



RELATIVE CLAUSES IN BRAZILIAN SIGN LANGUAGE: NON-MANUAL MARKERS AS A COMBINING STRATEGY

SENTENÇAS RELATIVAS NA LIBRAS: AS MARCAÇÕES NÃO-MANUAIS COMO ESTRATÉGIA DE ARTICULAÇÃO

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Resumo: Essa pesquisa pretende discutir a articulação de orações relativas restritivas e explicativas em Libras, com foco específico sobre o uso das marcações não-manuais. As orações relativas funcionam como adjunto de um sintagma. Essa pesquisa integra o Inventário da Libras da Região Metropolitana de Palmas, no estado do Tocantins. A análise dos dados foi realizada no ELAN com a criação de trilhas específicas para anotar as marcações não-manuais nas articulações de sentenças relativas restritivas e explicativas na Libras. Pretende-se verificar como as marcações não-manuais pode ser uma estratégia para distinguir sentenças relativas restritivas e explicativas de suas sentenças matrizes na Libras.

Palavras-Chave: Orações Relativas Restritivas e Explicativas. Marcações Não-Manuais. Inventário Nacional da Libras.

Abstract: This paper discusses the construction of restrictive and non-restrictive clauses in Brazilian Sign Language (Libras), regarding the use of non-manual markers. Relative clauses play the role of an adjunct to a phrase. This research integrates the Inventory of Libras at Palmas – Tocantins, Brazil. Data analysis was carried out on ELAN with the creation of specific tiers to transcript non-manual markers in order to analyze restrictive and non-restrictive clauses in Libras. I intend to verify how non-manual markers can be used as a strategy to distinguish restrictive and non-relative clauses from their main clauses in Libras.

Keywords: Restrictive and Non-Restrictive Clauses. Non-Manual Markers. National Inventory of Libras.

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Introduction

Clause construction is a grammatical strategy found in any natural languages. This phenomenon originates complex constructions that are manifested in a continuous gradient (parataxis – hypotaxis – embedding), from the integration of syntactic, semantic and pragmatic levels of the language in use. This research employs a functionalist perspective of language and aims to describe the process of clause construction in Brazilian Sign Language (henceforward Libras). Regarding the data analyzed, the use of juxtaposition as strategy for combining clauses is noticed. Additionally, non-manual markers such as facial expressions and head and body movements can play an important role in combining clauses.

Within this context, this research aims at discussing restrictive and non-restrictive relative clause construction in Libras regarding the use of non-manual markers. Relative clauses work as a complement to a phrase, playing a syntactic role of a noun phrase.

Tang and Lau (2012) point out that non-manual markers, particularly eyebrow movements, can be considered a strategy to combine relative clauses. The authors developed their research analyzing data from Hong Kong Sign Language (HKSL), American Sign Language (ASL), Italian Sign Language (LIS) and German Sign Language (DSG). Liddell (1980) has also pointed out that ASL employs non-manual markers in relative clauses.

This research is part of the Libras Inventory at Palmas, Tocantins in Brazil. Thus, this work takes data from this Inventory, following the methodology of the Brazilian National Inventory of Libras, as described by Ludwig, Leão, Carneiro et. al. (2019). The data from this inventory is used to analyze the construction of restrictive and non-restrictive clauses. Data analysis was carried out on ELAN with the creation of specific tiers to annotate the non-manual markers in the constructions of restrictive and non-restrictive relative clauses in Libras. It is intended to verify how the non-manual markers can be a strategy to distinguish restrictive and non-restrictive relative clauses in Libras from the main clause.

For the analysis of relative clauses in Libras, seven videos from the Libras Inventory of the Region of Palmas are analyzed. There were analyzed two interviews, two narratives and three conversations from the Libras Inventory at Palmas – Tocantins. It was chosen two informants who are 22-year-old women. The purpose of choosing these videos is to verify the use of non-manual markers in signing in different discursive contexts. In order to establish a contrast with other sign languages, secondary data from other researches of other sign languages were reported in this research.

