( \text{NO} \) co-occurs with adverbs of manner and degree, as shown in (520) to (523).

(520) \( IX_i \quad \text{HOMBRE TRABAJAR} \quad \text{DURO} \quad \text{NO} \)
\[
\text{that} \quad \text{man} \quad \text{work} \quad \text{hard} \quad \text{not}
\]
‘That man does not work hard.’

(521) \( IX_i \quad \text{HOMBRE TRABAJAR} \quad \text{NO} \quad \text{DURO} \)
\[
\text{that} \quad \text{man} \quad \text{work} \quad \text{not} \quad \text{hard}
\]
‘That man does not work hard.’
(522) \( ILX_i \) **HOMBRE TRABAJAR** RÁPIDAMENTE NO
that man work at.a.fast.pace not

‘That man does not work at a fast pace.’

(523) \( ILX_i \) **HOMBRE TRABAJAR** NO RÁPIDAMENTE
that man work not at.a.fast.pace

‘That man does not work at a fast pace.’

The sign *NO* ‘not’ cannot co-occur with certain verbs, as shown in (524).

(524) \( *IX_i \) **PERSONA ADENTRO PAZ HABER NO**
that person inside peace have not

(‘That person does not have peace inside.’)

(524) is ungrammatical, because *NO* ‘not’ cannot co-occur with the verb **HABER** ‘have’.

Instead, an irregular negated form is required, as shown in (525).

(525) \( IX_i \) **PERSONA ADENTRO PAZ HABER-NO**
that person inside peace have not

‘That person does not have peace inside.’

In (525), the irregular form **HABER-NO** ‘have not’ expresses negation.

The sign *NO* ‘not’ co-occurs with the intransitive verb **TRABAJAR** ‘work’ in (517),
the transitive verb **AMAR** ‘love’ in (400), and the ditransitive verb **DAR** ‘give’ in (433).

*NO* ‘not’ is not required or ruled out by any verb sub-category. Even though, verbs
presenting irregular negated forms do not allow *NO* ‘not’ in the clause. This evidence
suggests that *NO* ‘not’ is an adjunct.

The negation *NO* ‘not’ is an adjunct and occurs in different positions except for
inside noun phrases. Considering this evidence, *NO* ‘not’ is categorized as an *adverb*. 
The adverb NO ‘not’ co-occurs with other sub-categories of adverbs, except for adverbs of frequency. It presents the same distribution as other adverbs; however, it cannot be conjoined with them. Considering this evidence, NO ‘not’ is sub-categorized as an adverb of negation.

3.5 Preposition

In LSAo, certain signs establish a relation between nouns, as in (526) and (527).

(526) IX₁ MUJER GUSTAR COMIDA CON SAL
that woman like food with salt

‘That woman likes food with salt.’

(527) IX₁ MUJER GUSTAR COMIDA S-I-N SAL
that woman like food without salt

‘That woman likes food without salt.’

In (526) and (527), the noun phrases COMIDA CON SAL ‘food with salt’ and COMIDA S-I-N SAL ‘food without salt’ are the objects of the verb GUSTAR52 ‘like’.

The signs COMIDA ‘food’, SAL ‘salt’, CON ‘with’, and S-I-N ‘without’ only combine in the sequence shown in (526) and (527). Other combinations result in ungrammatical clauses.

The signs SAL ‘salt’, CON ‘with’, and S-I-N ‘without’ combine to form syntactic units, as shown in (528).

52 Section 3.3 presents syntactic evidence that GUSTAR is a verb.
In (528), the non-manual body shift left (b:shl) extends over the signs CON ‘with’ and SAL ‘salt’. The body shift right (b:shr) extends over the signs S-I-N ‘without’ and SAL ‘salt’. According to the principle #4, this is evidence that CON SAL ‘with salt’ and S-I-N SAL ‘without salt’ are syntactic units.

In (528), the units CON SAL and S-I-N SAL are conjoined. According to the principle #1, this is evidence that they belong to the same syntactic category.

