

**LETTERPRESS PRINTING, A TANGIBLE SOURCE OF ICONIC VOCABULARY
THAT INFLUENCED IN THE SIGNS LANGUAGES.**

(Its relationship and contribution to LSF, ASL and LSCh.).



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Santiago, Chile.

LETTERPRESS PRINTING AND SIGN LANGUAGE.

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“Letterpress printing, a tangible source of iconic vocabulary that influenced in the signs languages”. (English version).

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LETTERPRESS PRINTING AND SIGN LANGUAGE.

How did the Letterpress Printing influence the Sign Languages?

The Johannes Gutenberg's press was one of the most revolutionary inventions in the human history around the year 1440. The Bible of Gutenberg was his most famous contribution to the world and it was a crucial factor in The Protestant Reform in Europe in XVI century (Noro, n/d). The printing press contributed to science, it made possible all kind of printed book. Even more, the typographic culture not only changed society and its paradigm, but also influenced oral and sign languages, by adding new words to their vocabularies. This allowed enriching their language, idiosyncrasy and identity, which are characteristic of a community, leaving a legacy that persists in time (Molina, Lagos, & Lagos, Diccionario de la Lengua de Señas Chilena, 2011). All this is due to the existence of a deaf community that worked with the letters of the alphabet and transmitted their knowledge to different countries in Europe as well as America.

The spoken languages are based on sounds produced by the mouth and the vocal cords. At the same time, people who are deaf (particularly, those who are profoundly deaf) do not listen to it, and these sounds would only be perceived visually by the movement of the lips, jaw and tongue (NIH, 2017). On the other hand, in order to see the words, they have another means at their disposal, in this case the written or printed words. Typography changes the language into something visible and tangible; in fact, it is a mechanical representation of the language. For this, it is necessary to review its history, the printing process and how this could explain possible etymologies or provide a tangible memory aid for each entry; these include LSF, ASL and LSCh.

Both American Sign Language (ASL) and Chilean Sign Language (LSCh) are based in the Old French Sign Language. This Sign Language was used by the deaf community of Paris, during the 18th century, by 200 deaf Parisians. The Abbé Charles-Michel de L'Épée who came to be known as "The Father of the Deaf" founded the Institute for Deaf Children on Saint-Jacques Street in Paris, renamed as National Institute of Young Deaf People in Paris (Institut National de Jeunes Sourds de Paris) in 1760. It also is known as Saint-Jacques Institute by the name of the street where it is located.

From the Saint-Jacques Institute, many deaf teachers traveled to different cities in America carrying signs, for example: Hartford, Mexico City, Montreal, Rio de Janeiro and Santiago. It can be mentioned Laurent Clerc (1785 - 1869) who with Thomas Hopkins Gallaudet (1787 – 1851) went to Hartford, Connecticut to found a school for deaf people in 1817 and François Delfariel (1845 - ?) who traveled to Santiago, Chile (Delaporte, 2005). In its beginning, the deaf children of these cities shared the same Parisian signs, but over time, they mixed the signs with native elements that were modified or evolved for two centuries, in isolation from one another. It should be noted that at least 40% of the American Sign Language comes from the French Sign Language (Delaporte, 2005).

While in Europe, the Abbot of L'Épée created a school for "deaf and dumb" people in 1770 and Samuel Hainecke invented the lips reading technique in 1784; in Chile, the "Escuela de Niños Sordos Anne Sullivan" (currently "Escuela Diferencial para Niños Sordos", RBD 9728, (Ministerio de Educación, 2017)) was founded on October 27, 1852 (Lissi, Svartholm, & González, 2012). This was the first school for deaf boys in South America (Caiceo Escudero,

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2010); reading, writing, Spanish grammar, arithmetic, religion and binding were taught (Herrera Fernández, 2010). Two years later, the first school for deaf girls was founded in 1854, also in Santiago (Caiceo Escudero, 2010). It is necessary to mention that both the teachers of these two educational establishments, as well as, the teachers of the American countries came from France, Italy and Spain in those years.

The “Instituto de Sordo-Mudos” founded in 1889, provided free instruction for all male children, who wished to be admitted as long as they had the required conditions. In this boarding school, they not only learned to read, write and count, but also all the students had to attend one of the workshops of typography, carpentry, shoe-making or basketry every day in the afternoon (Muñoz Sierpe, 1909). This gave way to the “Taller Tipográfico del Instituto de Sordo-Mudos” located in Argomedo Street 412 (Lira Smith, 1905) and the “Imprenta del Instituto de Sordo-Mudos” in Santa Victoria Street 380 (Montt H, 1917), both in Santiago, Chile.

The first printing press came to Valparaíso from New York on November 21st, 1811 and three American typographers Samuel B. Johnston, William Burbidge and Simon Garrison, from Boston, were in charge of the assembly and making it work, while José Miguel Carrera presided over the Government Board of that time (Biblioteca Nacional de Chile, n/d). This allowed the proliferation of pamphlets, proclamations and newspapers. The following year, the first newspaper in the country “Aurora de Chile” was printed on February 13th, 1812 (Biblioteca Nacional de Chile, n/d). After that, other presses (typography, linotype and offset machines among others) allowed both information available to people and the labor insertion of deaf people. This blue collar job was considered a traditional occupation in many countries (Shaw & Delaporte, 2015).

Some important events related to printing, after typography were: In the United States, Ottmar Mergenthaler invented the linotype in 1876 and the first machine arrived in Chile in 1901 to Valparaíso by the firm Guillartte (Empresa Periodística El Norte S.A, 2008). In 1903, Ira Washington Rubel invented the offset machine to print on paper, but it was not until 1962 that the workshop Litografía Marinetti brought the first machine to Chile (Biblioteca Nacional de Chile, n/d). These presses were used mainly in large printing presses, meanwhile most of the small printing houses worked with typography or serigraphy for smaller print jobs.

There are some features in the printing that need to be considered. For example, most apprentices or workers started at an early age, perhaps at 10 (Kovarik, Revolutions in Communication: Media History from Gutenberg to the Digital Age, 2015) or later at 18 years old (Kovarik, The printing revolution: from 1455 to 1814, 2015). In fact, some of them learned it in schools and others only in small printing houses. The work day often lasted from twelve to fourteen hours a day. The apprentices were assigned different tasks such as greasing the presses, preparing the ink for printing and ordering the mobile types in their respective boxes. On the other hand, something that draw the attention is how experienced pressmen or typographers could put about 1,500 letters (mobile types) per hour or from 20 (Kovarik, Revolutions in Communication: Media History from Gutenberg to the Digital Age, 2015) to 50 words per minute depending on the typographer's skill (Craig & Korol Scala, 2012).

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Unfortunately, there are very few available images to analyze the Old French Sign Language so the analysis was a triangulation of data among the definitions of words, the sign languages (LSF, ASL and LSCh.) and printing press. The definitions allow keeping in mind their meaning when comparing the signs with what is described in the book “Typesetting” (Stewart, 1919) and also with other available web pages related to the topic. Other sources of important information were the videos that explain step by step the process of the old printing press, where it is possible to understand and compare the typography with the sign and its evolution over time, along with other variables to be considered. The videos used in this study are:

- “Letterpress printing at the Museum Plantin-Moretus” (Quitney, 2012).
- “Video of printing in action” (Moss, n/d).
- “Learning to Set Type 1959 Whitten-Appleton 11 min” (4 videos) (Musea Stad Antwerpen, 2010).
 1. A typographer composing a text.
 2. A composed page being tied with a string.
 3. A composed text carried to the press.
 4. Pages printed on mechanical presses.

Today, there is a certain fact to be considered, through all this writing and it is "its evolution" after the arrival of the Old French Sign Language. Some sources that deal with this issue mention the following:

“This is due to the fact that the daily use of the language has led to progressive modifications of form and meaning, so that the relation between the original sign and the represented thing has gradually become distorted.” (Barrère, 2012).

“Some signs seem to be arbitrary when you first see them. When you look at the root, though, some signs become more iconic” (Start ASL, n/d).

“The signs have changed in ways that have made them more conventional in form and thus more arbitrary in meaning. (...) In general, when signs change, they tend strongly to change away from their imitative origins as pantomimic or iconic gestures toward more arbitrary and conventional forms.” (Klima & Bellugi, 1979).

There is an analogy that could explain how the disuse of something over time moves away and obscures the origin of a word, like the verb to dial. Currently, a child would not know how to dial an old phone by turning a disk or a dial with numbered holes. Currently, this telephone device has been replaced by cell phones that use a different system either by pressing buttons or just touching the screen to dial the desired number. In the same way, the typographic composition is unknown by most people due to the use of computer technology and modern printing methods.

For example, in 1620, Juan Pablo Bonet in his book “Reducción de las letras y arte para enseñar a hablar a los mudos” (Reduction of letters and art for teaching mute people to speak) showed the manual alphabet using only one hand that is of Spanish origin which moved to

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France, Italy and to the countries of America adapting some variations. This alphabet was created by Fray Pedro Ponce de León (hearing) around the year 1580. But it was not until 1760 that it became relevant with the first free public school for deaf children in Paris. Something that stands out in his drawings is how the configuration of the hand of each letter tries to imitate the graphic form of most of the letters of the mobile types and not of the handwritten one. However, after five centuries of the creation of this manual alphabet, some signs have been modified from the concrete form of the letters or in the plane of spatial execution. This is due to its continuous use and to the passage of time (Gascón Ricao & Storch de Gracia y Asensio, 2003).

A case to consider could be the letter “A” in LSF, ASL and LSCh. In different sign language dictionaries, it has the same manual configuration and position, but at first glance, it seems that there was no relationship between the form and its meaning. This sign is commonly shown as a raised fist without a clear relationship between the manual configuration and the printed letter. However, the “Abecedario Demostrativo” (Bonet Barletserbant, 1620) shows that initially the orientation of the fist was horizontal and not vertical, which allows to understand the iconic configuration of the lowercase letter “a”. However, the “Demonstrative alphabet” (Bonet Barletserbant, 1620) shows that initially the orientation of the fist was horizontal and not vertical, which allows us to understand the iconic configuration of the lowercase letter “a” (Wikipedia La enciclopedia libre, n/d).

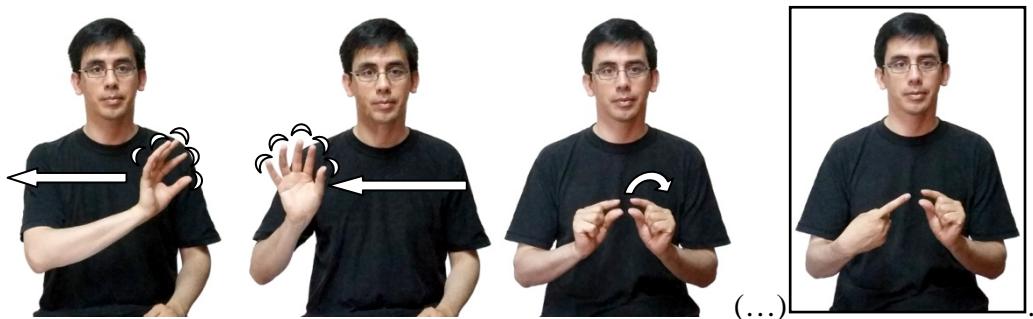
Table 1.
The Letter A in LSF, ASL and LSCh.

Current Sign in LSF, ASL and LSCh.	Demonstrative alphabet.	Alphabetical letter or mobile.	Iconic sign of the lowercase letter.

The structure of each entry begins with the definitions taken from different dictionaries and in some cases, there is an extract of the definition in signs where the sign that is related to the entry analyzed is highlighted. Then, a possible etymology or memory aid is shown that has a relationship both with the already mentioned definitions and with the printing press, explained in a simple way. In order not to confuse the signs, these are written in capital letters and respecting their equivalent in the oral language: LSF in French, ASL in English, LSCh in Spanish and Spanish Sign Language in Spanish along with the letters LSE. Finally, there is a table with images together with a description or a summary of each sign language that facilitates their understanding and allows them to be compared. Finally, there is a table with images together with a description or a summary of each sign language that facilitates their understanding and allows them to be compared.

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Sign: LETTRE, LETTER (alphabet) and LETRA.



Definition: letter.

- A symbol usually written or printed representing a speech sound and constituting a unit of alphabet. (Merriam-Webster, n/d).
- A single piece of type. (Merriam-Webster, n/d).
- Graphic sign of an alphabet, in the form of a typographical character. (Elix, n/d).
- Piece of flat and rectangular metal, with a graphic sign in relief to stamp it or print it (Larousse Gran Diccionario, n/d).
- Each of the graphics that make up the alphabet of a language (Real Academia Española, n/d).
- Type (Piece of the printing press and the typewriter) (Real Academia Española, n/d).

The letters of the alphabet are not only written units represented with a grapheme, but they are also represented with typographic characters that, at the same time, are the basis of three different sign languages: LSF, ASL and LSCh. In other words, a single piece of “mobile type” allows to understand not only these signs but also all the words that are analyzed in this writing. For example, the concept of unit (the mobile type) and a very useful tool called “composing stick” (angled metal bar with a stop where the types are placed) are parts of the sign.

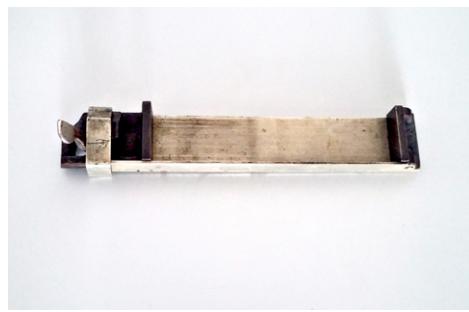


Figure 2: The composing stick.

In LSF and ASL, these signs are commonly confused with a stamp being stuck on an envelope. This is because the words “letter” (alphabet) and “letter” (envelope) in English and “letter” (alphabet) and “letter” (envelope) in French are written in the same way. However, there are several characteristics that allow the understanding of the sign from its root, in mobile types.

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The thumb of the hand represents a single piece of type in this sign. This is because it comes from the number UN (one) from LSF (Shaw & Delaporte, 2015). There are many examples of signs that express it as a single thing, person or unit, not only in LSF but also in other sign languages. In LSCh, there is the same handshape of the fist with an extended thumb representing the number UN (one), for example: ACEITE (oil), ACOMPAÑAR (accompany), AYER (yesterday), CERCA (near), COMPETENCIA (competition), MAÑANA (TOMORROW), MÁS (SUPERIOR in ASL), MEJOR (better), TODOS (everybody), TODOS-LOS-DÍAS (everyday).

Another characteristic of these signs is how the left thumb or index finger is pressed by the right thumb. The graphic characters are located by hand, one by one to form a word. In some cases, in LSF there is a previous sign that shows the measurement of the letter only with the thumb and the index holding a mobile type in the air.

Table 2.

Number 1 represents a unit of the alphabet.

Number UN (one) in LSF.	Mobile type.	Holding a mobile type.
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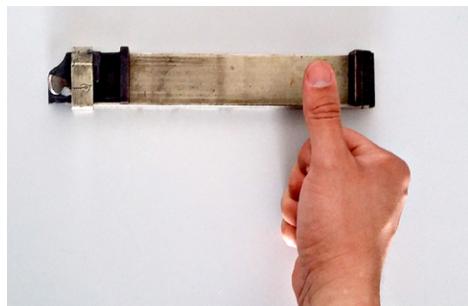


Figure 3: The thumb finger represents a letter, a unit or a type.

At the same time, the signs UPPERCASE and LOWERCASE support the previous idea. It is due to the same movement and handshape of the sign LETTER and the relation with the type case where all the typographical characters have their own location. This is divided into two parts, the uppercase letters on the top and the lowercase ones on the bottom of the type case. In addition to this, the right hand shows the size of the letter on the left index finger, that is, it shows the width that a mobile type uses on the index finger of the left hand.

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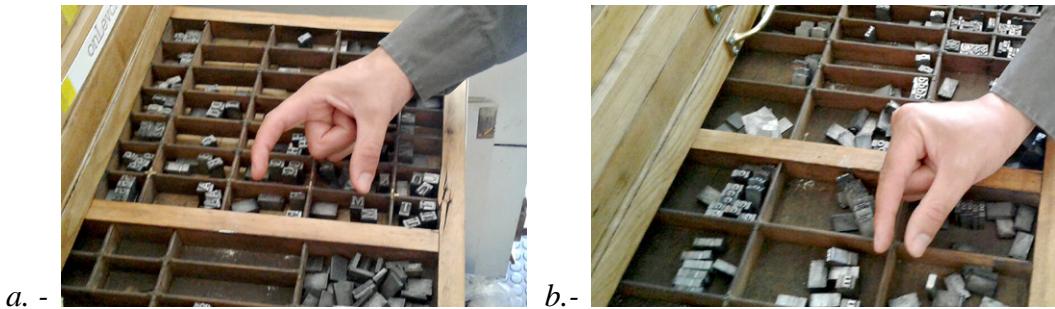


Figure 4: The uppercase and lowercase letters.



Figure 5: Chibaletes (furniture).

The index or the thumb of the left hand represents a composing stick of the typographer. This is an indispensable tool in typography that is held with the left hand. As mentioned earlier, the types are pressed on the left index or thumb finger to form a word or a sentence. The same happens in the sign LETRA where a composing stick or line is the basis of types A, B and C. However, the sign LETRA can be used as DELETREAR (SPELLING) with the letters A, B and C or it could also be with the hand up by moving the fingers (Molina, Lagos, & Lagos, Diccionario de la Lengua de Señas Chilena, 2011).

Each of these characteristics makes an important contribution to our understanding of how the structural parts of the sign show the inferred meaning. Therefore, it is easier to understand it together with its variants in different sign languages. Taking into account the work of a typographer and the signs, it is evident that a single piece of mobile type is the first step that is taken to understand all the signs related to the language.

- LETTER: The word letter is represented by tapping the thumb of the L handshape (Michigan State University Communication Technology Laboratory, n/d).

- SPELLING: The fingers wiggle to indicate their movement during finger spelling (Michigan State University Communication Technology Laboratory, n/d).

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[Analysis of the signs LETTRE, LETTER and LETRA.](#)

Table 3.

The sign LETTER in LSF, ASL and LSCh.

LSF LETTRE	<p>1.</p>  <p>The extended thumb is a unit and the number UN in the LSF. A graphic character or mobile type is shown as the smallest unit and then pressed with the thumb in the composing stick. It is similar to the verb TO PRESS on the palm (Michigan State University Communication Technology Laboratory, n/d).</p>
ASL LETTER	<p>2.</p>  <p>The size of the letter or mobile type is shown.</p>

ASL LETTER	<p>1.</p>  <p>The same French sign LETTRE using thumbs.</p>
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2.