For data transcription, it was employed ELAN (Eudico Linguistic Annotator), a multimodal device that allows transcribing video and audio. Different tiers were used for the glosses for each signer in the discursive contexts. The glosses are transcribed in capital letters, following the Libras National Inventory convention. However, for this research, some markers were introduced, considering that the reader will not access the videos with full signing. Thus, the following conventions were adapted: a) agreement verbs as in 1ASK3 or 3ASK1, indicating the pronominal persons by means of numbers referring to the grammatical persons; b) Index IX, indicating the persons of the speech; c) for possessives, POSS, indicating relationship of possession; d) for demonstrative pronouns, DEM, indicating the referent in question.

For ethical reasons, proper names of people and their sign-names were transcript as SIGN-NAME. This was adopted because the members of the deaf community, in general, are well known among each other and any information could identify one of the informants. Other conventions are presented in the list of abbreviations at the end of the article.

Furthermore, as this is a functionalist approach, the transcription of data, in this research, aims to depict the context of the clause, indicating more elements to understand the dialogue, which go beyond the relative clause.

Parataxis, Hypotaxis and Embedding

According to Cecchetto *et al.* (2017, p. 415), subordination can be understood as a “syntactic

mechanism” through which the combination of complex clauses takes place. As opposed to coordination (parataxis), in which clauses have a status of equity between them, without hierarchies, a fundamental characteristic of subordination is that there is an “asymmetric status of two (or more) clauses that are in a relationship hierarchical” (Cecchetto *et al.*). Cecchetto *et al.* (2017) point out that the main clause, considered by some theorists as an “independent clause”, possesses syntactic and semantic autonomy. On the other hand, the hypotactic or embedded clause, considered dependent, presents a relationship of syntactic and semantic dependence on the matrix clause.

In this research, we used the terminology proposed by Lehmann (1988) and Halliday (2004). According to Lehman, the terminologies adopted can be related as follows:

For Lehmann (1988), **Parataxis** is the process of coordinating clauses. Halliday (2004) defines parataxis as the combination of clauses with the same status, prevailing symmetrical relationships between the combined clauses. However, this work does not analyze parataxis in Libras.

Subordination is considered a way of connecting clauses, in a broader sense, as a “prototypical concept” (Lehman, 1988, p. 2). It encompasses hypotaxis and embedding and has been used by structuralist linguistic schools and by classical philology to define the relationship of complex clauses in a broader sense (Lehman, 1988).

Hypotaxis is conceived as the “subordination of a clause in the restricted sense”, which presents a relationship of dependence and functions as a satellite clause that revolves around the matrix clause. Halliday (2004, p. 452) points out that hypotaxis is the connection of elements that do not have the same hierarchical status. For Halliday, “the dominant element is free, but the dependent element is not” (2004, p. 452). Although there is dependence of the hypotactic clause to the matrix clause, the hypotactic clauses complement and expand the meaning of the matrix clause. However, they are not essential for the construction of the clause meaning.

On the other hand, Lehmann defines **embedding** as “the dependence on a subordinate phrase” (1988, p. 2). That is to say, a given phrase is modified by an embedded clause, which, unlike hypotaxis, may be indispensable, since the meaning of a given term in the matrix clause is constituted or defined by the embedded clause. Halliday (2004) defines embedding as follows:

Embedding is a semogenic mechanism whereby a clause or phrase comes to function as a constituent within the structure of a group, which itself is a constituent of a clause, e.g. *who came to dinner* in *the man who came to dinner*. Hence there is no direct relationship between an embedded clause and the clause within which it is embedded; the relationship of an embedded clause to the ‘outer’ clause is an indirect one, with a group as intermediary. The embedded clause functions in the structure of the group, and the group functions in the structure of the clause (Halliday, 2004, p. 491).

In that sense, embedding modifies a noun phrase within a clause, specifying or explaining the meaning of the noun head or, in some cases, a clause.

Restrictive and non-restrictive relative clauses

According to Cecchetto *et al.* (2017, p. 442), a relative clause is a clause whose main property is the modification of a noun, considered the nucleus of the noun phrase. In this way, it has an adjective function. Languages, in general, present processes for the constitution of relative clauses in a very different way.

According to Tang and Lau (2012), in oral languages, relative clauses are classified with internal or external nucleus, post-nominal or pre-nominal, restrictive or non-restrictive, with the use of pronouns, as well as in relation to its position within the clause. In this research, only the distinctions between restrictive relative and non-restrictive clauses are discussed.