CON SAL and S-I-N SAL can be omitted in (526) and (527), as shown in (529).

(529) $ix \, Mujer \, Gustar \, Comida$

‘That woman likes food.’

However, the omission of Comida results in the incomplete\(^53\) (530) and (531).

(530) $\sim ix \, Mujer \, Gustar \, Con \, Sal$

(‘That woman likes with salt.’)

(531) $\sim ix \, Mujer \, Gustar \, S-I-N \, Sal$

(‘That woman likes without salt.’)

\(^{53}\) These clauses are incomplete; they do not make sense without a context.
The noun COMIDA accomplishes the same syntactic function in (529) as COMIDA
CON SAL in (526) and COMIDA S-I-N SAL in (527). CON SAL and S-I-N SAL cannot
stand alone because the resulting clauses (530) and (531) are incomplete. This evidence
suggests that CON SAL and S-I-N SAL are dependent units of the head noun COMIDA. In
these units, CON and S-I-N precede the noun SAL.

The sign CON precedes noun phrases, as shown in (532).

\[
\text{(532) } \text{IX} \quad \text{GUSTAR} \quad \text{CARNE} \quad \text{CON} \quad \text{MUCHO GRASA}
\]

\[
\quad \text{1SG} \quad \text{like} \quad \text{meat} \quad \text{with} \quad \text{much} \quad \text{fat}
\]

‘I like high-fat meat.’ (Lit. I like meat with much fat)

In (532), CON ‘with’ precedes the noun phrase MUCHO GRASA ‘high-fat’, establishing
a relation with the head noun CARNE ‘meat’. In this relation, it is said that CON governs
the noun phrase MUCHO GRASA ‘a lot of fat’.

CON ‘with’ and S-I-N ‘without’ can be conjoined, as shown in (533).

\[
\text{(533) } \text{IX} \quad \text{MUJER} \quad \text{COMER} \quad \text{¿CÓMO?} \quad \text{CON} \quad \text{O} \quad \text{S-I-N} \quad \text{SAL} \quad \text{¿CÓMO?}
\]

\[
\quad \text{that} \quad \text{woman} \quad \text{eat} \quad \text{how?} \quad \text{with} \quad \text{or} \quad \text{without} \quad \text{salt} \quad \text{how?}
\]

‘Does the woman eat (food) with or without salt?’

In (533), CON ‘with’ and S-I-N ‘without’ are conjoined. In LSAo, CON can be conjoined
with S-I-N ‘without’ or SIN\textsuperscript{54} ‘without’. According to the principle #1, this is evidence
that they belong to the same lexical category.

\[
\text{\textsuperscript{54} The sign SIN ‘without’ and the fingerspelled sign S-I-N ‘without’ are synonyms.}
\]
In LSAo, the signs SIN ‘without’, S-I-N ‘without’, and CON ‘with’ precede the noun phrases they govern. They establish a relation between the governed noun phrase and another noun phrase. Considering this evidence, SIN ‘without’, S-I-N ‘without’, and CON ‘with’ are categorized as *prepositions*. “Adpositions are words that express a relation between the noun phrase they govern and some other element in the clause or sentence. They may come either before, after or even within the noun phrase they govern and typically express temporal, spatial or similar connections. Prepositions precede the noun phrase they govern” (Velupillai 2012:141).

In LSAp, on the other hand, the sign SIN ‘without’ can precede or follow the noun it governs. When following a noun, SIN seems to co-occur with non-manuals expressing negation. Still, it was not possible to categorize SIN using syntactic tests.

### 3.6 Conjunction

In LSAp as well as in LSAo, certain signs conjoin similar syntactic units, expressing a semantic relation between them. The sign Y ‘and’ conjoins nouns, as shown in (534).

\[
\begin{array}{ccc}
\text{b:shl} & \text{b:shr} & \\
(534) & \text{MAMÁ} & Y & \text{PAPÁ} & IX & \text{CHICO} & \text{AMAR} \\
& \text{mom} & \text{and} & \text{dad} & \text{that} & \text{boy} & \text{i-love} \\
\end{array}
\]

‘That boy loves his mom and dad.’