The sign LETTER is signed by pressing the thumb on the index finger of the left hand as if it were a composing stick. There is another sign which is a mixture of two different signs:

- LETTER (lick the stamp) “wet the palm end of thumb on tongue and then throw it against the open left hand as if sticking on the stamp” (Long, LETTER, 1918)
- LETTER (the mobile type).

**ASL
LETTER**



LETTER

3.



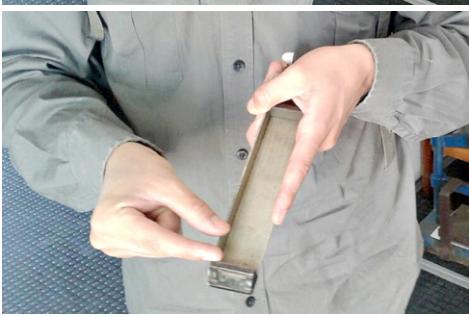
UPPERCASE LETTER



LOWERCASE LETTER

The signs UPPERCASE LETTER, LOWERCASE LETTER and LETTER share the same sign and movement of pressing a mobile type in a

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ASL LETTER	<p>composing stick. Then, the font size is shown after the sign. The index or thumb of the left hand varies according to the signer.</p> <p>UPPERCASE LETTER</p>  <p>LOWERCASE LETTER</p> 
4.-	 <p>The word letter is represented by tapping the thumb of the L handshape (Michigan State University Communication Technology Laboratory, n/d). Probably, some might think that this is an initialized sign (which begins with the first letter of the word) but it attracts a lot of attention because it is similar to the Chilean sign IMPRIMIR (to print) in which a printers exerting pressure on the index finger.</p>  <p>IMPRIMIR</p>

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ASL LETTER	5.-  <p>The concept of alphabetical letter is spelled with the first three letters of the alphabet: A, B and C.</p>
-----------------------	--

LSCh LETRA	1.  <p>The concept of alphabetical letter is spelled with the first three letters of the alphabet: A, B and C.</p> <p>2.</p>  <p>2.1. 2.2.</p> <p>The movement of the fingers of the hand represents a spelling in the air (2.1) or on the index finger (2.2), which could represent the composing stick or a line. Similar to SPELLING.</p>
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<p>LSCh LETRA</p>	<p>3.</p>  <p>The signs MAYÚSCULA (uppercase) and MINÚSCULA (lowercase) show the size of the mobile type or letter without the index finger of the left hand.</p>
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Sign: MOT, WORD and PALABRA.

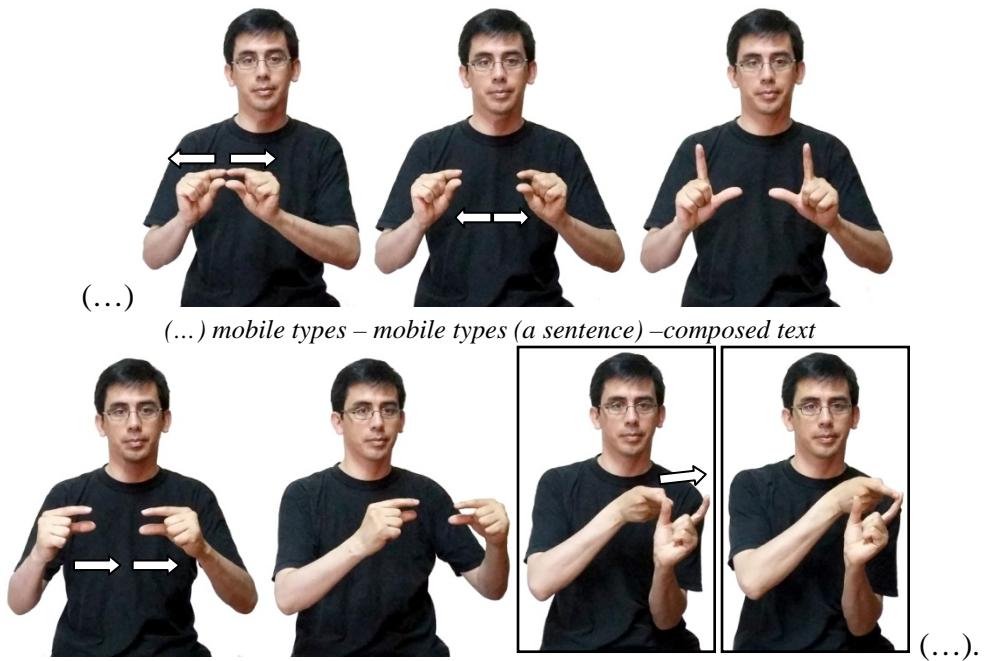


Figure 6: Abstract of the definition in signs of MOT (Elix, n/d).

Definition: word.

- A written or printed character or combination of characters representing a spoken word (Merriam-Webster, n/d).
- A single group of letters that are used together with a particular meaning (Longman, n/d).
- Graphic representation of these sounds (Larousse Gran Diccionario, n/d).

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- According to traditional linguistics, a linguistic unit composed of a series of sounds (and their corresponding graphic representation) provided with meaning and grammatical category, which expresses an idea (Larousse Gran Diccionario, n/d).
- Linguistic unit generally endowed with meaning, which is separated from others by means of potential pauses in pronunciation and whites in writing (Real Academia Española, n/d).
- Graphic representation of the spoken word (Real Academia Española, n/d).

A principle well known by a typographer is that his main working material is the language and his real tools are the alphabet and the words. This is because they are essential to produce a sentence or a text. In the sign languages, there are only two signs related to this term, although one is more related to the typographic concept than the other. After analyzing several signs and after finding points in common among them, it is inferred that both signs are an iconic representation of the length of a word (Shaw & Delaporte, 2015). However, the orientation of the hands obscures its possible root.

This sign shows a group of letters held in the air in LSF and LSCh. Obviously, these are letters that are together to form a word; or in the printing press, these are mobile types side by side. It is necessary to consider that the length of the word varies; in this case, the hand holds an average word. In LSF, there is a sign with the same characteristic, a thin mobile type is held in the sign LETTRE before the typographer puts it in the composing stick.

Table 4.

The sign MOT-PALABRA and a composed line.

Sign MOT- PALABRA.	Group of mobile types held with fingers.
	

The second sign is a word measured by a composing stick. This is an indispensable tool for every typographer. This is used to assemble the metal pieces side by side to form a word, a sentence or a text. For this, the typographer puts the required measure in the composing stick for the desired length. In fact, it has an adjustment mechanism to measure the word or lines. To manipulate it, it is necessary to hold the lever of the composing stick with the left hand and lift the types from the type case with the right hand to put them in the line. Finally, the thumb of the left hand secures the type on the left of the compositor and holds it in place (Stewart, 1919).

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Table 5.

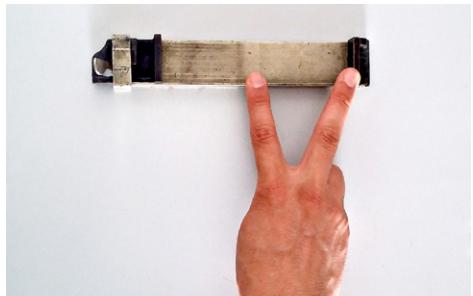
The sign WORD-PALABRA and the composing stick.

Sign WORD- PALABRA.	The word is measured in a composing stick.
	

As mentioned above, the composing stick is represented by the index finger of the left hand as a support of the sign because it helps to measure the word placed on it. In addition, this handshape is also found in other signs, such as LETTER, UPPERCASE LETTER, LOWERCASE LETTER and IMPRIMIR (to print). There is also another sign that shares the same origin; this is the sign VOCABULARY with the letter V in the right hand against the index finger on the left. In fact, the left index finger represents the position of a composing stick even more accurate than the sign WORD. Therefore, the index and middle fingers show the length of a single word composed of mobile types using the letter V (Renee Coleman & England Wolf, 2009).

Table 6.

The sign VOCABULARY and the composing stick.

Sign VOCABULARY (Sign initialized with the letter V).	The word is measured in a composing stick with the letter V.
	

-WORD: The fingertips of the forefinger and thumb of the G handshape tap the extended forefinger of the other hand (Michigan State University Communication Technology Laboratory, n/d).

-VOCABULARY: The sign WORD is made with a V handshape (Michigan State University Communication Technology Laboratory, n/d).

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Analysis of the signs MOT, WORD and PALABRA.

Table 7.

The sign WORD in LSF, in ASL and LSCh.

LSF Mot	 <p>The thumb and forefinger specify the length of a word without a composing stick.</p>
ASL Word	 <p>The fingers are as if they measured the length of a word with a composing stick.</p>
LSCh PALABRA	 <p>The thumb and forefinger specify the length of a word without a composing stick.</p>

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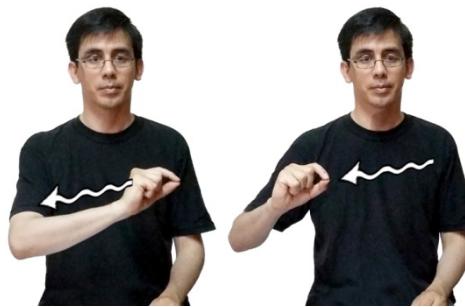
LSCh
PALABRA

2.



The fingers are as if they measured the length of a word with a composing stick.

3.



A word written by hand.

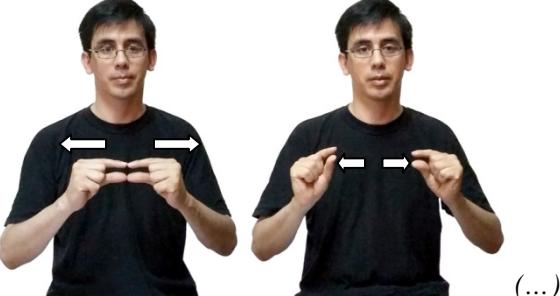
4.



The hand shows the length of a word that is part of the definition of the sign IMPRIMER where the types are located one by one in the LSF (Elix, n/d).



LETTERPRESS PRINTING AND SIGN LANGUAGE.

	 <p data-bbox="1171 508 1225 530">(...)</p>
LSCh PALABRA	<p data-bbox="442 572 479 608">5.</p>  <p data-bbox="442 1009 1380 1079">This sign is related to speech (the oral production). It shows the invisible words or sounds that come out of the mouth.</p>
	<p data-bbox="442 1094 479 1129">6.</p>  <p data-bbox="442 1457 1403 1524">This sign is related to speech (the oral production). It highlights the visible movement of the lips that produce invisible sounds.</p>

LETTERPRESS PRINTING AND SIGN LANGUAGE.

Sign: CHOISIR, TO CHOOSE and ESCOGER-ELEGIR.

Definition: to choose.

- To select from a number of possibilities; pick by preference. (Dictionary.com Unabridged, n/d).
- To select from a number of possible alternatives; decide on and pick out. (American Heritage Dictionary, n/d).

This verb is done with the thumb and forefinger, like a pair of tweezers that collects something. In addition to that, this sign is associated with the grip of thin things and is used to choose or to pick up something of small size (Wikisign, n/d). Now, this sign has no relation to the size of the object. However, it is surprising the comparison of the sign CHOISIR with a typographer who is picking up or selecting a mobile type only with the right hand according to Lamber in 1865 (Shaw & Delaporte, 2015).



Figure 7: Picking up the mobile types.

In typography, it is used to put or remove a mobile type that is a common correction in this process. In addition, the tweezers were also used in the process of tying the composed text; with this, the end of the string is inserted from top to bottom between the tie and the text or composition (Stewart, 1919). At the same time, to disassemble the lines of the composition used a tip of the tweezers to loosen carefully not to spoil it. Undoubtedly, this was a basic tool in typographic composition, but also a common method among typographers was the use of the index and thumb fingers to perform the same work (Unostiposduros, 2017).

Table 8.

The tipographic tweezers typeface in typography (Musea Stad Antwerpen, 2010).

Typographic tweezers.	The end of the string is inserted with the tweezers up and down between the binding and the composed text.
	

LETTERPRESS PRINTING AND SIGN LANGUAGE.

The use of the index and the thumb fingers has evolved over time in ASL and LSCh that is not evident in the LSF (Shaw & Delaporte, 2015). In relation to this modification, the sign ESCOGER - ELEGIR presents this change using the index and middle fingers. (Molina, Lagos, & Lagos, Diccionario de la Lengua de Señas Chilena, 2011).

Table 9.

Evolution of the handshape in ASL and LSCh.

Grip of a mobile type with the thumb and index fingers.	Thumb and middle fingers.
 	

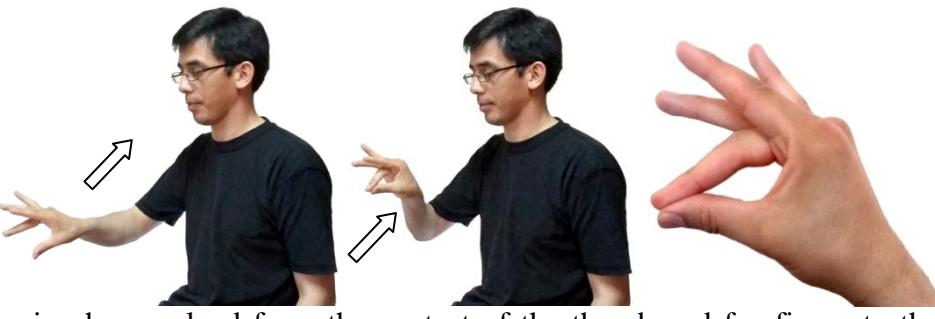
Analysis of the signs CHOISIR, TO CHOOSE and ESCOGER-ELEGIR.

Table 10.

The sign TO CHOOSE in LSF, in ASL and LSCh.

LSF CHOISIR	 Possibly, both hands are picking up something or choosing a mobile type according to Lamber in 1865 (Shaw & Delaporte, 2015).
------------------------	---

LETTERPRESS PRINTING AND SIGN LANGUAGE.

<p>ASL TO CHOOSE</p>	<p>1.</p>  <p>One hand picks (chooses) something from the other hand (Michigan State University Communication Technology Laboratory, n/d).</p> <p>2.</p>  <p>The sign shows a hand that is picking or choosing something.</p>
<p>LSCh ESCOGER ELEGIR</p>	<p>1.</p>  <p>2.</p>  <p>This sign has evolved from the contact of the thumb and forefinger to the thumb and middle finger. It is done with one hand or both.</p>

LETTERPRESS PRINTING AND SIGN LANGUAGE.

<p>LSCh ESCOGER</p>	<p>3.-</p>
The sign shows a hand that is picking or choosing something.	

Sign: INTERPRÈTER, TO INTERPRET and INTERPRETAR.

Definition: to interpret.

- To explain or tell the meaning of (something): present in understandable terms (Merriam-Webster, n/d).
- To translate spoken words from one language to another (Logman, n/d).
- To explain the meaning of (information or actions) (Oxford University Press, n/d).
- To translate a text from one language to another (move) (Larousse Gran Diccionario, n/d).
- To translate spoken words from one language into another (K Dictionaries, n/d).
- To translate something from one language to another especially when it is done orally (Real Academia Española, n/d).

The interpretation has to do with the immediate conversion from one language to another. It can be between oral languages, from an oral language to a sign language or vice versa and it also occurs between sign languages. Now, the interpretation is regulated and certified by the “Registry of Interpreters for the Deaf” which was founded in 1964 and incorporated in 1972; its objective is to maintain the standards, ethics and professionalism for the interpreters of the American Sign Language (Wikipedia, n/d). However, most of the Sign Language interpreters were hearing family, friends and co-workers before that year. This could explain the structural parts of the sign TO INTERPRET-INTERPRETAR in the ASL and LSCh. In Chile there is also the “Asociación Nacional de Intérpretes e Instructores de la Lengua de Señas Chilena” (ACHIELS) founded in 1996 that is affiliated with the World Association of Sign Language Interpreters - WASLI since 2011 (ACHIELS-Chile, 2011).

The interaction with coworkers led to the creation of signs to facilitate their communication. For years, it was common to meet deaf and hearing people in this type of work. For example, these deaf typographers worked in the printing industry or in small workshops, which were one of the most popular jobs among the deaf. In the composition room, new words and phrases emerged from the concrete, from the tangible things that were available to people. This can be evidenced by the words already analyzed related to typography. Although it is not

LETTERPRESS PRINTING AND SIGN LANGUAGE.

possible to determine with certainty the origin of the sign TO INTERPRET, the following aspects to consider could be a good explanation for this sign or a memory aid.

The ring handshape of the right hand picks up a type and puts it in the composing stick with short and quick movements. In typography, the typographer's left hand firmly holds the composing stick, leaving the right one free to pick up the mobile types from the type case to the stick. Like the sign TO CHOOSE, the hand takes a character from the type case and takes it to the composing stick with the tweezers or ring handshape. This action happens again and again with the right hand, while the left hand does not move because it holds the composing stick. In addition, the ring handshape of the sign TO INTERPRET is also related to SENTENCE-LANGUAGE, EXPLICAR, STORY and TALE, which has to do with a line of composed types.



Figure 8: Sign TO CHOOSE-ESCOGER.

The movement of both hands, which is an old version, has to do with putting, locating and securing the mobile type in the composing stick. The twisting movement of the hands can also be seen in the typesetting. During this process, the typographer picks the types with the right hand and places them in the composing stick while the left hand moves less than the right one because each type is located and secured in the stick only with the thumb of the left hand. The thumbs and index fingers are in contact when the fingers of the right hand put the type in the composing stick and the left thumb holds the type in its position (Stewart, 1919). This work is based on the touch to be guided with the small brand named "cran" and make sure every type is correct. The old version of the sign fits even better with the typography than the current one.



Figure 9: The type is located and secured in the stick only with the thumb of the left hand.

LETTERPRESS PRINTING AND SIGN LANGUAGE.

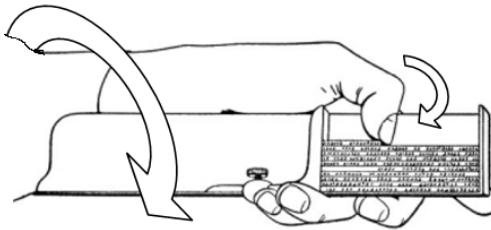


Figure 10: The wrist moves because the thumb ensures each type in its place with short movements (The arrows are not in the original picture) (Stewart, 1919).

The twisting movement of the sign TO INTERPRET that is the same as TO CHANGE represents the change from one language to another, that is to say, the change of position between them suggests the change of language. This happens in typography, while putting all mobile types in the composing stick. Once the typographer has the composed lines of the text, it is necessary to check possible errors in the sentences. For this, he has to read the composed text from up-side-down and from left to right in the composing stick or in the galley without turning the stick or the composed text because that was a waste of time (Stewart, 1919). At first glance, the text in the stick was illegible for most people as if it were another language; only experienced typographers (deaf and hearing) were able to read it. In addition, the composed text for printing is the reverse side of the printed sheet, which was understandable only to the typographer. Therefore, from the eyes of a deaf printer there was a change of language.