Cecchetto *et al.* (2017) point out that there are sign languages that do not mark relative clauses with a lexical item (manual marker). Thus, the identification of a relative clause in a given sign language can be a challenging task, as there may be the presence of non-manual markers

that function as the only linguistic mechanism that allows the distinction between relative and paratactic clauses. (Cecchetto *et al.*, 2017).

For Cecchetto *et al.* (2017), research in sign languages indicates that semantic differences between restrictive and non-restrictive clauses may have effects on syntactic structure. According to Cecchetto *et al.* (2017, p. 450), “while restrictive relative clauses may be marked by relativizing signs and specific non-manual markers, non-restrictive relative clauses may not show signs of relativizing” and non-manual markers that evidence the relative clauses.

According to Cecchetto *et al.* (2017), non-restrictive relative clauses look like parenthetical or appositional clauses. Its boundaries are marked, in some cases, by the blink of the eyes, that is, a specific mark to determine the clause boundaries. Therefore, they can also be called non-restrictive or appositive.

According to Cecchetto *et al.* (2017), the distinction between restrictive and non-restrictive relative clauses is semantic. Restrictive relative clauses “limit a set of possible entities to which the noun modified by the relative clause can refer” (Cecchetto *et al.*, 2017, p. 447). On the other hand, non-restrictive clauses only provide additional information about the modified noun (Cecchetto *et al.*, 2017, p. 447).

Use or absence of a relative sign

In some sign languages, the tendency is to use some lexical item to mark the clause. For example, in Libras, there are non-manual markers that highlight the relative clauses, except for some cases (when the sign O-QUE (WHAT) is used). According to Tang and Lau (2012, p. 358), specific non-manual markers such as raised eyebrows, head lean, upper lip lift (ASL), trunk tilt to the side towards the location of the relative pronoun in German Sign Language (DGS), as well as shrunken eyes and lips forward in LIS.

According to Cecchetto *et al.* (2017) and Tang and Lau (2012), DGS presents relative clauses with an external nucleus and employs a sign that is equivalent to a relative pronoun. According to Cecchetto *et al.* (2017, p. 452) and Tang and Lau (2012), the German Sign Language (DGS) has two relative pronouns: the relative pronoun for human referents (PROR-H) is articulated with a configuration of hand in 1 (extended index and the other flexed fingers), which looks like a person classifier (Cecchetto *et al.*, 2017, p. 452); and the relative pronoun for non-human referents (PROR-NH). In this case, the non-human relative signal is configured as a pointing signal with the indicator (INDEX). Furthermore, according to Cecchetto *et al.* (2017, p. 452), the relative clauses in DGS have non-manual markers as in the examples (02.a) and (02.b), only on the relative pronoun:

_____rel
(02) a. MAN PROR-H CAT HIT
'The man who is beating the cat'

_____rel
B. BOOK PROR-NH POSS1 FATHER READ
'The book my father is reading'
Source: DGS, Cecchetto *et al.* (2017, p. 452).

As noted in the case of DGS, the relative clause is marked by a specific relative pronoun, which changes according to a human or non-human referent. Non-manual marker only extends over the relative sign. In Libras, the relative clauses are enunciated by specific non-manual markers, which require thorough analysis. There are reports that other sign languages also employ non-manual markers in order to specify the relative clauses.

According to Cecchetto *et al.* (2017), sign languages present a variation that goes from the use of a lexical item to the use of non-manual markers. There are sign languages that do not necessarily employ a relative sign to mark the relative clause, as in the example in Libras:

_____rel
(01) GIRL FALL BICYCLE STAY HOSPITAL
Translation: The girl who fell off the bicycle is in the hospital.
Source: (Libras; Nunes; Quadros 2004, p. 2).

In this example in Libras, GIRL is the noun modified by the relative clause FALL BICYCLE. There is a non-manual mark that spreads over the entire restrictive relative clause. This clause may be classified as a restrictive relative clause, as it specifies who is in hospital, among a possible universe of several girls who can be referenced in the speech.