In (534), the sign Y ‘and’ conjoins the nouns MAMÁ ‘mom’ and PAPÁ ‘dad’. The non-manual body shift left (b:shl) extends over MAMÁ, while the non-manual body shift right (b:shr) extends over PAPÁ, distinguishing the two conjuncts.
The sign ‘and’ is hardly ever used in LSAp or LSAo. Instead, elements are conjoined by juxtaposition, as shown in (535) and (536).

\[ b:shr_\]

(535) MAMÁ \textsubscript{j} PAPÁ \textsubscript{j} IX \textsubscript{i} CHICO \textsubscript{j} AMAR \textsubscript{j}

mom dad that boy i-love-j

‘That boy loves his mom and dad.’

\begin{align*}
\text{eg:}i & \quad \text{eg:}i \quad b:shr\quad b:shl \\
(536) & \quad ARAÑA \textsubscript{i} IX \textsubscript{i} PISAR \textsubscript{i} IX \textsubscript{i} NEGRO FEO \\
& \quad \text{spider} \quad \text{1SG} \quad \text{step.on} \quad \text{3SG} \quad \text{black} \quad \text{ugly}
\end{align*}

‘I stepped on a spider; it is a black and ugly (one).’

In (535), the non-manual body shift right (b:shr) extends over the noun PAPÁ ‘dad’ distinguishing it from the other conjunct MAMÁ ‘mom’. In (536), the body shift right (b:shr) extends over the adjective NEGRO, while body shift left (b:shl) extends over the adjective FEO, distinguishing the two conjuncts.

The body shift serves to distinguish conjuncts also in questions, as shown in (537).

\begin{align*}
\text{eg:}i & \quad h:itu\quad b:shr\quad b:shl \\
(537) & \quad ARAÑA \textsubscript{i} IX \textsubscript{i} PISAR \textsubscript{i} ¿CUÁNTO? UNO DOS \\
& \quad \text{spider} \quad \text{1SG} \quad \text{step.on-i} \quad \text{how.many?} \quad \text{one} \quad \text{dos}
\end{align*}

‘How many spiders did I step on, one or two?’

In (537), the non-manual body shift right (b:shr) extends over the numeral UNO ‘one’, while body shift left (b:shl) extends over the numeral DOS ‘two’, distinguishing the two conjuncts and expressing the disjunction ‘one or two’.

The sign O ‘or’ accomplishes the same function in (538) as juxtaposition in (537).
In (538), the sign O ‘or’ conjoins the numerals UNO ‘one’ and DOS ‘two’, expressing the disjunction ‘one or two’. O ‘or’ is commonly used among the Deaf.

In LSA, O ‘or’ conjoins similar syntactic units, as shown in (539) to (545).

(539) RATÓN | PASAR | ¿PERSEGUIR | ¿QUIÉN? | PERRO | O | GATO
mouse | pass | i-chase- | who? | dog | or | cat

‘A mouse passed. Which is chasing it, a dog or a cat?’

(540) ¿QUIÉN? | COMPRAR | AUTO | NUEVO | IX | O | IX_2 | O | UNO MUJER
who? | buy | car | new | 1SG | or | 2SG | or | one | woman

‘Who bought a new car, I, you, or a woman?’

(541) TAZA | IX | IXP | ¿QUIÉN? | IX | IXP_2 | O | P
cup | that | 3SG.POSS | who? | that | 2SG.POSS | or | 1SG.POSS

‘Whose is that cup, yours or mine?’

(542) IX | PERSONA | ¿QUÉ? | CORRER | O | CAMINAR | ¿QUÉ?
that | person | what? | run | or | walk | what?

‘Is that person running or working?’