Table 11.

Process of changing from one language to another.

The original text or copy given to the typographer.	The typographer chooses and puts the types in the composing stick.	The composed lines in the composing stick (It is read from left to right without turning it).	Text printed on a sheet of paper.
Please, try to read the letters and words up-side-down and from left to right, as they appear in this example. Only experienced typesetters were able to read as if it were another language. Do your best!			Please, try to read the letters and words up-side-down and from left to right, as they appear in this example. Only experienced typesetters were able to read as if it were another language. Do your best!

From one language	Typesetting. (to change)	to another one (language).	The work is done!
-------------------	-----------------------------	-------------------------------	-------------------

The quickness and accuracy with his hands were the visual evidence for a deaf typographer of how one language changes into another one immediately. Experienced pressmen could probably set about 1,500 letters (mobile types) per hour or around from 20 (Kovarik, Revolutions in Communication: Media History from Gutenberg to the Digital Age, 2015) to 50 words per minute depending on the skill of the typographer (Craig & Korol Scala, 2012). Then, the concentration of the typographer is absolutely necessary if he hopes not to make mistakes in the process of choosing the correct types. “The typographer will try to retain in memory as many words as possible, so as not to interrupt the movement of the hand to look at each moment the

LETTERPRESS PRINTING AND SIGN LANGUAGE.

original” (UnosTiposDuros, 2003). For this, he has to read the original copy before the composition and try to get the sense of the words. If he refers to the copy word for word, he will waste valuable time, will have more problems in keeping the sequence of words, and will make mistakes.

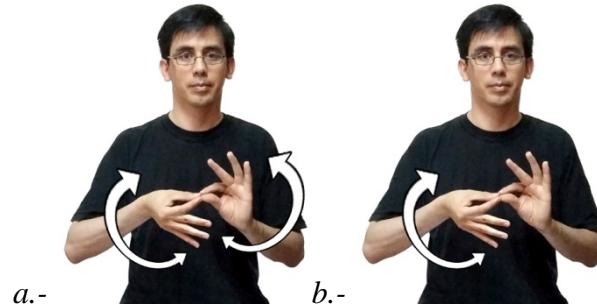


Figure 11: The sign TO INTERPRET emphasizes the speed of the hands.

The typographer reads a piece of text more or less long, temporarily retaining it in the memory. This makes the job easier for the typographer because he has several words in his mind at once before choosing the types. It is a mental process that requires concentration for good decision making in real time, whether simultaneous or consecutive. Therefore, it fits very well with the interpretation process performed by an experienced person.

After reading the previous paragraphs, we must pay attention to the data from different sources which help to understand the structural parts of the sign. The ring handshape of the sign TO INTERPRET is related to SENTENCE-LANGUAGE, TO EXPLAIN, EXPLICAR, TALE and STORY. Like the sign TO CHOOSE, this hand takes a sentence or language (mobile types) and it is switch into another one. The movement of the hands, like TO CHANGE and TO TRANSLATE, shows that something is being switched, in this case a letter or a type, or translated (Shaw & Delaporte, 2015).



Figure 12: The sign TO INTERPRET-INTERPRETAR emulates the work of composition.
The handshape has evolved with the pass of the time.

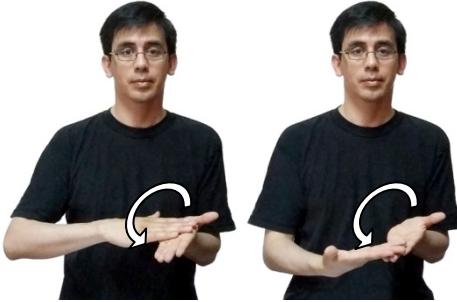
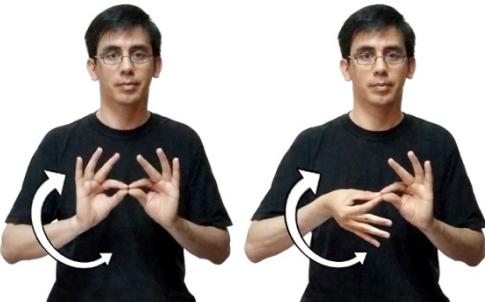
- TO INTERPRET: The F handshapes twist against each other to show that something is being changed. (American Sign Language Browser, n/d).

LETTERPRESS PRINTING AND SIGN LANGUAGE.

Analysis of the signs INTERPRÉTER, TO INTERPRET and INTERPRETAR.

Table 12.

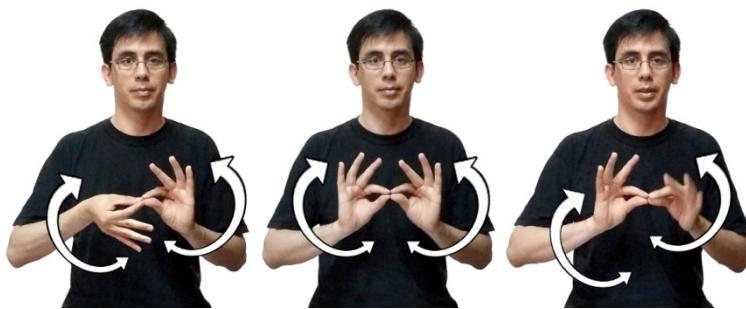
The sign TO INTERPRET in LSF, in ASL and LSCh.

LSF INTERPRÉTER	 <p>The turn of the hand is a metaphor that symbolizes the notion of change. It shows the interpreter's ability to transform one language into another. The hands move like a dictionary sheet where there is a column of Latin and a French column (Barrère, 2012).</p>
ASL TO INTERPRET	<p>1.</p>  <p>This sign moves both hands. The right hand puts several mobile types in the composing stick and the left hand secures the letters in its position. It is an older version.</p> <p>2.</p>  <p>This sign moves only the right hand. The right hand puts several mobile types in the composing stick.</p>

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**LSCh
INTEPRETAR**

1.



This sign moves both hands. The right hand puts several mobile types in the composing stick and the left hand secures the letters in its position. It is an older version.

2.



This sign moves only the right hand. The right hand puts several mobile types in the composing stick.

LETTERPRESS PRINTING AND SIGN LANGUAGE.

Sign: PHRASE, SENTENCE and ORACIÓN.

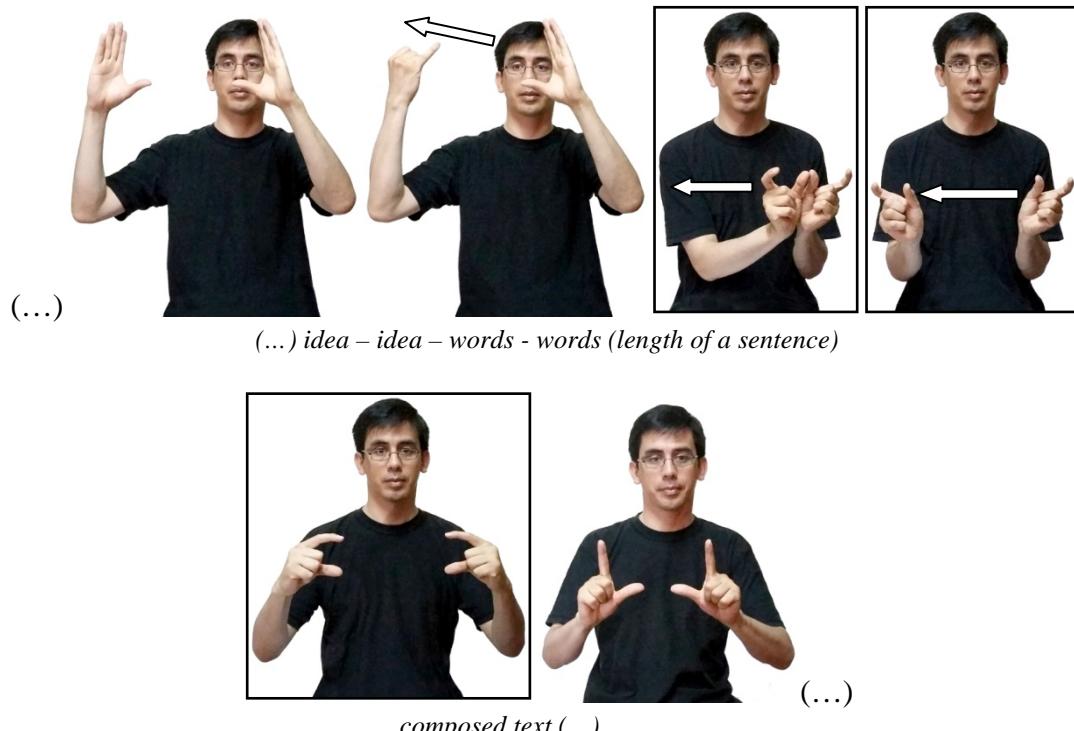


Figure 13: Abstract of the definition in signs of PHRASE (Elix, n/d).

Definition: sentence.

- A string of words satisfying the grammatical rules of a language. (Thesaurus (WordNet based), n/d).
- A sentence is a group of words that are put together to mean something (Single English Wikipedia, n/d).
- The sentence is the series, chain or set of words that transmits a complete meaning (Profesor en Línea, n/d).
- Word or set of words syntactically related to expressing a complete meaning (Larousse Gran Diccionario, n/d).

In typography, a sentence is a string of words or composed types. A composed text could be from one to at least three lines in the composing stick, depending on the measure of the composing stick. In the same way, one of the most striking features of the signs SENTENCE and LANGUAGE has to do with the handshape and movement of the typographer's hands while he is working with the composed text. It is necessary to mention that formerly the signs SENTENCE and LANGUAGE were made with the same sign, using the index and thumb fingers, separating and joining several times with a wavy motion.

LETTERPRESS PRINTING AND SIGN LANGUAGE.



Figure 14: Old sign SENTENCE-LANGUAGE (Long, Sentence, Language, 1918) and composed lines (Musea Stad Antwerpen, 2010).

All the letters or words are linked, which is represented by the shape of a pair of tweezers or rings of both hands. These hands come together as the union of a chain with a metaphorical meaning of linking parts in ASL and LSCh (Shaw & Delaporte, 2015). Then, each letter and each word come together in a sentence to express a complete idea. Although, the printed words are separated in the paper, they are united in the composing stick with spaces (blank types) between the words as if they were a whole in the composed text. Although, the printed words are separated in the paper, they are linked in the typographic composing stick with spaces (blank types) between the words as if they were a whole in the composed text. Furthermore, the handshape also represents the grip of small things such as types and strings that were mentioned with the signs TO CHOOSE and TO INTERPRET. This is because each letter or mobile type is located and joined, side by side to form a sentence. For its analysis, it is necessary to consider three different processes in the typographic composition:

1. - Setting types.
2. - How to get the composed lines from the composing stick and how to transfer the text or the composed lines to the galley or typographic frame.
3. - How to tie the lines.



Figure 15: The metaphorical union of words represented tangibly by white spaces (Musea Stad Antwerpen, 2010).

LETTERPRESS PRINTING AND SIGN LANGUAGE.

1. - Setting types.

The types are located and secure well with an undulating movement with one hand in the composing stick before removing it. The other movement before extracting the composed lines is that in which the typographer checks that every type is well located and secured. This movement is done with the thumb and forefinger of one or both hands touching each type with a wavy movement along the composed line of the sentence from the first to the last. The same movement occurs with the composed line while the typographer adjusts it to center it in the galley. It could also represent the length of the sentence (Michigan State University Communication Technology Laboratory, n/d).

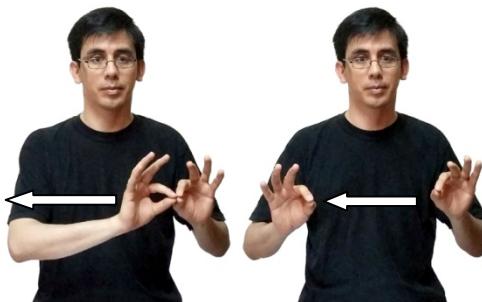


Figure 16: Sign SENTENCE.

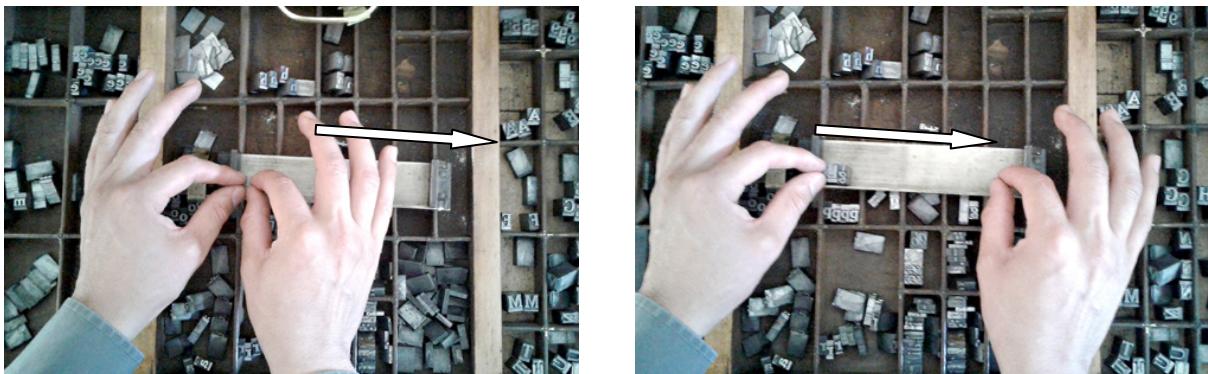


Figure 17: He ensures that each type is well located.

2. - Emptying the stick - How to get the composed lines from the composing stick and how to transfer the text or the composed lines to the galley or typographic frame.

The composed lines are secured and moved with both hands to the right where there is a galley that is next to the type case. This movement is similar to when the typographer has the composed line ready to move from the composing stick to the galley. Therefore, the line has to be tight enough to lift it from the composing stick, but not too loose, which prevents loosening or dropping some type. Then, it is held firmly with the thumb and forefinger of both hands pressing and lifting carefully from the composing stick to the galley on the right (UnosTiposDuros, 2003). Probably, the distance between the hands varies according to the measure of the form of the text that could be from one to three lines on average.

LETTERPRESS PRINTING AND SIGN LANGUAGE.

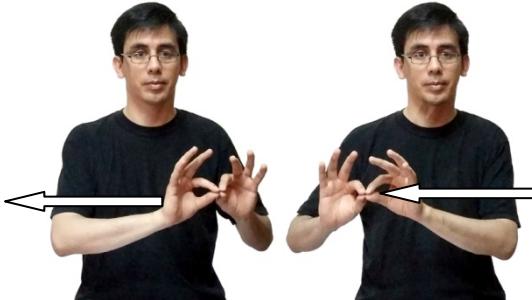


Figure 18: Sign SENTENCE-ORACIÓN.

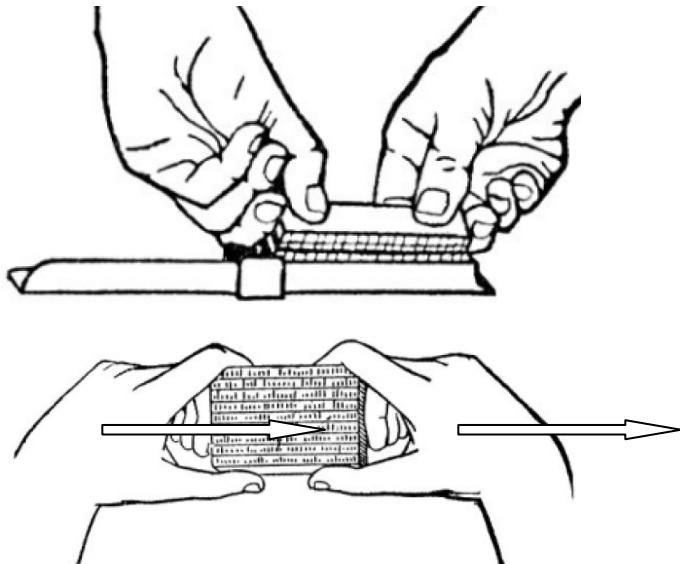


Figure 19: Emptying the composing stick and the text is moved to the galley (Stewart, 1919).

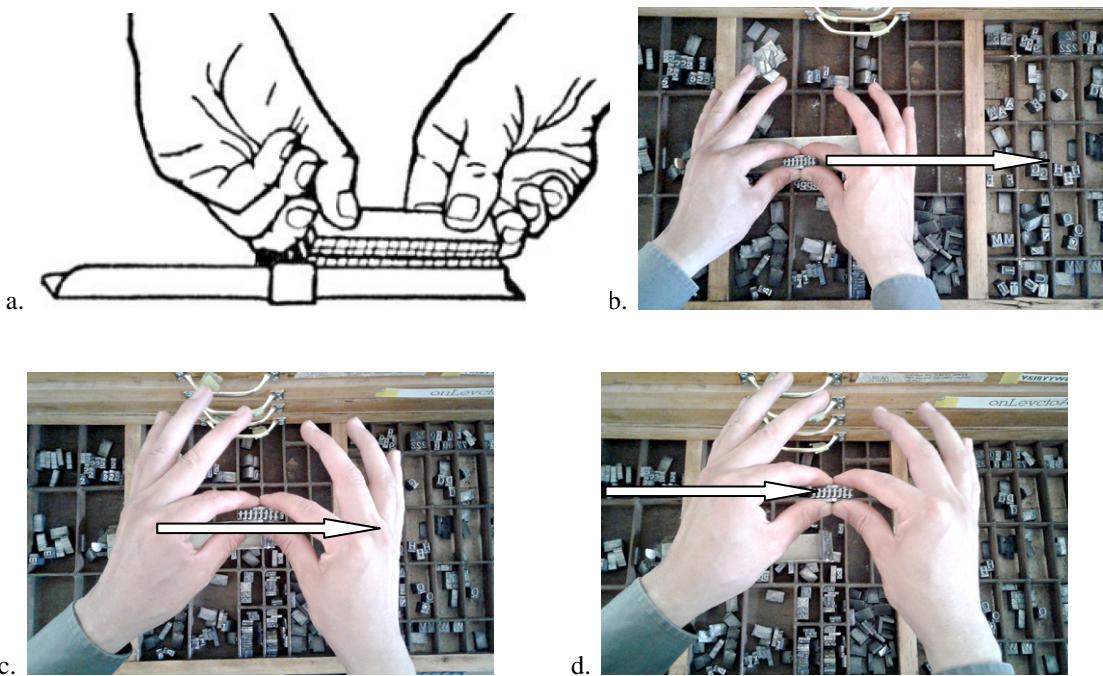


Figure 20: Emptying the composing stick with both hands and move to the galley (Stewart, 1919).