Non-Manual Markers on Relative Clauses in ASL, HKSL, NGT, LSC and Libras

Restrictive and non-restrictive relative clauses have already been studied in some sign languages. They can be classified according to the semantic information about a noun phrase they are referring to. According to Carneiro et al. (2020), restrictive relative clauses play the function of the adjunct to the head of the phrase. On the other hand, the non-restrictive relative clauses explain the clause or a noun phrase, expanding the information about a given referent. However, they do not specify the noun phrase and they might be omitted from the clause, since they just provide further information.

In oral languages, relative clauses are distinguished from the main clause by a relative pronoun. However, in sign languages, the relative clauses, in general, do not have a lexical item that differentiates them from the main clause. A seminal study carried out by Liddell (1980; 2003) suggests that relative clauses of sign languages differ from the matrix clause through non-manual markers. Other studies suggest this finding, such as Tang and Lau (2012), Cecchetto (2012), Sandler (2012) and Wilbur (2012). In Libras, there is little research on this phenomenon, such as the research by Carneiro, Ludwig and Quadros et al. (2021), Ludwig and Carneiro (2020, 2019), and Quadros and Nunes (2004).

Liddell (2003) presents a preliminary analysis of how relative clauses are combined in American Sign Language (ASL). For the author, relative clauses are certain syntactic constructions whose purpose is to attribute information that helps to identify which entity is being addressed to in the speech.

For his research, Liddell (2003) created a story with several unnamed characters and asked signers to read and retell the story in ASL. By not naming the characters, he managed to get the informants to produce relative clauses in ASL. Although the signers actually produced relative clauses, they were not identified in an obvious way as in oral languages, since it was quite difficult to identify them at first. After a thorough analysis, Liddell (2003) realized that facial expressions play a significant role in signing. In his analysis, specific combinations of facial expressions, as well as head positioning, constitute grammatical markers for relative clauses in ASL.

Thus, Liddell reports that the non-manual markers of restrictive relative clauses in ASL are constituted by raising the eyebrows, tilting the head back, and contracting the muscles of the cheek and lips. In (01) we see an example of Liddell's (2003, p. 55) analysis:

(03) _____r
RECENTLY DOG CHASE CAT GET HOME
Translation: The dog that recently chased the cat came home.
Source: Liddell (2003, p. 55).

In the example presented by Liddell (2003), the non-manual marker for the relative clause (r) starts in RECENTLY and extends until CAT. For Liddell (2003), the non-manual marker plays specified grammatical function, as much as it spreads through all the signs of the relative clause. This phenomenon helps to identify the relative clause. Although some authors such as Thompson

(1977) initially thought ASL (and by extension all sign languages) did not have relative clauses, Liddell's research contributed to analyze relative clauses in sign languages by demonstrating that modality effects articulated this type of clause differently from oral languages.

One of the greatest challenges in sign language research is identifying the boundaries between the main clause and the relative ones. According to Tang and Lau (2012), research focuses on diagnostic analysis to identify relative clauses such as (i) copies of the subject pronouns of the matrix clause; (ii) spreading the negative non-manual marker of the matrix clause over the relative clause; and (iii) the "wh-extraction" of embedded clauses. However, research in other sign languages such as Dutch Sign Language (NGT) and Hong Kong Sign Language (HKSL) demonstrate that these strategies do not work universally in sign languages and may be a specific feature of ASL. According to Tang and Lau (2012), these diagnostic analyses fail in HKSL, as the non-manual markers of this sign language only spread over the relative clause. These findings in HKSL, as well as in NGT seem to point to a specific behavior in Libras as well, in which the embedded relative clause has non-manual markers, as will be discussed later in the data analysis.

As mentioned by Cecchetto *et al.* (2017), non-manual markers constitute a linguistic strategy of sign languages for the distinction of relative clauses from paratactic clauses with two juxtaposed clauses. Paratactic clauses tend not to use non-manual markers, but only the juxtaposition and proposition that emerges from the context of the clause. For Cecchetto *et al.* (2017), the relative clauses require non-manual markers in all sign languages studied so far. If there is no non-manual mark on the clause, it will either be interpreted as paratactic or ungrammatical.

According to Cecchetto *et al.* (2017), when there are no relative signs in sign languages, the only way to distinguish between relative and paratactic clauses is non-manual markers. For to Cecchetto *et al.* (2017, p. 455), research in sign languages reports the following non-manual expressions in relative clauses: eyebrow raised, nod over clause core or relative sign, head back, tight upper lip.