(543) SÁBADO | IX | HOMBRE | TRABAJAR | A-VECES | NUNCA | O | SIEMPRE
Saturday | that | man | work | sometimes | never | or | always

‘Does the man work sometimes, never, or always on Saturdays?’
(544) $IX_1$ MUJER COMER ¿CÓMO? CON O S-I-N SAL ¿CÓMO?
that woman eat how? with or without salt how?

‘Does the woman eat food with or without salt?’

(545) ¿CUÁL? $IX_2$ GUSTAR COMIDA CON SAL O S-I-N SAL ¿CUÁL?
which? 2SG like food with salt or without salt which?

‘Do you like the food with or without salt?’

The sign O ‘or’ conjoins: (1) The nouns GATO ‘cat’ and PERRO ‘dog’ in (539); (2) the pronouns $IX_1$ ‘1SG’, $IX_2$ ‘2SG’, and the noun phrase UNO MUJER ‘one woman’ in (540); (3) the possessive pronouns $IXP_2$ ‘2SG.POSS’ and $P_1$ ‘1SG.POSS’ in (541); (4) the verbs CORRER ‘run’ and CAMINAR ‘walk’ in (542); (5) the adverbs SIEMPRE ‘always’, NUNCA ‘never’, and A-VECES ‘sometimes’ in (543); (6) the prepositions CON ‘with’ and S-I-N ‘without’ in (544); and (7) the prepositional phrases CON SAL ‘with salt’ and S-I-N SAL ‘without salt’ in (545).

The signs Y ‘and’ and O ‘or’ conjoin similar syntactic units, the former with conjunctive meaning and the latter with disjunctive meaning. Typically, Y ‘and’ and O ‘or’ are omitted; the conjuncts are juxtaposed and the non-manuals body shift right and body shift left$^{55}$ extend over the conjuncts, distinguishing them.

Considering this evidence, Y ‘and’ and O ‘or’ have been categorized as conjunctions.

“A conjunction is a word that syntactically links words or larger constituents, and expresses a semantic relationship between them” (Crystal 1980:80).

$^{55}$ Other non-manuals like body (torso) move down (b:tdm), body shift forward (b:shf), head tilt down (h:tid), or head tilt up (h:tiu) may extend over the conjuncts, instead of body shift right and body shift left.
CHAPTER 4
CONCLUSION

The goal of this research was to identify lexical categories of LSA.

This thesis presents syntactic evidence for eleven lexical categories of LSA: Noun, Adjective, Degree Sign, Cardinal Numeral, Determiner, Personal Pronoun, Possessive Pronoun, Verb, Adverb, Preposition, and Conjunction. They have been established through constituency tests based on the principles described in section 2.3.

During this research, the researcher identified two varieties of LSA. Some signers refer to them as LSA puro ‘pure LSA’ and the other simply as LSA. Signers from the older generation of Deaf use the former, while younger signers who have received an education based on oralism use the latter. They have been labeled LSAp (from ‘pure’) and LSAo (from ‘oralism’) exclusively for the purpose of identification in this thesis. The main difference between them is structural: The basic word order in LSAp is OSV, while in LSAo, it is SVO. This difference has been considered during the syntactic analysis.

This research confirms that Noun and Verb are universal categories to sign languages, presenting evidence for nouns and verbs in LSA (sections 3.1 and 3.3).

Some nouns do not combine with possessive pronouns, while others do not combine with numerals. The reasons for these constraints still have to be established. If they are syntactic, this evidence would suggest that LSA sub-categorizes nouns according to whether they can be possessed or not, and in count and mass nouns.
While there is evidence for fingerspelled nouns (discussed in section 3.1.1), fingerspelled verbs have not been observed in LSA. Following cross-linguistic tendencies, fingerspelled forms do not exist in every lexical category of LSA. There are fingerspelled nouns, adjectives, degree signs, prepositions, and conjunctions; but fingerspelled numerals, determiners, pronouns, adverbs, and verbs have not been observed.

Sign names are nouns in LSAp. In LSAo, on the other hand, sign names do not conjoin with nouns, nor do they combine with possessive pronouns. The reasons for these constraints still have to be established. If they are syntactic, this evidence would suggest that LSAo sub-categorizes sign names as proper nouns (section 3.1.2).