LETTERPRESS PRINTING AND SIGN LANGUAGE.

3. - Tying up the page - How to tie the lines.

Another aspect to consider is the definition of the sign SENTENCE-LANGUAGE that in simple words would be “a single continuous string of letters or words”. These are some of the definitions that explain the common use of “string” that differs from “chain” if it is analyzed from the tangible.

- String:
 - Rope, cord, string (Longman, n/d).
 - Material consisting of threads of cotton, hemp, or other material twisted together to form a thin length (Gdict, n/d).
 - A set of objects joined together in a row on a single rope or thread: (Gdict, n/d).
 - A linear sequence of characters, words, or other data (Gdict, n/d).
 - (a piece of) strong, thin rope made by twisting very thin threads together, used for fastening and tying things (Gdict, n/d).
- String of:
 - A group of similar things (A group of similar things) (Longman, n/d).
 - A set / a handful of something (Longman, n/d).
- String of words:
 - A linear sequence of words as spoken or written (Vocabulary.com, n/d).
- String something together: - To link with a cord (Termbank, n/d).

It is understood the metaphorical sense of the word chain, because it represents the union of the letters, words and sentences of a text as if they were linked with each other (Shaw & Delaporte, 2015). However, the word string or cord reminds us of another process that takes place in typography. Other sources mention this chain or group of words in the following way:

“The resulting block of lines is tied with a strong string and the composition is obtained. With it a printing proof is taken, which will be used to correct the errata” (Lexicoon, n/d).

“In addition, the entire composition should be tied tightly around it with a string or twine (candle thread)” (IED Visual Communication Madrid, 2013).

“The compositions are handled by tying them with a string. To tie the package a string of relative length will be used, which is knotted at one end. Holding with the left hand the knot in the upper left edge of the package, it is given with the right one a complete turn, taking the string very tense from left to right” (Unostiposduros, 2013).

This fits with the typography, in relation to the technique used with the composition or composed text. The typographer temporarily secures the composed lines in the galley. For this, it is necessary to have a cotton string to tie the composed text. This is prepared and secured in a

LETTERPRESS PRINTING AND SIGN LANGUAGE.

galley ready for printing. Normally, the lines are tied with a string when the composition is relatively small. The string is used to tie pages or small works of types (words, sentences or short texts). In addition, the string is wound several times around the galley, that is, a group of words tied with a string. The reason for this technique is that the words are tied to avoid any movement of the page and thus be able to store them for later use.

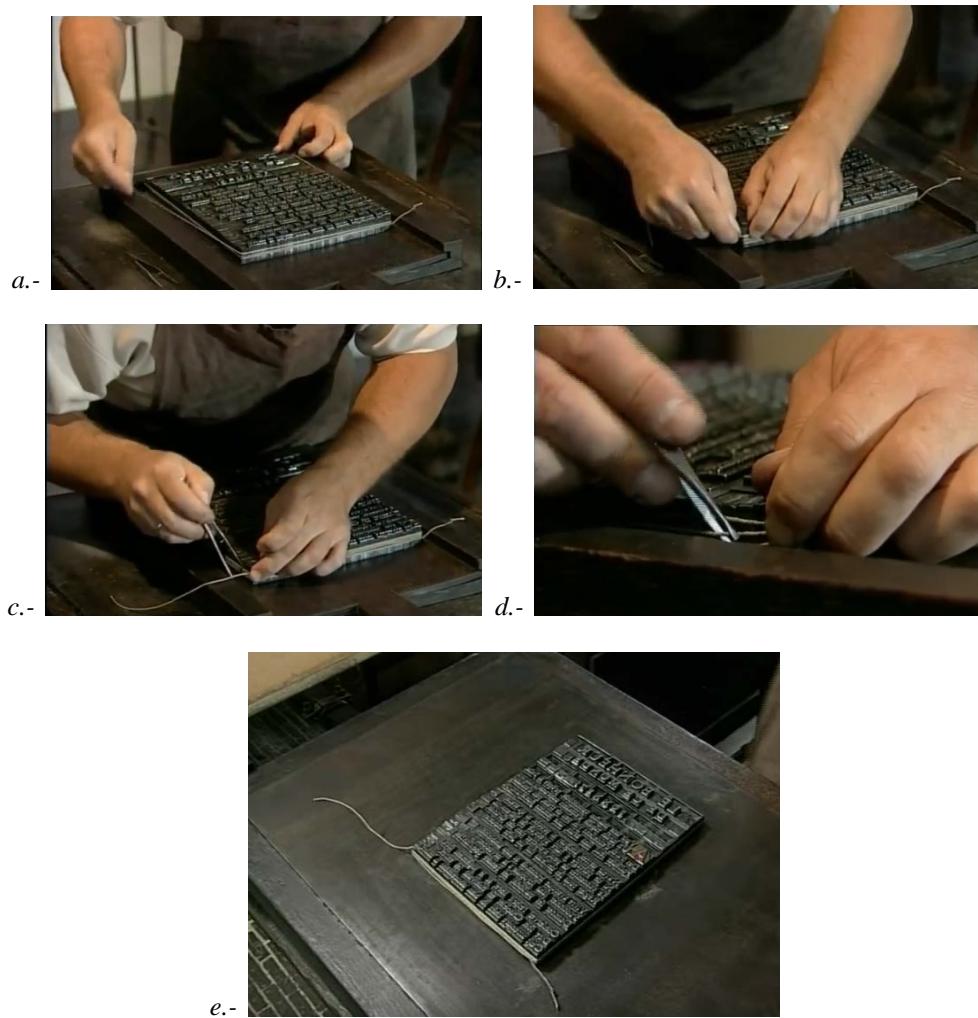


Figure 21: Composed text tied with a string (Musea Stad Antwerpen, 2010).

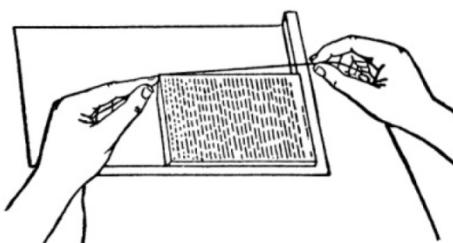


Figure 22: Relatively small composed text being tied (Stewart, 1919).

Finally, there are other related signs that use the same configuration of the hand only with some modifications in the movement. These are the signs STORY and TALE that in themselves are the same sign SENTENCE-LANGUAGE. These signs modify their movement to represent

LETTERPRESS PRINTING AND SIGN LANGUAGE.

many lines or sentences, one by one, which together form a text. In the LSCh, the sign SENTENCE-LANGUAGE with the ring handshape is also used for the sign EXPLICAR (to explain) with long movements and DETALLAR (to detail) or DETALLE (detail) with shorts ones. Possibly, these movements could also evoke every sentence of a text and its mobile types or letters.

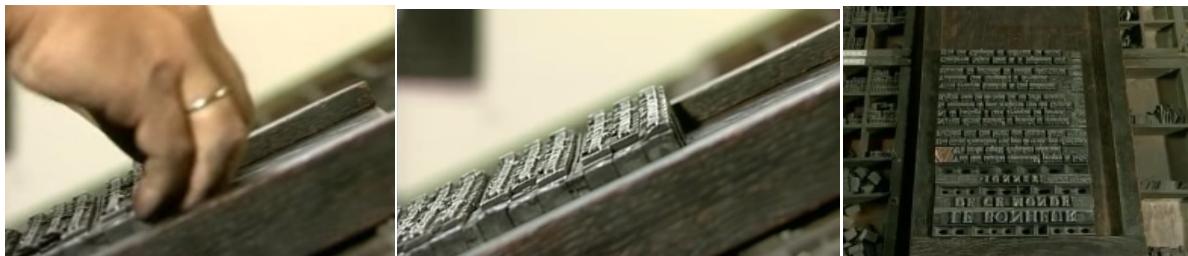


Figure 23: The hands show every line of the composed text. (Musea Stad Antwerpen, 2010).

- STORY: The sign SENTENCE is modified and repeated to represent many sentences which make a story. (Michigan State University Communication Technology Laboratory, n/d).
- TALE: The sign SENTENCE is modified and repeated to represent many sentences which make a story. (Michigan State University Communication Technology Laboratory, n/d).

Analysis of the signs PHRASE, SENTENCE and ORACIÓN.

Table 13.

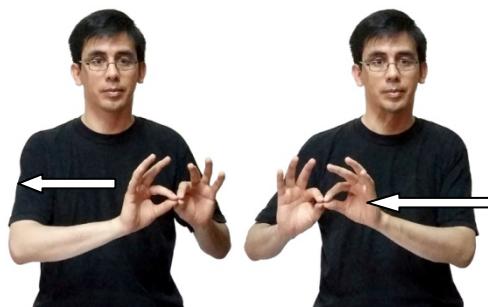
The sign SENTENCE in LSF, in ASL and LSCh (All the words are linked).

LSF PHRASE	<p>1.</p> <p>The types are well located and secured with the undulating movement in the compositor before removing it (A hand moves to the right). This sign shows the length of a sentence.</p>
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LETTERPRESS PRINTING AND SIGN LANGUAGE.

LSF PHRASE

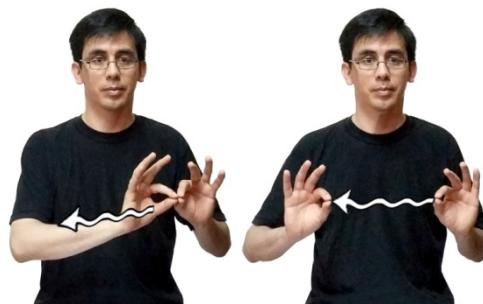
2.



The lines are taken and moved with both hands to the right on the galley which is next to the type case (Both hands together move to the right). This also shows the length of a sentence.

ASL SENTENCE

1.



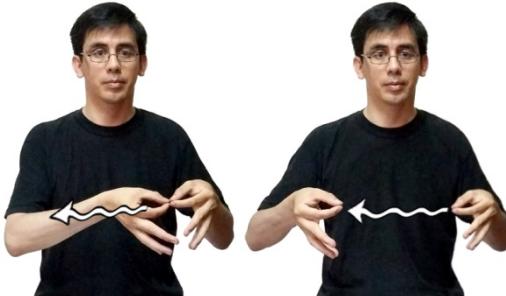
The types are well placed and secured with the undulating movement in the compositor before removing it (One hand moves to the right). This sign shows the length of a sentence.

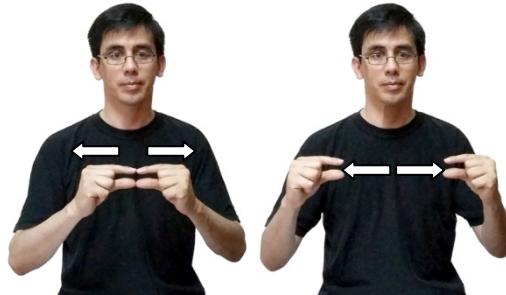
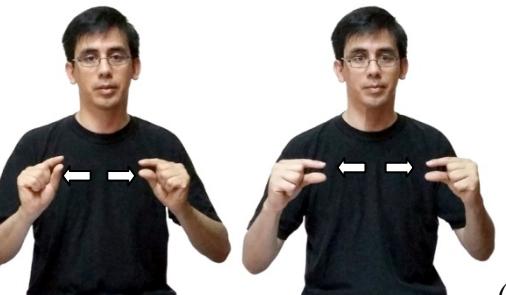
2.



Similar to how the typographer secures the composed lines for both sides with a wavy motion. This sign shows the length of a sentence.

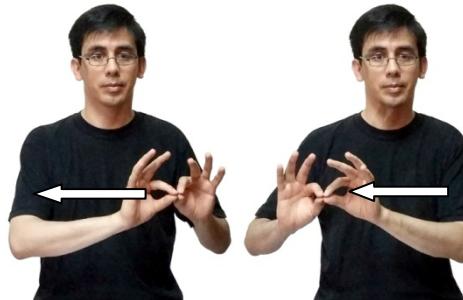
LETTERPRESS PRINTING AND SIGN LANGUAGE.

ASL SENTENCE	<p>3.-</p>  <p>The types are well placed and secured with the undulating movement in the compositor before removing it (One hand moves to the right). This sign shows the length of a sentence.</p>
-------------------------	---

LSCh ORACIÓN	<p>1.</p>  <p>Both hands show the length of a sentence that in the LSF is part of the explanation of the sign IMPRIMER where the types are located one by one (Elix, n/d). This sign shows the length of a sentence.</p>  <p>(...)</p>  <p>(...)</p>
-------------------------	---

***LSCh
ORACIÓN***

2.



The lines are taken and moved with both hands to the right on the galley which is next to the type case (Both hands together move to the right). This also shows the length of a sentence.

3.



A sentence written by hand. This sign shows the length of a sentence.

LETTERPRESS PRINTING AND SIGN LANGUAGE.

Sign: LANGUE, LANGUAGE and LENGUA.

Definition: language.

- A system of communication by written or spoken words, which is used by the people of a particular country or area. (Longman, n/d).
- A body of words and the systems for their use common to a people who are of the same community or nation, the same geographical area, or the same cultural tradition (Dictionary.com, n/d).
- Communication of thoughts and feelings through a system of arbitrary signals such as voice sounds, gestures, or written symbols (The American Heritage Dictionary, n/d).
- Such a system including its rules for combining its components, such as words (The American Heritage Dictionary, n/d).
- Set of significant elements that, combined according to some rules, allow expressing thoughts, emotions and desires (Larousse Gran Diccionario, n/d).
- System of verbal and almost always written communication, typical of a human community (Real Academia Española, n/d).

In the spoken language, this communication system is produced by using the mouth and the voice to make sounds that, at the same time, is represented by written or printed words. Although, these sounds are not heard by most deaf people (particularly, those who are profoundly deaf) these words can be understood, either by reading the lips or the printed texts. This last one allows explaining or comparing the sign with its meaning. In addition, by understanding that deaf people get most of the information from what they see, it is necessary to emphasize that there are very good examples in typography where each of the sounds is represented concretely with letters and symbols (NIH, 2017).

It was mentioned earlier that LANGUAGE and SENTENCE were the same sign that was done with the index finger and thumb of both hands. Currently, there is another sign that is in fact the same sign SENTENCE but with the letter L in both hands. The LSF, ASL and LSCh share this initialized sign (which uses the first letter of the word) (Shaw & Delaporte, 2015). The following examples are two memory aids that allow you to visualize it.

The first could be the shape of the type case. This is made of wood that is divided into many compartments or boxes that contain hundreds of mobile types, including uppercase characters and lowercase letters, numbers and symbols. This type case is, so to speak, a communication system with internal arrangements and relationships of rules. Each of them relates an element with a sound pattern or a written symbol. Each of them relates an element with a sound pattern or a written symbol. So to speak, all the sounds produced by the spoken languages are represented in this wooden tray.

LETTERPRESS PRINTING AND SIGN LANGUAGE.

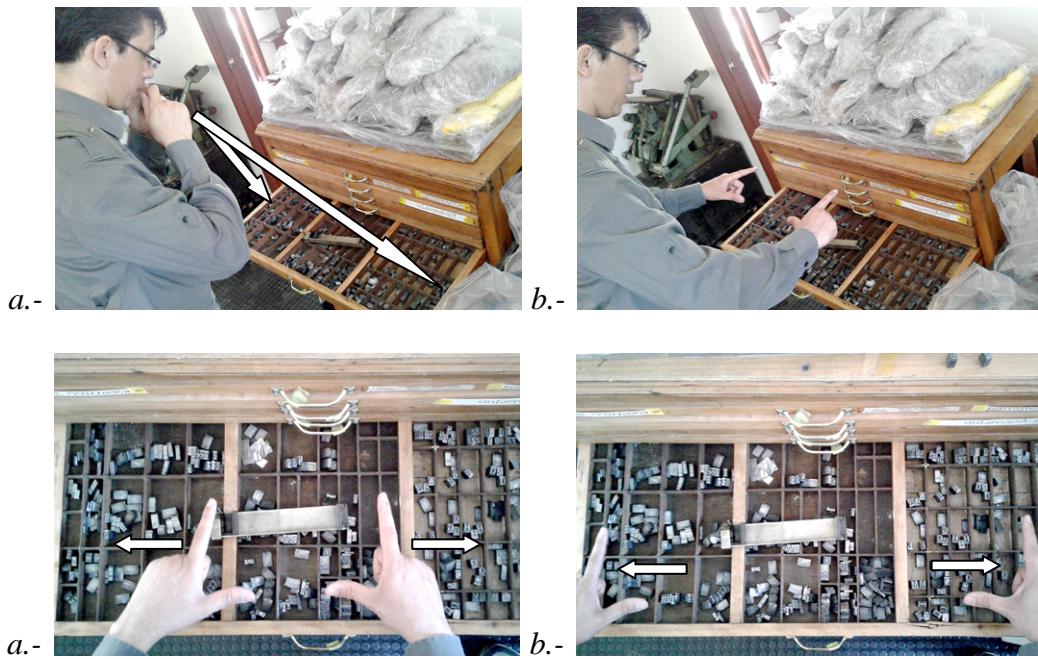


Figure 24: Type case – Sign LANGUAGE - LENGUA.

The second one has to do with the ability of the typographer when maneuvering the composed text. The types are taken and pressed with the index finger and thumb of both hands. Then, it moves from the composing stick to the galley (UnosTiposDuros, 2003). Moreover, the definition of the word PHRASE in the video library of “Elix - Le dictionnaire vivant en langue des signes” ends with the signs MOT (word) next to each other and ends with both hands with the C and L handshape that show the text or group of words as a whole (Elix, n/d).



Figure 25: Abstract of the definition in signs of PHRASE (Elix, n/d).

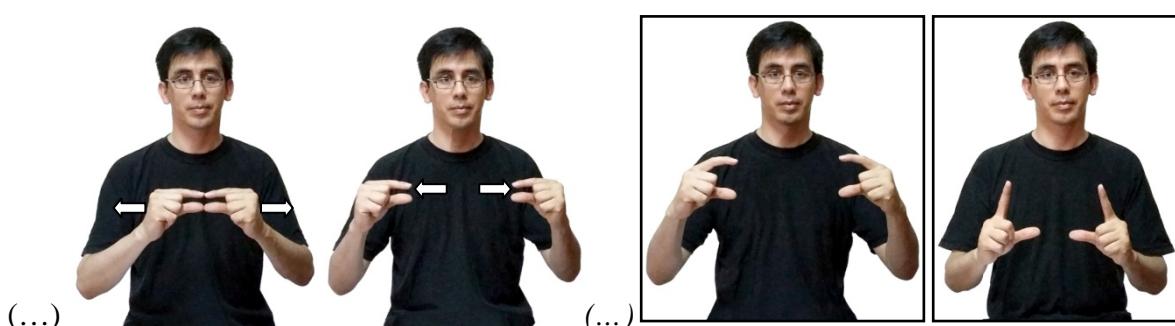


Figure 26: Abstract of the definition in signs of IMPRIMER (Elix, n/d).