In Cecchetto's analysis (2017), in general, sign languages use a "combination of different non-manual markers. The sequence of manual signs with non-manual markers is called the "spreading domain of non-manual markers", which can occur over the entire relative clause or over a certain lexical item. In constructions (04), (05) and (06), we see some examples (rel = relative; nh = nod of the head; re = raised eyes):

_____rel _____nh
(04) 1ASK3 GIVE1 URSULA DOG KICK THAT ONE
"I asked him to give me the dog Ursula kicked."
Source: (ASL ; Cecchetto *et al.* 2017, p. 453).

_____re
(05) YESTERDAY MAN(IX3) PROR-H3 CAT BEAT ARRIVE
"The man who is beating arrived yesterday."
Source: (DSG ; Cecchetto *et al.* 2017, p. 453).

_____rel
(06) [DOG3 IX3 EAT A LOT PE3] DOCTOR (IX3) VETERINARIAN TAKE
'I took the dog that ate a lot to the vet.'
Source: (LIS ; Cecchetto *et al.* 2017, p. 453).

In construction (04), there is a specific non-manual marker on the relative clause (rel), while the relative pronoun THAT presents the nod of the head, confirming the proposition that emerges in the relative clause. In clause (05), in DGS, there is only a non-manual marker on the relative pronoun for human referents (PROR-H), which is typical of DGS. There are no non-manual markers on the relative clause. In the example (06) in Italian Sign Language (LIS), the non-manual marker (rel) spreads over the entire clause and over the relative pronoun (PE). As noted, the behavior of non-manual markers of relative clauses differs in sign languages, but all have some specific marker that enhances the relative clause.

In clause (09), there is another example of non-manual marker to distinguish the relative clause:

(09) FIRE OH, EVERYDAY PAST IX(I) TAKE CLASSES LICENSE-DRIVE CAME CITY GO BACK POSS(my) CITY, THERE-BE SIDE TREE TREE SIDE FIRE FIRE IX(I) SEE ANIMAL [FAST DV(run)] IX(I) FEEL SAD DEM(animal)

Translation: Fire, oh! Some time ago I got a driver's license and I came here from my city every day. There were trees on each side of the road and fire on both sides of the road, then I saw an animal *that passed the road, he was running fast*, I felt very sad because of that animal.

Source: Libras Inventory of Palmas – Tocantins, Conversation: Fire in Tocantins, Informant 2.

In this example, the informant specifies an animal on the side of the highway that passes quickly to escape the fire, in a universe of countless animals in the forest. The descriptive verb DV(run) is marked by the facial expression, eyes shrunken and tense mouth. These non-manual markers on the descriptive verb DV(run) indicates the nucleus of the relative clause. The non-manual markers distinguish the relative clause from the main clause. As in the previous clauses, the articulation strategy used is juxtaposition, combined with non-manual markers.

Clause (10) presents the non-manual marker focus to make explicit the restrictive relative clause:

(10) ALSO IX(I) DISAGREE FATHER MOTHER [FORCE CHILDREN WEAR COCHLEAR IMPLANT].

Translation: I am also against parents *who force their children to use a cochlear implant*.

Source: Libras Inventory of Palmas – Tocantins, Conversation: Technology x Cochlear Implant, Informant 2.

In this example (10), the informant makes a distinction in a universe between parents who force their children to use a cochlear implant, and parents who do not. The restrictive relative clause, [FORCE CHILDREN WEAR IMPLANT-COCHLEAR], is marked by focus. This focus mark distinguishes the relative clause from the matrix clause. There is no lexical item that marks the relative clause, only non-manual expressions.

In clause (11), one can see the use of two non-manual markers that distinguish the main clause from the restrictive one:

(11) SOMETIMES ANOTHER PLACE [ALREADY PAST RESIST] CHANGE ANOTHER DIRECTOR FAST CHANGE BETTER ACCEPT

Translation: Sometimes in another place *where there was resistance* (regarding sign language) in the past, the director was replaced and there were improvements.

Source: Libras Inventory of Palmas – Tocantins, Interview, Informant 1.