Adjectives precede or follow nouns in LSAp, while they follow nouns in LSAo, forming noun phrases (section 3.2.1). They co-occur in sequence, or they combine as head-dependent elements, forming adjective phrases. Alternatively, they occur as complements in non-active clauses. There are fingerspelled adjectives in both varieties of LSA (section 3.2.1.1). Size and Shape Specifiers (SASSes) are adjectives expressing the attributes size and shape. SASSes are semantically transparent forms that vary according to the entity they describe (section 3.2.1.2).

In LSAp as well as LSAo, degree signs precede adjectives, forming adjective phrases (section 3.2.1.3).

Cardinal Numerals precede or follow nouns in LSAp, while they precede nouns in LSAo, forming noun phrases (section 3.2.2). Alternatively, they occur as complements in non-active clauses.
Determiners precede or follow nouns in both varieties of LSA, forming noun phrases. They can co-occur in sequence. They do not co-occur with numerals; rather, they express number morphologically (section 3.2.3).

Personal Pronouns are pointing signs with referential function. They are mutually substitutable with noun phrases. They present singular, dual (inclusive and exclusive), trial, quadral, pental, and plural forms (section 3.2.4).

Possessive pronouns are pointing signs that precede or follow nouns, forming noun phrases. In these phrases, the head noun is the possessed entity. Alternatively, they occur as complements in non-active clauses. In both cases, they refer to the possessor indicating person and number. There are three types: P, IXP, and IX (section 3.2.5).

Verbs can be intransitive, transitive, or ditransitive. There are verbs presenting multiple transitivity values. LSA allows pro-drop subjects and objects. Given a context, verbs can constitute minimal clauses (section 3.3).

Certain morphologically complex forms, typically known as classifier constructions, are analyzed as verbs incorporating agreement affixes representing entity classes (section 3.3.1).

Some verbs incorporate spatial morphemes marking agreement with subjects and objects in person and number. Certain morphologically complex verbs include agreement affixes representing entity classes. The way in which these morphemes mark agreement with subjects and objects still has to be established (section 3.3.2).

In LSA, copulas are silent (section 3.3.3).

Certain verb-noun pair of signs share identical forms. They are hardly distinguishable in isolation; however, they can be distinguished in negative clauses (section 3.3.5).
In LSA as well in LSAo, there are at least four sub-categories of adverbs: frequency, manner, degree, and negation (sections 3.4.1 to 3.4.4).

There are prepositions in LSAo. However, syntactic analysis did not provide consistent evidence to establish if prepositions exist or not in LSAp; specifically, when testing the sign SIN ‘without’ (section 3.5).

In LSAp as well in LSAo, there are conjunctions with conjunctive meaning (Y56 ‘and’) and disjunctive meaning (O57 ‘or’). Tipically, Y and O are omitted; the conjuncts are juxtaposed and the non-manuals body shift left and body shift right extend over them, distinguish them (section 3.6).

While this research provides valuable information for the field of sign language linguistics, additional research is still needed to identify all lexical categories in LSA.

The hope is that this research will benefit the Deaf community in Argentina to validate Lengua de Señas Argentina as a natural language and to increase awareness in the hearing community.

56 From the Spanish conjunction y ‘and’.
57 From the Spanish conjunction o ‘or’.
APPENDICES
APPENDIX A

GLOSSING CONVENTIONS

A.1 Sign Language Linguistic Examples

Examples in sign language linguistics include several levels of glosses. The examples presented in this research may include up to seven lines of non-manuals (eye gaze, eyes, eyebrows, mouth, head tilt, head turn, and body). Also, they include one line for SIGN glosses (in capital letters), one line for English grammatical glosses (following the Leipzig rules), one line for mouthing, one line for non-dominant hand form, and one for a free translation in English. Example (546) includes eight lines.

\[
\begin{align*}
\text{eg:i} & \\
\text{eb:r} & \\
\text{h:ti} & \quad \text{h:tiu_d}_\
\text{h:tut} & \quad \text{h:tu} \text{u}_l\
\text{b:si} & \quad \text{b:shi}_\
\text{h:tu} & \quad \text{h:tu}l
\end{align*}
\]

(546) $PERSONA_{i} \rightarrow _{IX_{i}} \rightarrow _{COMPRAR_{j}} \rightarrow _{SOLO} \rightarrow _{CARNE_{j}}$

‘That person buys only meat.’