LETTERPRESS PRINTING AND SIGN LANGUAGE.

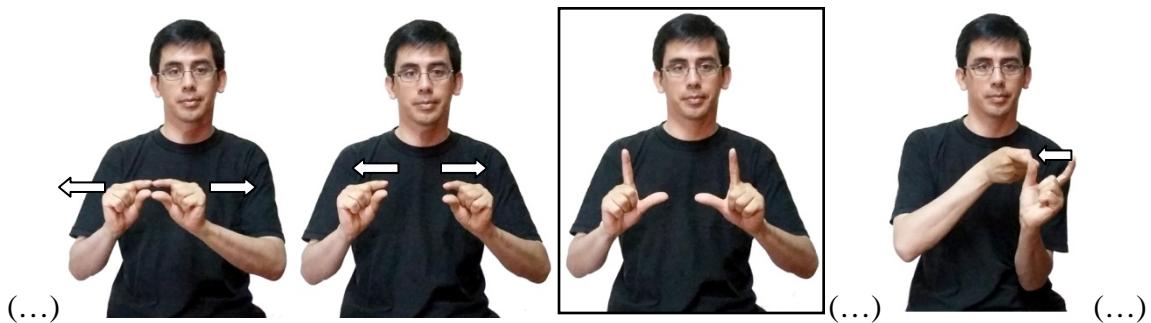


Figure 27: Abstract of the definition in signs of MOT (Elix, n/d).

Table 14.

Abstract of the definition in signs of PHRASE (Videoteca ELIX).

 (...) MOT, MOT (...) (Phrase)	 (...) PALABRA, PALABRA (...) (Oración)	 Forme d'impression (...) Texto compuesto para impresión ...
-----------------------------------	--	--



Figure 28: The typographer holds the composed type (Stewart, 1919).

It is necessary to mention that in LSCh, most of the signs are labeled with the word LENGUAJE (langage, language) that differs from LENGUA (langue, language). This would be due to these three possible reasons:

- Most of the times this sign has to do with the school subject “Lenguaje y Comunicación”.
- The word “lengua” is mentioned as tongue.
- Apparently, in its use, there would be no greater distinction between LENGUA (langue, language), LENGUAJE (langage, language), IDIOMA (the language of a city or nation), HABLA (speech) and LINGÜÍSTICA (linguistics).

LETTERPRESS PRINTING AND SIGN LANGUAGE.

These signs are more related to the oral production of the language. The only sign that mentions the word Lengua (langue, language) in dictionaries is LENGUAJE-DE-SEÑAS (sign language), but there is no other reference for oral languages (langues orales). It is a good subject of study.

From some time, the use of the sign LENGUA (langue) of the LSE (Lengua de Signos Español) has emerged in the LSCh, where the L in the right hand strikes once or twice in the palm of the left hand. In Chile, this sign has a neutral meaning that would be between the oral language and the sign language. Some explanations of this sign are:



Figure 29: Sign LENGUA in LSE and LSCh.

- It is similar to LITERATURA, LEY (law), LEGISLACIÓN, y LENGUAJE (langage) in LSE.

Table 15.

Signs related to the sign LENGUA in LSE.

LITERATURA (LSE)	
LEY, LEGISLACIÓN (LSE)	

LETTERPRESS PRINTING AND SIGN LANGUAGE.



- The movement of the letter L is similar to the one of a stamp in an official DOCUMENTO (LSE, LSCh) as approved.



Figure 30: Sign DOCUMENTO in LSE and in LSCh.

- It is similar to LITERATURA where the letter L moves wavy on the left palm in the LSE. This sign is similar to LÁPIZ (pencil) in the LSCh.

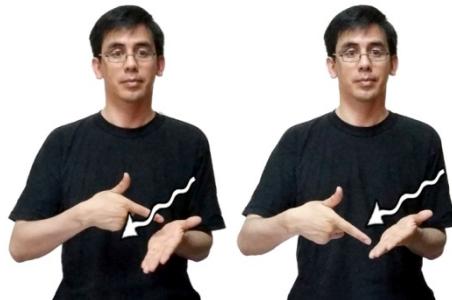


Figure 31: Sign LÁPIZ in LSCh.

In summary, the sign LENGUA in LSE refers to:

- It refers to consistent norms that form a whole.
- Most languages remain because they are written on paper. That's why it lasts in time. Possibly, the spoken language is stamped on paper.
- LANGUAGE (langue): The sign SENTENCE is made with L handshapes (Michigan State University Communication Technology Laboratory, n/d).

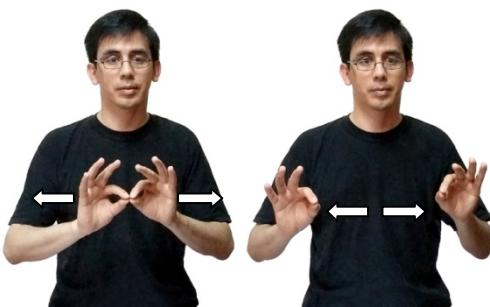
LETTERPRESS PRINTING AND SIGN LANGUAGE.

Analysis of the signs: **LANGUE**, **LANGUAGE** and **LENGUA**.

Table 16.

The sign LANGUAGE in LSF, ASL and LSCh.

LSF LANGUE	
Sign PHRASE (sentence) initialized with the letter L.	

ASL LANGUAGE	1. 
	Sign PHRASE. Both hands move with a wavy motion sideways.
	2. 
	Sign PHRASE-SENTENCE initialized with the letter L.

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LSCh LENGUA	<p>1.</p>  <p>The sign LANGUAGE (langue) is used as LENGUA, LENGUAJE and LINGÜISTICA.</p>
	<p>2.</p>  <p>LENGUA: sign that is used with the same meaning as in the LSE.</p>
	<p>3.</p>  <p>The sign is used as LENGUA, LENGUAJE and IDIOMA. Possibly, this sign is related to the sign INGLÉS (English) in the LSCh, which highlights the movement of the lips and jaw of the person speaking that nobody understands.</p>  <p>INGLÉS</p>

LETTERPRESS PRINTING AND SIGN LANGUAGE.

4.



LENGUAJE: Sign that is more related to speech (oral production). This sign is similar to OYENTE (hearing), where the visible movement of the lips that produce invisible sounds stands out.

LSCh
LENGUA



OYENTE

5.

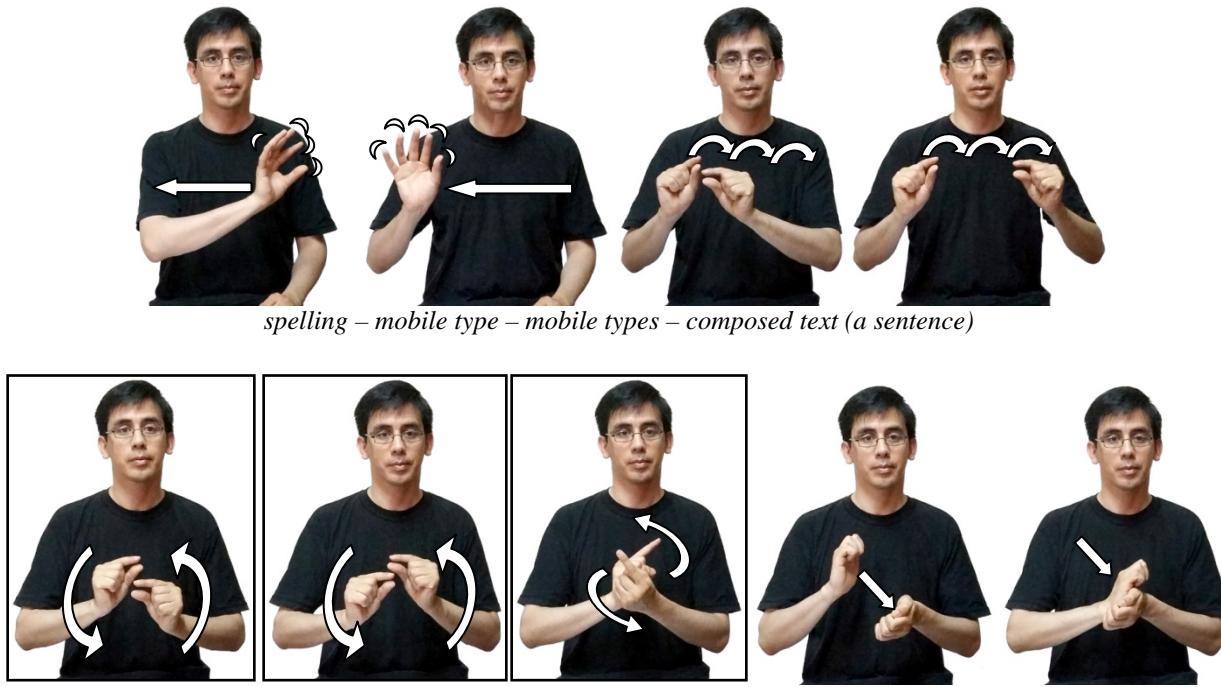


LENGUAJE: Sign initialized with letter L related to speech. Like the previous sign highlights the visible movement of the lips that produce invisible sounds.

LETTERPRESS PRINTING AND SIGN LANGUAGE.

Sign: CHANGER, TO CHANGE and CAMBIAR.

Sign: TRADUIRE, TO TRANSLATE and TRADUCIR.



to change the mobile types – to change – to print
Figure 32: Abstract of the definition in signs of LETTRE 2. (Elix, n/d).

Definition: to change.

- To replace with another. (Collins Spanish Dictionary, n/d).
- To make a shift from one to another (switch) (Merriam-Webster, n/d).
- Intercambiar por otra cosa, generalmente del mismo tipo (Dictionary.com, n/d).
- To substitute another or others for; exchange for something else, usually of the same kind. (Larousse Gran Diccionario, n/d).
- To modify one thing (Larousse Gran Diccionario, n/d).
- To leave one thing or situation to take another (Real Academia Española, n/d).

Definition: to translate.

- To transfer or turn from one set of symbols into another: transcribe (Merriam-Webster, n/d).
- To change written or spoken words into another language (Longman, n/d).
- Express in a language one thing said or written in another (to transfer) (Larousse Gran Diccionario, n/d).
- To express in a language something written or said in another (K Dictionaries, n/d).
- To convert, to move, to barter (Real Academia Española, n/d).

These two signs are connected in movement, handshape and meaning. It is clear that the change of positions between them fits perfectly with their definitions, highlighting words such as

LETTERPRESS PRINTING AND SIGN LANGUAGE.

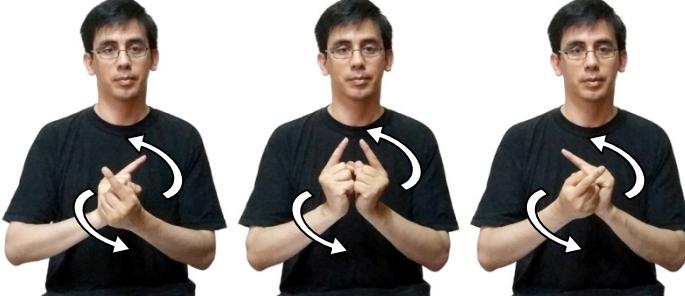
to transfer, to barter, to transfer, to replace and to modify among others. Therefore, it means to replace with something else or to make a change from one to another. The hands or fingers express this meaning with the movement.

The LSF and LSCh have the same sign TRADUIRE with the V of the right hand turning on the left palm. According to the possible etymology of this sign, the hands move like a dictionary sheet where there is a column of Latin and a French one. This transcribes a text to another language, for example from Latin to French or vice versa (Barrère, 2012). Another Chilean sign similar to TRADUIRE is the V of the right hand with the same movement but without the left hand that is used with the meaning of CAMBIAR (to change).

The word TO CHANGE is done with both hands changing their positions with each other with the fingers as the letters T, L or as hooks. This sign is the same as TO ADJUST, TO ALTER, TO ADAPT and TO TRANSFORM in the ASL. They are also signed with the same letter T, but with a different movement that explains even better how something is slightly modified to achieve the desired appearance or result. It is done by taking something and leaving something else in its place. In 1923, Michaels wrote the following description: "CHANGE: 1. Imagine you hold something in both hands held out in front of you. 2. Change places of the hands. Left hand going in the place of the right and vice versa" (Michaels, 1923).

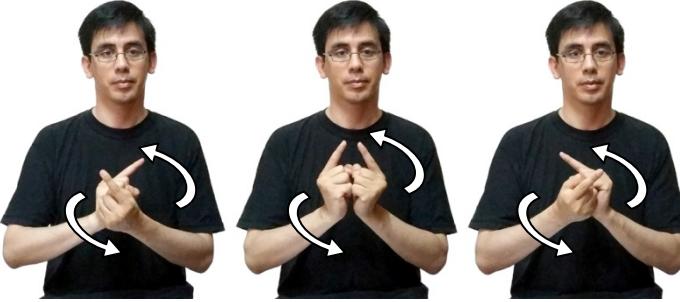
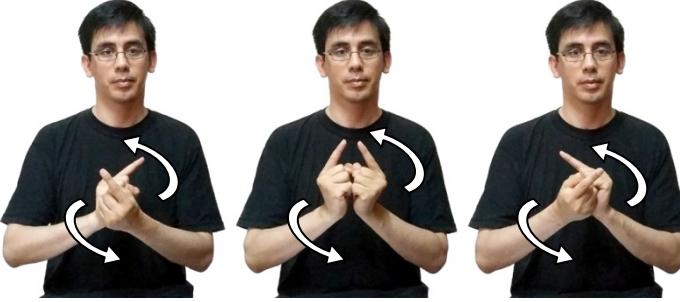
Table 17.

Verbs with the same sign TO CHANGE in ASL.

TO ADJUST	1. 
	Both hands go up and down. 2. 

To change or alter something to achieve the desired appearance or result.

LETTERPRESS PRINTING AND SIGN LANGUAGE.

	<p>1.-</p>  <p>Both hands go up and down.</p>
TO ALTER	<p>2.-</p>  <p>To change or to do different; To modify</p>
	<p>1.</p>  <p>Both hands go up and down and then both hands fit together.</p>
TO ADAPT	<p>2.-</p>  <p>To adjust, to modify and to adapt to.</p>

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TO TRANSFORM	1.  To change or to convert.
-------------------------	--

The TO TRANSLATE sign is the same TO CHANGE sign with the letter T or L. The movement of this sign can also be seen in the sign TO INTERPRET in how one language is transformed into another. The same happens when the translator makes the same conversion with more time to consider and revise each word and sentence from the original text to the desired translation. The same happens when the translator makes the same conversion with more time to consider and revise each word and sentence from the original text to the desired translation. In case of doubt or finding an error, the typographer can access various sources to modify slightly or whatever is necessary to avoid spelling errors, words or grammar before delivering the text. The sources at hand were the Bible, concordances and dictionaries such as Nebrija or Calepino (Wikipedia, the free encyclopedia, n/d).

There is a visual memory aid for the sign TO TRANSLATE in the typesetting, specifically in the correction of the wrong type. When the text was ready to print, the typographer had to do proofs on paper to correct any errors. For this, the typographer had to resort to the original text to compare them and then modify the turned letter or the wrong type in the form of composed types. In some cases, he has to check the spelling in other sources in case of doubt. Then, it is TO CHANGE one mobile type for another. In other words, it is done by picking the wrong type and placing the correct one in its position. The T or L handshape could explain the change of “mobile Type” or “Language” (Shaw & Delaporte, 2015).



Figure 33: Mobile types T and L.

LETTERPRESS PRINTING AND SIGN LANGUAGE.



Figure 34: Correction process.

As mentioned above, the signs TO ADAPT, TO ADJUST and TO ALTER fit to this process in typesetting. The signs TO ADJUST and TO ALTER are done with both hands with the letter T; they show how something or a type is collected and another one is left in its place. The sign TO ADAPT is signed with the same letter T in both hands and then it is joined or fitted to something. These also fit with the change from one language to another as mentioned in the TO INTERPRET sign. Therefore, all these signs share many characteristics with the work of a typographer and a translator at the same time. The correction process could be carried out in the same language or also from Latin to French and vice versa, at that time.



Figure 35: Signs TO ADAPT, TO ADJUST y TO ALTER.

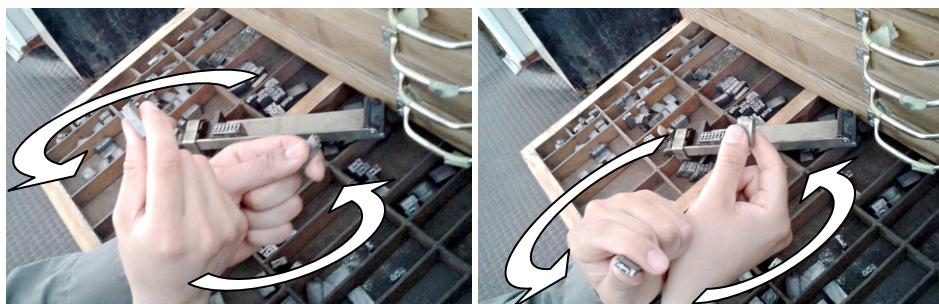


Figure 36: Sign CHANGE-CAMBIAR.

- ADAPT, ADJUST and ALTER: The hands change position with each other (Michigan State University Communication Technology Laboratory, n/d).
- TRANSFORM: The sign CHANGE is made with T handshapes (Michigan State University Communication Technology Laboratory, n/d).

LETTERPRESS PRINTING AND SIGN LANGUAGE.

- CHANGE: The hands change position with each other (Michigan State University Communication Technology Laboratory, n/d).
- TRANSLATE: The sign CHANGE is made with T handshapes (Michigan State University Communication Technology Laboratory, n/d).

Table 18.

Process of correcting a text by changing one type for another.