The signer distinguishes a place where there was resistance to Libras, opposed to other places that accept the language, with the replacing of the school director. The phrase PLACE is specified by the restrictive relative clause [ALREADY PASSED RESIST], indicating that this place did not accept Libras as a means of language education, unlike some others. The restrictive relative clause presents two simultaneous non-manual markers: frowning and tensed lips. These non-manual markers frowning and tensed lips distinguish the relative clause from the main clause. As noted, Libras' restrictive relative clauses have specific non-manual markers that differentiate them from the main clause. The non-manual markers and the clause juxtaposition strategy enhance the restrictive relative clause.

Non-restrictive Clauses in Libras

The non-restrictive relative clauses present complementary information about a noun phrase. They explain and give extra information about a particular referent. They differ from relative restrictive embedded clauses expanding the meaning of a phrase, whereas restrictive relative clauses specify a referent in a universe of several other possible referents. The non-restrictive hypotactic clauses may be also called appositive clauses. Clause (12) presents an example of non-restrictive relative clause:

(12) BECAUSE IX(I) DEAF 3GIVE1 TWO CHILDREN DEAF [WERE LITTLE CHILDREN] GIVE SIGN-NAME BECAUSE DEM(marc on face)

Translation: Because I am deaf, and two deaf children, *who were very small*, gave me my sign, because of this mark on the face.

Source: Libras Inventory of Palmas – Tocantins, Interview, Informant 2.

In clause (12), the signer reports that two deaf children gave her a sign. The clause WERE LITTLE CHILD, might omitted without major semantic problems, as it only depicts additional information about these two deaf children who gave her the sign. There is the non-manual marker, frowning, over the non-restrictive relative clause, WERE LITTLE CHILDREN, which introduces it into the main clause. In this example, there is no connector that indicates the relative clause, but only the juxtaposition is used as a clause articulation strategy.

Example (14) highlights another case of non-restrictive clause:

(14) IX(I) REMEMBER THAT BEACH [BE THERE CITY THERE] IX(I) IX(you) TOGETHER REMEMBER PAST

Translation: I remember this beach, *that is near the city*, you and I were together, do you remember some time ago?

Source: Libras Inventory of Palmas – Tocantins, Conversation: Leisure in Tocantins, Informant 1.

In clause (14), the clause [BE THERE CITY THERE] is the non-restrictive hypotactic clause. It just expands the sense of the noun phrase THAT BEACH with additional information. As can be seen, the nucleus of the phrase BEACH is already specified with the demonstrative pronoun THAT, as the informant points to the picture of the linguistic stimuli on the monitor of the computer. The non-restrictive relative clause only adds information. Therefore, this phrase THAT BEACH does not need to be distinguished within a universe of other beaches, as it is the only one uttered in the signer's speech. There is specific non-manual marker on the clause, frowning, which distinguishes the relative non-restrictive clause from the matrix clause. Moreover, juxtaposition is employed as a strategy for combining the clauses.

Final Remarks

Relative clauses can be classified as either restrictive or non-restrictive clauses. Restrictive relative clauses define a noun phrase within a universe of other possible entities in the discourse, individualizing and specifying this referent. Therefore, it becomes an indispensable clause in the discourse, as the global meaning of the clause depends on this specification provided by the relative restrictive clause. On the other hand, non-restrictive relative clauses work as a sentence that adds additional information to a noun clause.

As analyzed in this research, sign languages from several countries use non-manual markers to highlight relative clauses. Some sign languages, such as ASL, LIS and DGS, also use a relative

pronoun to mark relative clauses. However, this strategy is not widely used in sign languages. Most sign languages tend to employ non-manual markers to distinguish the relative clause from the matrix clause.

In general, Libras does not use any relative pronoun in relative clauses. On the contrary, as shown by the data from this research, Libras uses non-manual markers such as the frowning and facial expression of the mouth to highlight the relative clauses. Furthermore, juxtaposition appears to be a recurrent strategy to articulate restrictive relative and non-restrictive clauses. Considering this research is seminal, it was not possible to find differences in non-manual markers between restrictive relative clauses and non-restrictive clauses. However, these non-manual marks help to distinguish the relative clause from the main clause, without the need for a relative pronoun as in some other sign languages.

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