In (546), the non-manual eye gaze toward “i” (eg:i) is located in the first line; it co-occurs with part of the sign $PERSONA_{i}$. On the other hand, the non-manual eyebrows raised (eb:r) extends over the signs $PERSONA_{i}, IX_{i}, COMPRAR_{j}$, shown with a lower line “_”.

Appendix A.3 presents a list of non-manual abbreviations.

A.2 Notation Conventions

The following notation conventions are mostly taken from the Berkeley Transcription System (Slobin & Hoiting 2001).
### Notation

<table>
<thead>
<tr>
<th>Notation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>[*]SIGN</td>
<td>Signer error</td>
</tr>
<tr>
<td>*SIGN</td>
<td>ungrammatical</td>
</tr>
<tr>
<td>~SIGN</td>
<td>unnatural, unacceptable, or incomplete</td>
</tr>
<tr>
<td>GEST:</td>
<td>gesture</td>
</tr>
<tr>
<td>MORPH(dh)</td>
<td>dominant-handed morpheme</td>
</tr>
<tr>
<td>MORPH(nh)</td>
<td>non-dominant-handed morpheme</td>
</tr>
<tr>
<td>MORPH1#MORPH2</td>
<td>simultaneous morphemes</td>
</tr>
<tr>
<td>MORPH1+MORPH2</td>
<td>sequential morphemes</td>
</tr>
<tr>
<td>PL_H</td>
<td>horizontal plane</td>
</tr>
<tr>
<td>PL_VH</td>
<td>plane showing vertical height (fingertips up)</td>
</tr>
<tr>
<td>PL_VL</td>
<td>plane showing vertical length (fingertips forward)</td>
</tr>
<tr>
<td>SIGN</td>
<td>lexical sign</td>
</tr>
<tr>
<td>SIGN, SIGN</td>
<td>pause between signs</td>
</tr>
<tr>
<td>SIGN1 SIGN2 .</td>
<td>end of utterance</td>
</tr>
<tr>
<td>SIGN1^SIGN2</td>
<td>compound sign</td>
</tr>
</tbody>
</table>