<p>This is the original text or copy given to the typesetter. "LETTERPRESS AND SIGN LANGUAGE"</p>	<p>Text written on paper.</p>	<p>The original text or copy (Printed or handwritten).</p>
<p>This is the original text or copy given to the typesetter. "LETTERPRESS VND SIGN LANGUAJE"</p>	<p>Typesetting.</p> 	<p>The types in the composing stick are with a turned letter and a wrong one (In the interpretation there are more chances of being wrong because of the speed).</p>
<p>This is the original text or copy given to the typesetter. "LETTERPRESS VND SIGN LANGUAJE"</p>	<p>Proof on paper.</p>	<p>The proof on paper shows the turned letter V and the wrong type J.</p>
<p>This is the original text or copy given to the typesetter. "LETTERPRESS AND SIGN LANGUAGE"</p>	<p>Correction of the composed text.</p> 	<p>After comparing the printed proof with the original text, the typographer changes and adapts the types in the form of the composed text or in the composing stick. From V to A and from J to G. (In the translation, the chances of making mistakes due to the time available to use a source are minimized).</p>
<p>This is the original text or copy given to the typesetter. "LETTERPRESS AND SIGN LANGUAGE"</p>	<p>Printed paper</p>	<p>The printed paper with the correction is identical to the original text.</p>

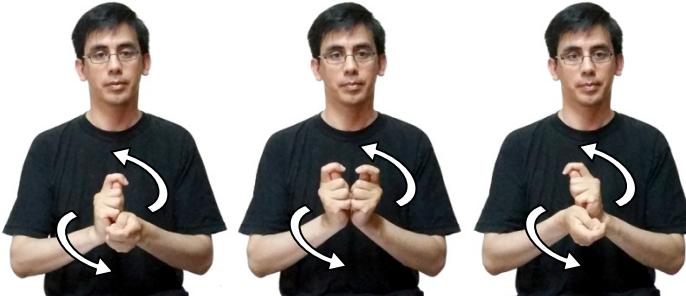
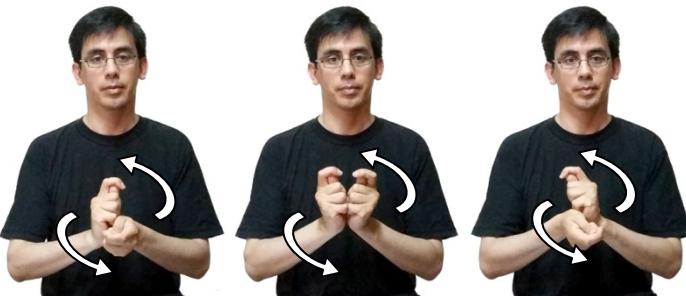
LETTERPRESS PRINTING AND SIGN LANGUAGE.

Análisis de las señas CHANGER, TO CHANGE and CAMBIAR.

Análisis de las señas TRADUIRE, TO TRANSLATE and TRADUCIR.

Table 19.

The sign TO CHANGE and TO TRANSLATE in LSF, ASL and LSCh.

	CHANGER,
LSF	
Hands change position with each other, with the letter T.	
	TO CHANGE
ASL	<p>1.</p> 
Hands change position with each other, with the letter T.	
ASL	<p>2.</p> 
The signs are the same but with small variations in the configuration of the hand with the letter T or with fists. In some cases the letter T has been modified to a hook.	

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ASL

3.



The signs are the same but with small variations in the configuration of the hand with the letter T or with fists.

CAMBIAR.

1.



The same handshape of INTERPRETER.

LSCh

2.



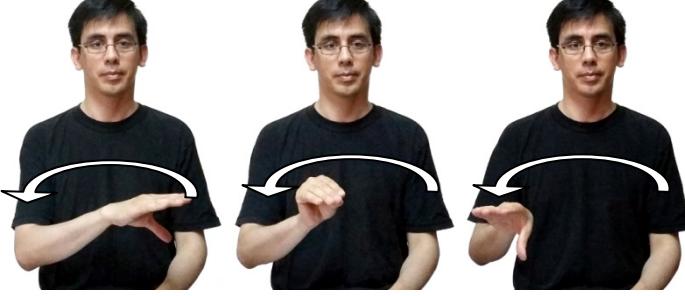
Sign with letter L.

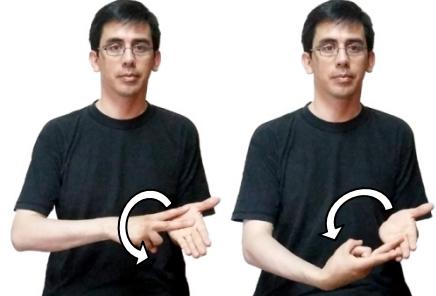
3.



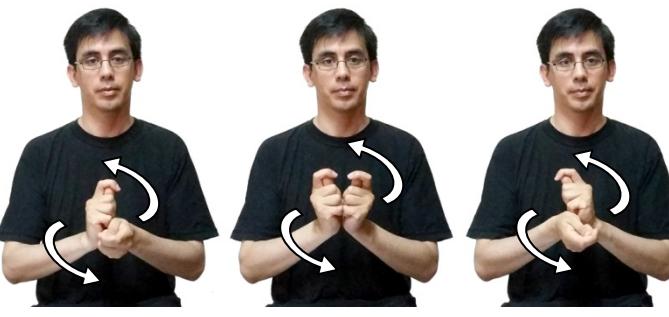
Hands change position with each other, with the letter T.

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	<p>4.</p>  <p>Hands change place. The handshape represents a unit or number 1 in LSCh.</p> <p>5.</p>  <p>Sign CAMBIAR, CAMBIARSE (to change) and MUDARSE (to move).</p>
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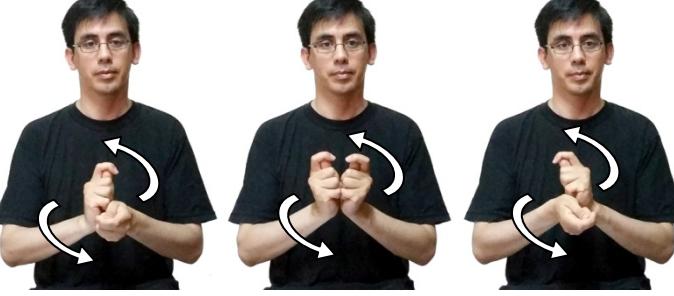
	<p>TRADUIRE</p>  <p>Similar to the sign INTERPRETER.</p>
--	---

LETTERPRESS PRINTING AND SIGN LANGUAGE.

	TO TRANSLATE
	<p>1.</p> 
ASL	<p>The signs are the same but with small variations in the configuration of the hand with the letters T or L and sometimes the sign begins with the letter T and ends with the letter L.</p> <p>2.</p>  <p>Hands change position with each other, with the letter T.</p>

	TRADUCIR
LSCh	<p>1.</p>  <p>Similar to the sign INTERPRETER.</p>

LETTERPRESS PRINTING AND SIGN LANGUAGE.

LSCh	<p>2.</p>  <p>Sign with letter L.</p>
	<p>3.</p>  <p>Hands change position with each other, with the letter T.</p>
	<p>4.</p>  <p>It is the same sign TO INTERPRET.</p>
	<p>5.</p>  <p>Sign with fists.</p>

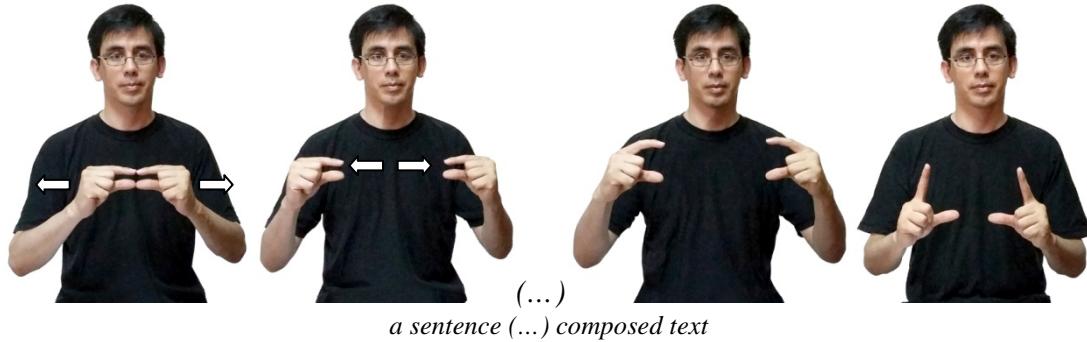
LETTERPRESS PRINTING AND SIGN LANGUAGE.

LSCh	<p>6.</p>  <p>Sign that shows a change of place.</p>
	<p>7.</p>  <p>Sign with number 1 in LSCh.</p>

Seña: PAPIER, PAPER and PAPEL.

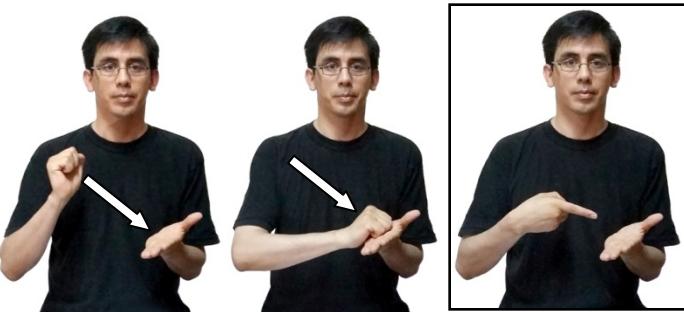


shape of a paper – paper (palm)- mobile types forming a word or a sentence



(...)
a sentence (...) composed text

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to press on the paper – to print – printed paper

Figure 37: Abstract of the definition in signs of IMPRIMER (Elix, n/d).

Definition: paper.

- Material in the form of thin sheets that is used for writing on, wrapping things, etc. (Longman, n/d).
- A substance made from wood pulp, rags, straw, or other fibrous material, usually in thin sheets, used to bear writing or printing, for wrapping things, etc. (Dictionary.com, n/d).

Paper is one of the essential materials for printing. In this process, the printer inks the movable types, and then the paper is pressed against the form with a platen or with a screw mechanism that is used to apply pressure on it to transfer the ink to the paper as used in the Gutenberg press. This technique allows having many copies in less time. Then, the paper is lifted from the tip of the sheet. Finally, the printer must wait for the ink to dry to be able to use it and form, for example, a newspaper or a book. Finally, the printer must wait for the ink to dry to be able to use it and make, for example, a newspaper or a book.

In ASL, the movement of the sign PAPER where one hand rubs the other (palm up) repeatedly has to do with the printing work. It should be noted that Lambert (1865) and Long (1910) mentioned how this pressure is applied to the palm, which is related to the pressure exerted on the paper by a screw printing press. It is identical to the signs IMPRIMER and PAPIER. The act of printing gives origin to signs such as NEWSPAPER and PRINT (Shaw & Delaporte, 2015).

In the LSCh, the sign PAPEL is done in two ways. The first one recalls the moment where the printer removes the already printed paper from the printing press, where he begins to separate the sheet from the form of composed types from the corner. The other sign shows how the hands hold a sheet of paper, shaking it with both hands in the air.

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Figure 38: The screw printing press and the printed paper (Moss, n/d).

- PAPER: One hand brushes against the other hand (Michigan State University Communication Technology Laboratory, n/d).

Analysis of the signs PAPIER, PAPER and PAPEL.

Table 20.
The sign PAPER in LSF, in ASL and LSCh.

LSF PAPIER	The table contains two columns. The left column is a vertical box containing the text "LSF PAPIER" in bold. The right column is a horizontal box containing two photographs of a man with glasses and a black t-shirt. In the first photo, his hands are clasped in front of him. In the second photo, his hands move apart in a circular motion, representing the action of printing.
The printer applies pressure on the paper as if printing the printer's mark. This sign is similar to IMPRIMER.	

LETTERPRESS PRINTING AND SIGN LANGUAGE.

ASL PAPER	 <p>The act of printing with a press.</p>
----------------------	---

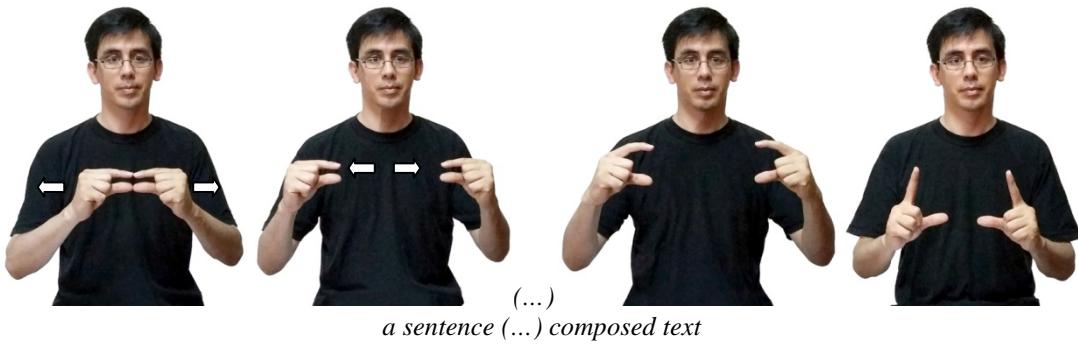
LSCh PAPEL	<p>1.</p>  <p>The act of printing with a press. This sign is similar to a printed paper that is then pulled up from a corner of the paper. Action that is made several times from the printing press.</p>
	<p>2.</p>  <p>The sheet of paper is held with both hands.</p>

LETTERPRESS PRINTING AND SIGN LANGUAGE.

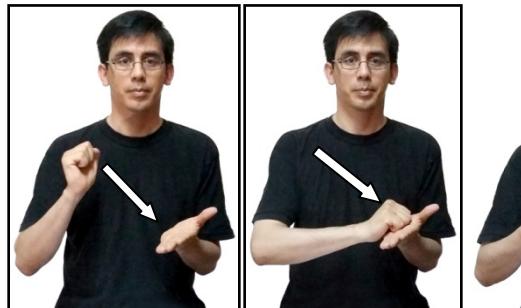
Sign: IMPRIMER, TO PRINT and IMPRIMIR.



(...) paper (palm) - mobiles types forming a word or a sentence



(...) a sentence (...) composed text



to press on the paper - to print - printed paper.

Figure 39: Abstract of the definition in signs of IMPRIMER (Elix, n/d).

Definition: to print.

- To produce words, numbers, or pictures on paper, using a machine which puts ink onto the surface (Longman, n/d).
- To make a mark on a surface or in a soft substance by pressing something on to it (Longman, n/d).
- A mark made by pressure
- Printed letters: type (Merriam-Webster, n/d).
- Reproduce a series of letters, figures and other characters on a piece of paper (Thefreedictionary, n/d).
- Mark letters and other graphic characters on paper or other material using appropriate procedures (Real Academia Español, n/d).

LETTERPRESS PRINTING AND SIGN LANGUAGE.

- Stamping a stamp or something else on paper, cloth or dough by means of pressure (Real Academia Español, n/d).

The process of printing a paper begins with a written text to be copied. Then, the typographer selects the mobile types one by one from the type case to complete the desired text in the composing stick. After that, he takes the composition, ties it with a string and takes it to the galley. Finally, the text is printed on a sheet of paper with pressure on old presses.



Figure 40: Old manual press. Screw printing press.



Figure 41: Old manual press. Minerva.



Figure 42: Old manual press. Heidelberg.

In LSF, the sign IMPRIMER is not difficult to associate with its meaning because it is mainly the pressure exerted with the old screw mechanism of the press. Both hands make the movement of pressing the paper on the inked types. It can be compared with the sign PAPIER, which also refers to the pressure exerted on the papers, just like NEWSPAPER.

The signs PRINT and PRESS are related to how mobile types were placed in old presses (Shaw & Delaporte, 2015). Long makes mention of this process in the following way, “PRINTER: Make motion of printer in putting type into a stick” (Long, Printer, 1918). Years

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later, Higgins also explains its relationship with typography, “PRINT: Right thumb and index as if picking the type from the font and placing them in the left palm as into the composing stick.” (Higgins, Print, 1923). The same happens in LSCh with the sign IMPRIMIR, where the right hand puts a mobile type on the left index finger and then pressure is applied (Compare with the index finger of the signs LETTER and WORD).



Figure 43: Sign IMPRIMIR with a composing stick. It is similar to LETTER.

- PRINT: The G handshape closes on the palm of the hand. This sign may have been derived from the setting of type in older printing presses. (Michigan State University Communication Technology Laboratory, n/d).
- PRESS: The sign PRINT is repeated (Michigan State University Communication Technology Laboratory, n/d).
- NEWSPAPER: The sign PRINT is repeated (Michigan State University Communication Technology Laboratory, n/d).

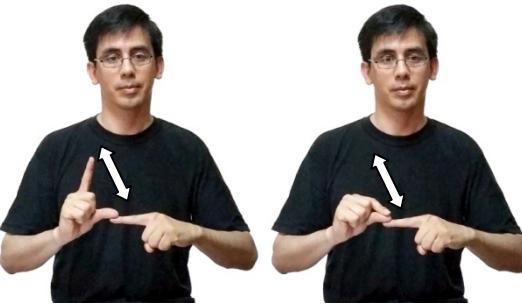
Analysis of the signs IMPRIMER, TO PRINT and IMPRIMIR.

Table 21.
The sign TO PRINT in LSF, in ASL and LSCh.

LSF IMPRIMER	
<p>The printer applies pressure on the paper as if printing the printer's mark. It has relation with the screw mechanism of the press that was used to apply pressure on the paper. It is similar to PRESSE (to press) and TO PRESS with the palms of both hands to leave a print mark.</p>	

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ASL TO PRINT	
<p>The right hand takes a mobile type and presses it on the left hand which is the paper to print. The same sign NEWSPAPER.</p>	

LSCh IMPRIMIR IMPRENTA	<p>1.</p>  <p>The right hand puts a mobile type on the left index finger (Compare with the sign index LETTER and WORD) and then pressure is applied.</p> <p>2.</p>  <p>The printer applies pressure to print. It is also similar to the old screw mechanism of the press that was used to apply pressure on paper.</p>
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Sign: EXPLIQUER, TO EXPLAIN and EXPLICAR.

Definition: to explain.

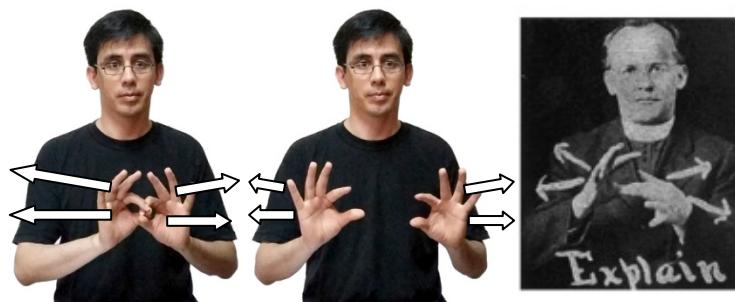
- To give someone the information they need to understand something.
- To show to someone how to do something by doing it while they watch you, especially when it is part of your job (to demonstrate) (Longman, n/d).
- To show something to someone, tell him in detail; to understand. (Larousse, n/d).
- To make something understood by a development, a written, oral or gestural demonstration. (CNRTL, n/d).
- To make known, to understand something to somebody in developing. (Le Parisien, n/d).