### A.3 Non-manual Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Non-manual</th>
</tr>
</thead>
<tbody>
<tr>
<td>b:shb</td>
<td>body shift back</td>
</tr>
<tr>
<td>b:shf</td>
<td>body shift forward</td>
</tr>
<tr>
<td>b:shl</td>
<td>body shift left</td>
</tr>
<tr>
<td>b:shr</td>
<td>body shift right</td>
</tr>
<tr>
<td>b:shti</td>
<td>body shift toward “i”</td>
</tr>
<tr>
<td>b:shtj</td>
<td>body shift toward “j”</td>
</tr>
<tr>
<td>b:tmn</td>
<td>body (torso) move down</td>
</tr>
<tr>
<td>b:tmu</td>
<td>body (torso) move up</td>
</tr>
<tr>
<td>b:tti</td>
<td>body turn toward “i”</td>
</tr>
<tr>
<td>b:ttj</td>
<td>body turn toward “j”</td>
</tr>
<tr>
<td>e:c</td>
<td>eye closed</td>
</tr>
<tr>
<td>e:o</td>
<td>eye opened</td>
</tr>
<tr>
<td>e:s</td>
<td>eye squinted</td>
</tr>
<tr>
<td>eb:f</td>
<td>eyebrows frown</td>
</tr>
<tr>
<td>eb:l</td>
<td>eyebrows lowered</td>
</tr>
<tr>
<td>eb:r</td>
<td>eyebrows raised</td>
</tr>
<tr>
<td>eg:br</td>
<td>eye gaze toward the bare right</td>
</tr>
<tr>
<td>eg:f</td>
<td>eye gaze toward the front</td>
</tr>
<tr>
<td>eg:i</td>
<td>eye gaze toward “i”</td>
</tr>
<tr>
<td>eg:i2j</td>
<td>eye gaze change from “i” to “j”</td>
</tr>
<tr>
<td>h:n</td>
<td>head nod</td>
</tr>
<tr>
<td>h:tid</td>
<td>head tilt down</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Non-manual</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>h:tidu</td>
<td>head tilt down and up</td>
</tr>
<tr>
<td>h:til</td>
<td>head tilt left</td>
</tr>
<tr>
<td>h:tir</td>
<td>head tilt right</td>
</tr>
<tr>
<td>h:tiu</td>
<td>head tilt up</td>
</tr>
<tr>
<td>h:tiud</td>
<td>head tilt up and down</td>
</tr>
<tr>
<td>h:tul</td>
<td>head turn left</td>
</tr>
<tr>
<td>h:tulr</td>
<td>head turn left and right</td>
</tr>
<tr>
<td>h:tur</td>
<td>head turn right</td>
</tr>
<tr>
<td>h:tuti</td>
<td>head turn toward “i”</td>
</tr>
<tr>
<td>h:tutj</td>
<td>head turn toward “j”</td>
</tr>
<tr>
<td>m:f</td>
<td>mouth frown</td>
</tr>
<tr>
<td>m:fo</td>
<td>mouth frown and opened</td>
</tr>
<tr>
<td>m:k</td>
<td>mouth kiss</td>
</tr>
<tr>
<td>m:lc</td>
<td>lips closed</td>
</tr>
<tr>
<td>sh:u</td>
<td>shoulders up</td>
</tr>
</tbody>
</table>
## APPENDIX B

### VERBAL AFFIXES FOR MARKING AGREEMENT

<table>
<thead>
<tr>
<th>Name</th>
<th>Details</th>
<th>Entities</th>
<th>Verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>From the letter “A”. The form is thumb extended pointing up. Like the fingerspelled sign for the letter “A” except for the orientation, which is fixed for the letter “A” and free for the morpheme A. It represents the entity class A.</td>
<td>animate</td>
<td>VENIR, IR, PARARSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mate</td>
<td>DAR, CEBAR</td>
</tr>
<tr>
<td>CV</td>
<td>From the letter “C” and Vertical. The form is index and thumb flexed (“C” handshape). It represents the entity class container 5 cm tall.</td>
<td>cup</td>
<td>DAR, REGALAR</td>
</tr>
<tr>
<td>CPO</td>
<td>From CuerPO ‘body’. The form is the signer body. It represents the entity class animate.</td>
<td>animate</td>
<td>MANEJAR</td>
</tr>
<tr>
<td>INV</td>
<td>From Índice Vertical ‘vertical index’. The form is index and middle finger extended. It represents the entity class biped.</td>
<td>biped</td>
<td>PARARSE, CAMINAR</td>
</tr>
<tr>
<td>INVF</td>
<td>From Índice Vertical Flexionado ‘flexed vertical index’. The form is index and middle finger curved. It represents the class biped.</td>
<td>biped</td>
<td>SENTAR-EN</td>
</tr>
<tr>
<td>G</td>
<td>From Grupo ‘group’. The form is two hands; palms facing contra; fingers and thumb curve; fingertips touching. It represents the class group.</td>
<td>group</td>
<td>CAMINAR</td>
</tr>
<tr>
<td>MANIJA-OBJETO</td>
<td>The form is fist; palm facing the signer. It represents the entity class handled object.</td>
<td>handled object</td>
<td>DAR</td>
</tr>
<tr>
<td>PH</td>
<td>From Palma Horizontal ‘horizontal palm’. The first form is palm facing down; fingers pointing forward. It represents the entity class vehicle.</td>
<td>car, boat</td>
<td>MOVER, ESTACIONAR</td>
</tr>
<tr>
<td></td>
<td>The second form is palm facing down, wrist bends toward and away from the palm. It represents the entity class bird.</td>
<td>bird</td>
<td>VOLAR</td>
</tr>
<tr>
<td>PV</td>
<td>From Palma Vertical ‘vertical palm’. The form is Palm facing contra. It represents the entity class PV.</td>
<td>vehicle</td>
<td>MOVER, ESTACIONAR</td>
</tr>
<tr>
<td>PVF</td>
<td>From Palma Vertical Flexionada ‘flexed vertical palm’. The form is palm facing contra; pointing forward. It represents the class seat.</td>
<td>person</td>
<td>MOVER</td>
</tr>
<tr>
<td></td>
<td></td>
<td>seat</td>
<td>SENTARSE</td>
</tr>
<tr>
<td>VTE</td>
<td>From Volante ‘steering wheel’. The form is two fists; palm facing the signer; arms placed as holding a steer-wheel. It represents the entity class steer-wheel.</td>
<td>steer wheel</td>
<td>MANEJAR</td>
</tr>
</tbody>
</table>
APPENDIX C
ANNOTATION