The sign TO EXPLAIN is made with the ring or tweezers hands to show someone something in detail in order to understand the message or the activity. For this, a person with experience helps an apprentice in this process through demonstration. This also occurs in the typical work of a young operator who is taking the first steps in typography, such as the distribution of types in the type case and other small jobs as well as removing the cotton strings or cords from the composed texts and folding them in small skeins among other things.

In typography, it is possible to find useful memories related to the sign TO EXPLAIN. They are similar in movements to the activity of an apprentice, being this the first step to become someday an experienced typographer. Higgins made mention of this sign in the following way: “Pulling apart the shreds” in 1910 and “Untangle the tangle” in 1942 as if it were a mass or a jumble (Shaw & Delaporte, 2015). It must be considered that the signs TO EXPLAIN, TALE and STORY differ only in movement (Shaw & Delaporte, 2015). The following could be some explanations or help memory of the signs:

- LSF: The ring handshape are separated several times.

The composed text or the sentence must be dismantled into small pieces or, in this case, the types must be separated. The ring handshape fits when disassembling the fragments. After that, each type is distributed back to the type case. At the same time, the metaphorical sense of the chain would end when breaking this union between the letters.



(Higgins, Explain, 1923)

Figure 44: The metaphorical union breaks.

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Figure 45: To fragment the word or sentence into pieces.

- ASL: The ring handshape moves back and forth alternately.

Once the typographer has used the typographic form, the types are distributed back to the type case. The words are taken and then the types are distributed back to their corresponding boxes. The hands move forward to return the types to the boxes and they go back to take others. This work is very important because they must be found quickly for the next composed text. At the same time, young people become familiar with the characters and their differences. However, if there are a lot of types to distribute, it is necessary to take all the types that are separated and scrambled that form a confusing mass of types and sort them one by one (Unostiposduros, 2003).

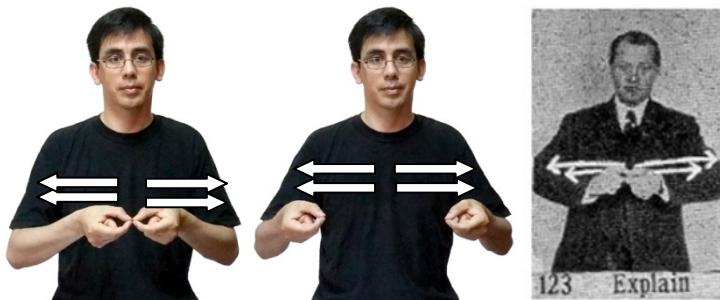


Figure 46: The hands are separated and the movement is repeated two or three times.



Figure 47: The types are returned to their corresponding boxes.

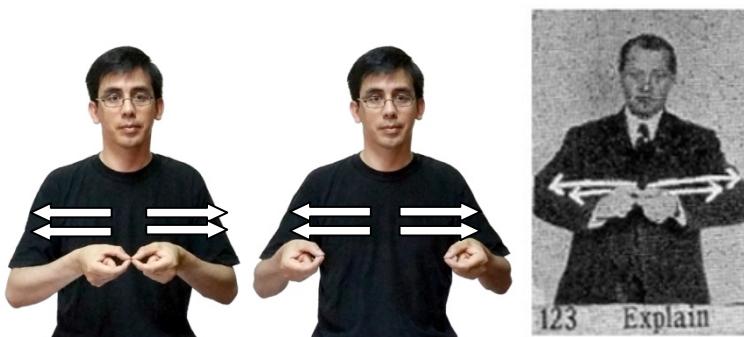
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Figure 48: The types are returned to their corresponding boxes.

- LSCh: The ring handshapes are separated and put together repeatedly.

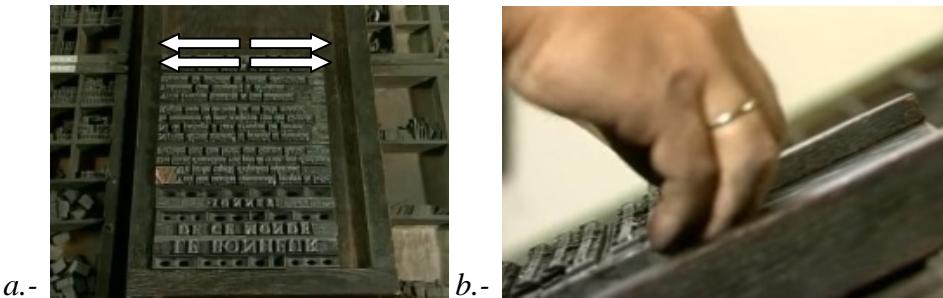
The sign SENTENCE with the ring handshape is used for the sign EXPLICAR. As mentioned earlier with the signs TALE and STORY, this sign with long movements shows several sentences that form a text. It also means DETALLAR (to detail) or DETALE (detail) with short movement only with a few centimeters of separation between them that could be each of the types.



(Long, Explain, 1918)

Figure 49: The hands are separated and the movement is repeated two or three times.

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(Musea Stad Antwerpen, 2010)

*Figure 50: (a) Lines of a composed text.
(b) A typographer is securing the composed lines.*

- TO EXPLAIN: The F handshapes move forward and back in an alternating movement. (Michigan State University Communication Technology Laboratory, n/d).
- TALE: The sign SENTENCE is modified and repeated to represent many sentences which make a story. (Michigan State University Communication Technology Laboratory, n/d).
- STORY: The sign SENTENCE is modified and repeated to represent many sentences which make a story. (Michigan State University Communication Technology Laboratory, n/d).

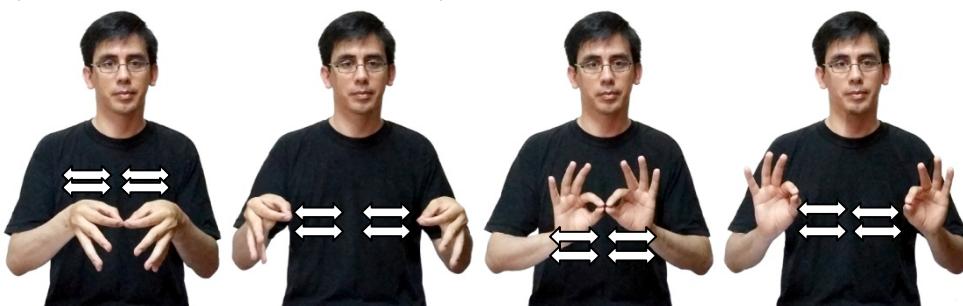
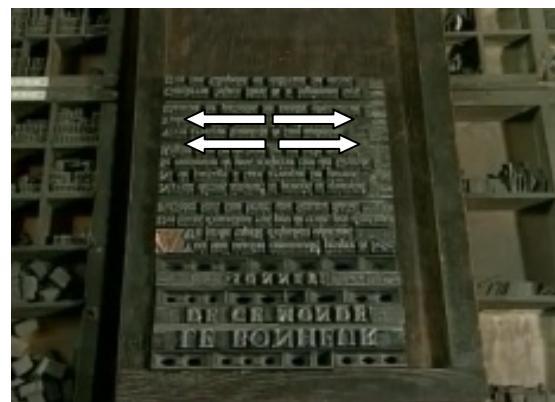
Analysis of the signs EXPLIQUER, TO EXPLAIN and EXPLICAR.

Table 22.
The sign TO EXPLAIN in LSF, in ASL and in LSCh.

LSF EXPLIQUER	<p>The sign language interpretation shows a man's hands forming 'F' handshapes. His left hand moves forward and back, while his right hand follows it in a similar pattern. White arrows indicate the direction of movement: double-headed arrows between the hands and single-headed arrows pointing away from each other.</p> <p>It is similar to separating or fragmenting the word into letters.</p>
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ASL TO EXPLAIN	 <p>It is similar to distributing the types in the type case.</p>  <p>TO EXPLAIN</p>
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LSCh EXPLICAR	<p>1. 2.-</p>  <p>The sign SENTENCE that is showing many lines of a text.</p>  <p>(Musea Stad Antwerpen, 2010)</p>
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Conclusion.

What is exposed throughout this work shows how typography has influenced the sign languages, from the alphabet of the Fray Pedro Ponce de León to the vocabulary created within the same typographical workshops. At the same time, it highlights how these signs have evolved over time, hiding their possible roots, making difficult their understanding. However, despite the limited information available, we can be sure of the active participation of the deaf community who inherited this knowledge. In addition, this was thanks to the initiative of those who traveled transmitting this knowledge along with the signs of the old typographic presses, both in Europe and in the countries of America.

The beginnings of this investigation began by understanding the relationship that exists between the sign INTERPRETAR in LSCh with interpretation. In addition, this sign is present in different images related to interpretation, sign courses, the deaf community, etc. what triggered a search and consultation with various sources. In the course of this study it is evident that there are connections among the signs whose analysis leads us to typographic composition.

Currently, the computer technology, the word processors, the downloadable fonts and the printers take us away from a reality that was present for more than 500 years in human history. Where in turn, an alphabet based on mobile types has been in force, with certain modifications, about 440 years. Again, the technology, the time and the use of these signs, with their variants, have made us forget the link that exists between all the words analyzed with linguistics and typography. However, at the moment of analyzing the typography with deaf typographers who worked in small workshops, it is evident that, when explaining with signs and classifiers the whole process of composition and printing, there are coincidences in the use of the signs already analyzed both with the typography and with its current meaning.

The sources available to carry out this research are scarce. Therefore, it was necessary to compare the available data, such as:

- Definitions of the words.
- Literature available related to typography (composition, tools, furniture).
- Interviews with the deaf typographers.
- Signs of three sign languages (LSF, ASL and LSCh).
- Definitions and etymologies available of the signs.
- Videos of the old typography.

It stands out that the printing press fits perfectly with this project because it gives a visual understanding from the concrete, the tangible. In turn, printing has its own culture and this spread in all the printing presses of the countries of America and with it also its signs. Understanding that it is not possible to determine what could be their origins, due to the limited information available at that time, it can be assured that the printing press left its mark on the signs currently used.

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Bibliography

- ACHIELS-Chile. (21 de noviembre de 2011). *Tweets y respuestas*. Recuperado el 25 de diciembre de 2017, de Twitter: <https://twitter.com/achielschile>
- American Heritage Dictionary. (n/d). *Choose*. Recuperado el 14 de abril de 2017, de American Heritage® Dictionary of the English Language, Fifth Edition. (2011): <http://www.thefreedictionary.com/choose>
- American Sign Language Browser. (n/d). *Interpret*. Recuperado el 2 de marzo de 2017, de Michigan State University Communication Technology Laboratory.: <https://commtechlab.msu.edu/sites/aslweb/I/W1857.htm>
- Barrère, S. (14 de febrero de 2012). *Differentes étymologies du signe « interprète » en LSF*. Recuperado el 22 de junio de 2017, de Des signes et des mots chroniques d'un interprète en langue des signes française: <https://interpretelsf.wordpress.com/2012/02/14/differentes-etymologies-du-signe-interprete-en-lsf/>
- Biblioteca Nacional de Chile. (n/d). *La imprenta en el siglo XIX*. Recuperado el 16 de diciembre de 2017, de MemoriaChilena: <http://www.memoriachilena.cl/602/w3-article-3519.html>
- Biblioteca Nacional de Chile. (n/d). *La prensa durante la Independencia (1810-1818)*. Recuperado el 15 de diciembre de 2017, de MemoriaChilena: <http://www.memoriachilena.cl/602/w3-printer-3532.html>
- Biblioteca Nacional de Chile. (n/d). *Su apogeo. Desarrollo del afiche en Chile (1905-1973)*. Recuperado el 14 de diciembre de 2017, de Memoria Chilena: <http://www.memoriachilena.cl/602/w3-article-93232.html>
- Bonet Barletserbant, J. P. (1620). *Abecedario Demonstrativo Redvction de las Letras y arte para enseñar a ablar los mvdos*. Recuperado el 8 de julio de 2017, de Biblioteca Digital Hispánica: <http://bdh-rd.bne.es/viewer.vm?pid=d-180918>
- Caiceo Escudero, J. (2010). “*Esbozo de la educación especial en Chile: 1850-1980*”, *Revista Educación y Pedagogía, Medellín, Universidad de Antioquia, Facultad de Educación*, vol. 22, núm. 57, mayo-agosto, 2010, pp. 31-49. Recuperado el 15 de febrero de 2017, de Aprende en línea Universidad de Antioquia: <http://aprendeenlinea.udea.edu.co/revistas/index.php/revistaeyp/article/viewFile/9839/9038>
- CNRTL. (n/d). *Expliquer*. Recuperado el 14 de abril de 2017, de <http://www.cnrtl.fr/definition/expliquer>
- Collins Spanish Dictionary. (n/d). *Cambiar*. Recuperado el 14 de abril de 2017, de Collins Spanish Dictionary - Complete and Unabridged 8th Edition. (2005): <https://es.thefreedictionary.com/cambiar>
- Craig, J., & Korol Scala, I. (2012). *Designing with Type, 5th Edition: The Essential Guide to Typography*. Recuperado el 05 de enero de 2018, de <https://books.google.cl/books?isbn=0823085600>
- Delaporte, Y. (noviembre de 2005). *La variation régionale en langue des signes française*. Recuperado el 18 de febrero de 2017, de Halsh Archives Ouvertes: <https://hal.archives-ouvertes.fr/halshs-00170332/document>
- Dictionary.com. (n/d). *Change*. Recuperado el 14 de abril de 2017, de Dictionary.com Unabridged: <http://www.dictionary.com/browse/change?s=t>
- Dictionary.com. (n/d). *Language*. Recuperado el 14 de abril de 2017, de <http://www.dictionary.com/browse/language?s=t>
- Dictionary.com. (n/d). *Paper*. Recuperado el 14 de abril de 2017, de <http://www.dictionary.com/browse/paper?s=t>
- Dictionary.com Unabridged. (n/d). *Choose*. Recuperado el 14 de abril de 2017, de <http://www.dictionary.com/browse/choose>

LETTERPRESS PRINTING AND SIGN LANGUAGE.

Elix. (n/d). *Imprimer*. Recuperado el 10 de marzo de 2017, de Elix Le dictionnaire vivant en langue des signes:
<https://www.elix-lsf.fr/dictionnaire/imprimer/article/imprimer-175473?lang=fr>

Elix. (n/d). *Lettre*. Recuperado el 14 de abril de 2017, de Elix Le dictionnaire vivant en langue des signes:
https://www.elix-lsf.fr/spip.php?page=sigues&id_article=183098&lang=fr

Elix. (n/d). *MOT*. Recuperado el 06 de enero de 2018, de Elix Le dictionnaire vivant en langue des signes:
<https://www.elix-lsf.fr/dictionnaire/mot-144289/article/mot?lang=fr>

Elix. (n/d). *Phrase*. Recuperado el 4 de diciembre de 2017, de Elix Le dictionnaire vivant en langue des signes:
<https://www.elix-lsf.fr/dictionnaire/phrase/article/phrase?lang=fr>

Empresa Periodística El Norte S.A. (18 de abril de 2008). *PERIÓDICOS CHILENOS*. Recuperado el 22 de julio de 2017, de Mercurioantofagasta:
http://www.mercurioantofagasta.cl/prontus4_noticias/site/artic/20080418/pags/20080418000505.html

Gascón Ríaco, A., & Storch de Gracia y Asensio, J. G. (18 a 22 de agosto de 2003). *Historia de las Lenguas de Señas (I): Edades Antigua y Media: Los prejuicios filosófico-jurídicos y los inicios prácticos. El alfabeto dactilológico*. Recuperado el 25 de diciembre de 2017, de Universidad Complutense de Madrid: <http://webs.ucm.es/info/civil/herpan/docs/historia1.pdf>

Gdict. (n/d). *String*. Recuperado el 14 de abril de 2017, de <http://gdict.org/define.php?word=string>

Gdict. (n/d). *String*. Recuperado el 14 de abril de 2017, de <https://dictionary.cambridge.org/dictionary/english/string>

Gdict. (n/d). *String*. Recuperado el 14 de abril de 2017, de <http://es.gdict.org/definicion.php?palabra=string>

Herrera Fernández, V. (2010). *Estudio de la población sorda en Chile: Evolución histórica y perspectivas lingüísticas, educativas y sociales*. Recuperado el 22 de febrero de 2017, de Revista Latinoamericana de Inclusión Educativa, 4(1), pp. 211-226.: http://www.rinace.net/rlei/numeros/vol4-num1/art10_htm.html

Higgins. (1923). *Explain* . Recuperado el 5 de enero de 2018, de Making historical sign language materials accessible: <http://hsldb.georgetown.edu/books/tablebook.php?id=296&refid=higgins1923>

Higgins. (1923). *Print*. Recuperado el 5 de enero de 2018, de Making historical sign language materials accessible: <http://hsldb.georgetown.edu/books/tablebook.php?id=628&refid=higgins1923>

IED Visual Communication Madrid. (30 de abril de 2013). *Tinta y tipos móviles. Taller de composición tipográfica*. Recuperado el 8 de marzo de 2017, de <http://iedvisualcommunication.iednetwork.com/2013/04/30/tinta-y-tipos-moviles-taller-de-composicion-tipografica/>

K Dictionaries. (n/d). *Interpretar*. Recuperado el 14 de abril de 2017, de K Dictionaries. (2013):
<https://es.thefreedictionary.com/interpreta>

K Dictionaries. (n/d). *Traducir*. Recuperado el 14 de abril de 2017, de K Dictionaries. (2013):
<https://es.thefreedictionary.com/traducir>

Klima, E., & Bellugi, U. (1979). *Historical Change: From Iconic to Arbitrary*. Recuperado el 11 de junio de 2017, de The Signs of Language Harvard University Press: <https://books.google.cl/books?isbn=0674807960>

Kovarik, B. (2015). *Revolutions in Communication: Media History from Gutenberg to the Digital Age*. Recuperado el 10 de noviembre de 2017, de <https://books.google.cl/books?isbn=1628924799>

Kovarik, B. (2015). *The printing revolution: from 1455 to 1814*. Recuperado el 23 de noviembre de 2017, de Revolutions in Communication: Media History from Gutenberg to the Digital Age Bloomsbury Publishing USA: <http://www.environmentalhistory.org/revcomm/features/life-in-a-print-shop/>

LETTERPRESS PRINTING AND SIGN LANGUAGE.

Larousse. (n/d). *Expliquer*. Recuperado el 14 de abril de 2017, de Dictionnaire français Larousse: <http://www.larousse.fr/dictionnaires/francais/expliquer/32273#bmeAcZ00owbDQ353.99>

Larousse Gran Diccionario. (n/d). *Cambiar*. Recuperado el 14 de abril de 2017, de Gran Diccionario de la Lengua Española. (2016): <https://es.thefreedictionary.com/cambiar>

Larousse Gran Diccionario. (n/d). *Escoger*. Recuperado el 14 de abril de 2017, de Gran Diccionario de la Lengua Española. (2016): <https://es.thefreedictionary.com/escoger>

Larousse Gran Diccionario. (n/d). *Explicar*. Recuperado el 14 de abril de 2017, de Gran Diccionario de la Lengua Española. (2016): <https://es.thefreedictionary.com/explicar>

Larousse Gran Diccionario. (n/d). *Interpretar*. Recuperado el 14 de diciembre de 2017, de Gran Diccionario de la Lengua Española. (2016): <https://es.thefreedictionary.com/interpretar>

Larousse Gran Diccionario. (n/d). *Lengua*. Recuperado el 14 de abril de 2017, de Gran Diccionario de la Lengua Española. (2016): <https://es.thefreedictionary.com/lengua>

Larousse Gran Diccionario. (n/d). *Letra*. Recuperado el 14 de abril de 2017, de Gran Diccionario de la Lengua Española. (2016): <https://es.thefreedictionary.com/letra>

Larousse Gran Diccionario. (n/d). *Oración*. Recuperado el 14 de abril de 2017, de Gran Diccionario de la Lengua Española. (2016): <https://es.thefreedictionary.com/oraci%C3%B3n>

Larousse Gran Diccionario. (n/d). *Palabra*. Recuperado el 14 de abril de 2017, de Gran Diccionario de la Lengua Española. (2016): <https://es.thefreedictionary.com/palabra>

Larousse Gran Diccionario. (n/d). *Traducir*. Recuperado el 14 de abril de 2017, de Gran Diccionario de la Lengua Española. (2016): <https://es.thefreedictionary.com/traducir>

Le Parisien. (n/d). *Expliquer*. Recuperado el 14 de abril de 2017, de Sensagent - dictionnaire: <http://dictionnaire.sensagent.leparisien.fr/EXPLIQUER/fr-fr/>

Lexicoon. (n/d). *Galerada*. Recuperado el 15 de mayo de 2017, de <http://lexicoon.org/es/galerada>

Lira Smith, J. S. (1905). *Indice de Decretos I Leyes del Ministerio de Relaciones Esteriores Culto I Colonización*. Recuperado el 15 de marzo de 2017, de Illinois University of Illinois at Urbana-Champaign: http://brittlebooks.library.illinois.edu/brittlebooks_open/Books2012-03/chilemi0001indded/chilemi0001indded.pdf

Lissi, M. R., Svartholm, K., & González, M. (2012). *El Enfoque Bilingüe en la Educación de Sordos: sus implicancias para la enseñanza y aprendizaje de la lengua escrita. Estudios pedagógicos* (Valdivia), 38(2), 299-320. Recuperado el 19 de febrero de 2017, de <https://dx.doi.org/10.4067/S0718-07052012000200019>

Logman. (n/d). *Interpret*. Recuperado el 14 de abril de 2017, de Longman Dictionary of Contemporary English: <http://www.ldoceonline.com/dictionary/interpret>

Long. (1918). *Change*. Recuperado el 5 de enero de 2018, de Making historical sign language materials accessible: <http://hsldb.georgetown.edu/books/tablebook.php?id=373&refid=long1918>

Long. (1918). *Explain*. Recuperado el 06 de enero de 2018, de Making historical sign language materials accessible: <http://hsldb.georgetown.edu/books/tablebook.php?id=223&refid=long1918>

Long. (1918). *LETTER*. Recuperado el 22 de enero de 2018, de <http://hsldb.georgetown.edu/books/tablebook.php?id=250&refid=long1918>

LETTERPRESS PRINTING AND SIGN LANGUAGE.

Long. (1918). *Printer*. Recuperado el 5 de enero de 2018, de Making historical sign language materials accessible: <http://hsldb.georgetown.edu/books/tablebook.php?id=535&refid=long1918>

Long. (1918). *Sentence, Language*. Recuperado el 05 de enero de 2017, de Making historical sign language materials accessible Georgetown University : <http://hsldb.georgetown.edu/books/tablebook.php?id=222&refid=long1918>

Longman. (n/d). *Explain*. Recuperado el 14 de abril de 2017, de Longman Dictionary of Contemporary English: <http://www.ldoceonline.com/dictionary/explain>

Longman. (n/d). *Language*. Recuperado el 14 de abril de 2017, de Longman Dictionary of Contemporary English: <http://www.ldoceonline.com/dictionary/language>

Longman. (n/d). *Paper*. Recuperado el 14 de abril de 2017, de Longman Dictionary of Contemporary English: <https://www.ldoceonline.com/dictionary/paper>

Longman. (n/d). *Print*. Recuperado el 14 de abril de 2017, de Longman Dictionary of Contemporary English: <http://www.ldoceonline.com/dictionary/print>

Longman. (n/d). *String*. Recuperado el 14 de abril de 2017, de <https://www.ldoceonline.com/dictionary/english-spanish/string>

Longman. (n/d). *String*. Recuperado el 14 de abril de 2017, de Longman Dictionary of Contemporary English: <http://www.ldoceonline.com/dictionary/string>

Longman. (n/d). *String*. Recuperado el 14 de abril de 2017, de <https://www.ldoceonline.com/dictionary/english-spanish/string>

Longman. (n/d). *Translate*. Recuperado el 14 de abril de 2017, de Longman Dictionary of Contemporary English: <http://www.ldoceonline.com/dictionary/translate>

Longman. (n/d). *Word*. Recuperado el 2017 de abril de 14, de Longman Dictionary of Contemporary English: <http://www.ldoceonline.com/dictionary/word>

Merriam-Webster. (n/d). *Change*. Recuperado el 14 de abril de 2017, de <https://www.merriam-webster.com/dictionary/change>

Merriam-Webster. (n/d). *Interpret*. Recuperado el 14 de abril de 2017, de <https://www.merriam-webster.com/dictionary/interpret>

Merriam-Webster. (n/d). *Letter*. Recuperado el 14 de abril de 2017, de Merriam-Webster: <https://www.merriam-webster.com/dictionary/letter>

Merriam-Webster. (n/d). *Print*. Recuperado el 14 de abril de 2017, de <https://www.merriam-webster.com/dictionary/print>

Merriam-Webster. (n/d). *Translate*. Recuperado el 14 de abril de 2017, de <https://www.merriam-webster.com/dictionary/translate>

Merriam-Webster. (n/d). *Word*. Recuperado el 14 de abril de 2017, de <https://www.merriam-webster.com/dictionary/word>

Michigan State University Communication Technology Laboratory. (n/d). *Adapt*. Recuperado el 28 de abril de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/A/W0046.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Change*. Recuperado el 28 de abril de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/C/W0595.htm>

LETTERPRESS PRINTING AND SIGN LANGUAGE.

Michigan State University Communication Technology Laboratory. (n/d). *Choose*. Recuperado el 28 de abril de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/C/W0627.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Explain*. Recuperado el 28 de abril de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/E/W1168.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Language*. Recuperado el 7 de abril de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/L/W2000.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Letter*. Recuperado el 22 de diciembre de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/L/W2053.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Letter*. Recuperado el 28 de mayo de 2017, de American Sign Language Browser: <http://commtechlab.msu.edu/sites/aslweb/L/W2053.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Newspaper*. Recuperado el 28 de abril de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/N/W2490.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Paper*. Recuperado el 28 de abril de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/P/W2726.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Press*. Recuperado el 28 de abril de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/P/W3016.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Print*. Recuperado el 28 de abril de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/P/W3033.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Sentence*. Recuperado el 14 de marzo de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/S/W3555.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Spelling*. Recuperado el 28 de abril de 2017, de American Sign Language Browser: The fingers wiggle to indicate their movement during finger spelling.

Michigan State University Communication Technology Laboratory. (n/d). *Story*. Recuperado el 2017 de marzo de 17, de Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/S/W3888.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Tale*. Recuperado el 28 de marzo de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/T/W4035.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Transform*. Recuperado el 28 de abril de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/T/W4218.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Translate*. Recuperado el 28 de abril de 2017, de American Sign Language Browser: <https://commtechlab.msu.edu/sites/aslweb/T/W4219.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Vocabulary*. Recuperado el 28 de abril de 2017, de American Sign Language Browser: <http://commtechlab.msu.edu/sites/aslweb/V/W4386.htm>

Michigan State University Communication Technology Laboratory. (n/d). *Word*. Recuperado el 5 de diciembre de 2017, de American Sign Language Browser:
<https://commtechlab.msu.edu/sites/aslweb/W/W4509.htm>

Ministerio de Educación. (2017). *Escuela Diferencial para Niños Sordos - Ficha Establecimiento*. Recuperado el 22 de diciembre de 2017, de Más información, mejor educación - Conozcamos nuestras escuelas: <http://www.mime.mineduc.cl/mime-web/mvc/mime/ficha>

Molina, M. I., Lagos, H. C., & Lagos, H. E. (2011). *Diccionario de la Lengua de Señas Chilena*. Santiago, Chile.

LETTERPRESS PRINTING AND SIGN LANGUAGE.

- Molina, M. I., Lagos, H. C., & Lagos, H. E. (2011). *Diccionario de la Lengua de Señas Chilena*. Santiago, Chile.
- Montt H, A. (1917). *Memoria Chilena de la Biblioteca Nacional de Chile*. Recuperado el 15 de marzo de 2017, de Materias colorantes chilenas - Memoria de Prueba:
<http://www.memoriachilena.cl/archivos2/pdfs/MC0059639.pdf>
- Moss, G. (n/d). *Video of printing in action*. Recuperado el 28 de noviembre de 2017, de First Impressions at The Jhon Rylands Library: <http://www.library.manchester.ac.uk/firstimpressions/From-Manuscript-to-Print/Technology-of-the-Book/Video-of-printing-in-action/>
- Muñoz Sierpe, A. (1909). *Enseñanza Universitaria y Técnica de Chile*. Recuperado el 16 de marzo de 2017, de Catálogo de la Exhibición de Chile en la Exposición de Quito:
<http://www.memoriachilena.cl/archivos2/pdfs/MC0039738.pdf>
- Musea Stad Antwerpen. (13 de julio de 2010). *Letterpress printing at the Museum Plantin-Moretus*. Recuperado el 22 de marzo de 2017, de Youtube:
https://www.youtube.com/watch?v=EWp_Rxaaq4M&index=1&list=PL0E7D0174325BC115
- NIH. (25 de abril de 2017). *American Sign Language*. Recuperado el 19 de marzo de 2017, de NIH Publication No. 11-4756: <https://www.nidcd.nih.gov/health/american-sign-language>
- Noro, J. E. (n/d). *Lutero, Gutenberg, Lutero La Primera Biblia y el Quiebrede la Unidad Religiosa*. Recuperado el 5 de febrero de <http://www.ldoceonline.com/dictionary/print>, de http://www.academia.edu/11179735/35._LUTERO_GUTENBERG_LA_IMPRENTA_Y_LA_BIBLI_A
- Oxford University Press. (n/d). *Interpret*. Recuperado el 14 de abril de 2017, de English Oxford Living Dictionaries: <https://en.oxforddictionaries.com/definition/interpret>
- Profesor en Línea. (n/d). *Sujeto y Predicado*. Recuperado el 14 de abril de 2017, de Profesor en Línea ¡Tu ayuda para las tareas!: <http://www.profesorenlinea.cl/castellano/sujetoypredicado.htm>
- Quitney, J. (11 de abril de 2012). *Learning to Set Type 1959 Whitten-Appleton 11min*. Recuperado el 24 de marzo de 2017, de Youtubec!: <https://www.youtube.com/watch?v=5LCESWe1jw0&t=268s>
- Real Academia Español. (n/d). *Imprimir*. Recuperado el 14 de abril de 2017, de <http://dle.rae.es/?id=L7WWOqr>
- Real Academia Española. (n/d). *Cambiar*. Recuperado el 14 de abril de 2017, de <http://dle.rae.es/?id=6vf6IVu>
- Real Academia Española. (n/d). *Escoger*. Recuperado el 14 de abril de 2017, de <http://dle.rae.es/?id=GGUmgZb>
- Real Academia Española. (n/d). *Interpretar*. Recuperado el 14 de abril de 2017, de <http://dle.rae.es/?id=LwUON38>
- Real Academia Española. (n/d). *Lengua*. Recuperado el 14 de abril de 2017, de <http://dle.rae.es/?id=N77BOll>
- Real Academia Española. (n/d). *Letra*. Recuperado el 2017 de abril de 14, de <http://dle.rae.es/?id=NAwHNtA>
- Real Academia Española. (n/d). *Palabra*. Recuperado el 14 de abril de 2017, de <http://dle.rae.es/?id=RUI938s>
- Real Academia Española. (n/d). *Papel*. Recuperado el 14 de abril de 2017, de <http://dle.rae.es/?id=RmThomy>
- Real Academia Española. (n/d). *Traducir*. Recuperado el 14 de abril de 2017, de <http://dle.rae.es/?id=aDwgC49>
- Renee Coleman, J., & England Wolf, E. (2009). *Advanced Sign Language Vocabulary; Raising Expectations: A Resource Text for Educators, Interpreters, Parents, and Sign Language Instructors*. Recuperado el 5 de enero de 2018, de <https://books.google.cl/books?isbn=0398079900>

LETTERPRESS PRINTING AND SIGN LANGUAGE.

Santos García, D. V. (2012). *Comunicación Oral y Escrita*. Recuperado el 14 de abril de 2017, de RED TERCER MILENIO S.C:
http://www.aliat.org.mx/BibliotecasDigitales/Axiologicas/Comunicacion_oral_y_escrita.pdf

Shaw, E., & Delaporte, Y. (2015). *A Historical and Etymological Dictionary of American Sign Language: The Origin and Evolution of More Than 500 Signs*. Washington, DC.: Gallaudet University Press.

Single English Wikipedia. (n/d). *Sentence*. Recuperado el 2017 de abril de 14, de Wikipedia, the free encyclopedia:
<https://simple.wikipedia.org/wiki/Sentence>

Start ASL. (n/d). *Basic Sign Language (ASL) Explanations Pointers and Explanations for ASL Grammar*. Recuperado el 22 de junio de 2017, de Start ASL: <https://www.startasl.com/basic-sign-language.html>

Stewart, A. A. (1919). *Typesetting A primer of information about working at the case, justifying, spacing, correcting, making-up, and other operations employed in setting type by hand*. Recuperado el 4 de febrero de 2017, de The Project Gutenberg: <http://www.gutenberg.org/files/46113/46113-h/46113-h.htm>

Termbank. (n/d). *String*. Recuperado el 14 de abril de 2017, de <http://termbank.com/es/espanol-ingles/string>

The American Heritage Dictionary. (n/d). *Language*. Recuperado el 14 de abril de 2017, de The American Heritage® Dictionary of the English Language, Fifth Edition copyright ©2017:
<https://www.ahdictionary.com/word/search.html?q=language>

The American Heritage Dictionary. (n/d). *Language*. Recuperado el 14 de abril de 2017, de American Heritage® Dictionary of the English Language, Fifth Edition. (2011):
<http://www.thefreedictionary.com/language>

Thefreedictionary. (n/d). *Imprimir*. Recuperado el 14 de abril de 2017, de Gran Diccionario de la Lengua Española. (2016): <https://es.thefreedictionary.com/imprimir>

Thesaurus (WordNet based). (n/d). *Sentence*. Recuperado el 14 de abril de 2017, de WordNet 3.0, Farlex clipart collection. 2003-2008. Princeton University, Clipart.com, Farlex Inc.:
<http://www.thefreedictionary.com/sentence>

Unostiposduros. (29 de septiembre de 2017). *Tratado clásico de tipografía: 1 Generalidades*. Recuperado el 3 de mayo de 2017, de Unostiposduros Teoría y práctica de la tipografía:
<http://www.unostiposduros.com/tratado-de-tipografia-1-generalidades/>

UnosTiposDuros. (29 de mayo de 2003). *Tratado clásico de tipografía: 10 Paquetes y pruebas*. Recuperado el 28 de noviembre de 2017, de Unostiposduros Teoría y práctica de la tipografía:
<http://www.unostiposduros.com/tratado-de-tipografia-10-paquetes-y-pruebas/>

Unostiposduros. (29 de mayo de 2013). *Tratado clásico de tipografía: 10 Paquetes y pruebas*. Recuperado el 11 de marzo de 2017, de Unostiposduros Teoría y práctica de la Tipografía:
<http://www.unostiposduros.com/tratado-de-tipografia-10-paquetes-y-pruebas/>

Unostiposduros. (2 de mayo de 2003). *Tratado clásico de tipografía: 12 Operación de distribuir*. Recuperado el 17 de noviembre de 2017, de UnosTiposDuros Teoría y práctica de la tipografía:
<http://www.unostiposduros.com/tratado-de-tipografia-12-operacion-de-distribuir/>

UnosTiposDuros. (11 de abril de 2003). *Tratado clásico de tipografía: 17 Manera de desmontar las formas*. Recuperado el 28 de noviembre de 2017, de Unostiposduros Teoría y práctica de la tipografía:
<http://www.unostiposduros.com/tratado-de-tipografia-17-manera-de-desmontar-las-formas/>

UnosTiposDuros. (4 de junio de 2003). *Tratado clásico de tipografía: 9 Composición, espaciado y justificación*. Recuperado el 25 de noviembre de 2017, de UnosTiposDuros Teoría y práctica de la tipografía:
<http://www.unostiposduros.com/tratado-de-tipografia-9-composicion-espaciado-y-justificacion/>

LETTERPRESS PRINTING AND SIGN LANGUAGE.

Vocabulary.com. (n/d). *String of words*. Recuperado el 14 de abril de 2017, de
<https://www.vocabulary.com/dictionary/string%20of%20words>

Wikipedia La enciclopedia libre. (n/d). *Dactilología*. Recuperado el 29 de julio de 2017, de
<https://es.wikipedia.org/wiki/Dactilolog%C3%A9A>

Wikipedia La Enciclopedia Libre. (n/d). *Palabra*. Recuperado el 2017 de abril de 2017, de
<https://es.wikipedia.org/wiki/Palabra>

Wikipedia. (n/d). *Registry of Interpreters for the Deaf*. Recuperado el 23 de marzo de 2017, de Wikipedia, the free encyclopedia: https://en.wikipedia.org/wiki/Registry_of_Interpreters_for_the_Deaf

Wikipedia, the free encyclopedia. (n/d). *French Sign Language family*. Recuperado el 17 de febrero de 2017, de Wikipedia, the free encyclopedia: https://en.wikipedia.org/wiki/French_Sign_Language_family

Wikipedia, the free encyclopedia. (n/d). *Language interpretation*. Recuperado el 27 de abril de 2017, de
https://en.wikipedia.org/wiki/Language_interpretation

Wikisign. (n/d). *Choisir*. Recuperado el 4 de diciembre de 2017, de <http://lsf.wikisign.org/wiki/Choisir>