The researcher recorded the videos in UHD (4K) resolution. Then, he produced two views for each video file, one view of the signer’s body and other of the signer's face.

Then, the researcher used ELAN for annotations.

ELAN data files include the following tiers and controlled vocabulary.

1. Non-manuals
   1. Eye gaze
      1. Eye gaze toward the bare right (eg:br) indicating the position of the researcher
      2. Eye gaze toward the front (eg:f) indicating the position of the video camera
      3. Eye gaze toward the location ‘1, 2, i, j, k, l’ (eg:i, etc.)
      4. Eye gaze change from “i” to “j” (e:i2j)
   2. Eyes
      1. Eye closed (e:c)
      2. Eye opened (e:o)
      3. Eye squinted (e:s)
   3. Eyebrows
      1. Eyebrows frown (eb:f)
      2. Eyebrows lowered (eb:l)
      3. Eyebrows raised (eb:r)
   4. Mouth
      1. Mouth frown (m:f)
      2. Mouth frown and opened (m:fo)
      3. Mouth kiss (m:k)
      4. Lips closed (m:lc)
   5. Head V (Vertical axis)
      1. Head nod (h:n)
      2. Head tilt down (h:tid)
      3. Head tilt down and up (h:tidu)
      4. Head tilt left (h:til)
      5. Head tilt right (h:tir)
      6. Head tilt up (h:tiu)
      7. Head tilt up and down (h:tiud)
   6. Head H (Horizontal axis)
      1. Head turn left (h:tel)
      2. Head turn left and right (h:telr)
      3. Head turn right (h:tur)
      4. Head turn toward “i” (h:tutj)
      5. Head turn toward “j” (h:tutj)
7. Body
   1. Body shift back (b:shb)
   2. Body shift forward (b:shf)
   3. Body shift left (b:shl)
   4. Body shift right (b:shr)
   5. Body shift toward “i” (b:shti)
   6. Body shift toward “j” (b:shtj)
   7. Body (torso) move down (b:tdm)
   8. Body (torso) move up (b:tmu)
   9. Body turn toward “i” (b:tti)
  10. Body turn toward “j” (b:ttj)

2. Sign (Word)
   1. Transcription. Transcription in capital letters is the standard practice in sign language linguistics. The transcription language is Spanish.
   2. Glossing. Examples include English glosses, following the Leipzig Rules (Comrie, Haspelmath & Bickel 2015).
   3. Sign (word) lexical category
   3. Mouthing. Mouthing is transcribed only when relevant to the analysis.
   4. Non-dominant hand. Non-dominant hand is transcribed only when pertinent to the analysis.
   5. Free translation. Transcriptions in ELAN include free translations in Spanish. Examples in the text of this thesis include free translations in English.
REFERENCES


