

Grammaticalization in Sign Languages¹

Gramaticalização nas Línguas de Sinais

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Abstract: This research describes the grammaticalization processes of signs in a synchronic view in Brazilian Sign Language (Libras). Grammaticalization is generally defined as the process by which a given word undergoes linguistic changes to have an assigned grammatical function. The analysis includes data from the Libras Inventory of Tocantins and the Deaf Reference Corpus of Libras. This research describes interviews with nine Libras informants who are part of these two data collections. The data were analyzed in Elan. Specific tiers were created with different types of complex clauses and one for the linguistic phenomenon of grammaticalization. The data indicate that there is an ongoing grammaticalization process in Libras, especially in connectives of causal and conditional clauses.

Key-Words: Grammaticalization; Hypotactic Clauses; Libras.

Resumo: Esta pesquisa descreve os processos de gramaticalização de sinais em uma perspectiva sincrônica na Língua Brasileira de Sinais (Libras). A gramaticalização é geralmente definida como o processo pelo qual uma determinada palavra sofre mudanças linguísticas para ter uma função gramatical atribuída. Foram analisados sinais que podem desempenhar o papel de conectivos na hipotaxe adverbial em Libras. A análise inclui dados do Inventário de Libras do Tocantins e do Corpus de Libras e dos Surdos de Referência. Esta pesquisa descreve entrevistas com nove informantes de Libras que fazem parte dessas duas coleções de dados. Os dados foram analisados no Elan. Trilhas específicas foram criadas com diferentes tipos de orações complexas, bem como uma trilha específica para o fenômeno linguístico da gramaticalização. Os dados indicam que há um processo de gramaticalização em andamento em Libras, especialmente em conectivos de orações causais e condicionais.

Palavras-Chave: Gramaticalização; Orações Hipotáticas; Libras.

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Introduction

This paper takes into account grammaticalization processes in sign languages. It discusses signs which may play a connective function in adverbial hypotaxis in Libras and in sign languages. Data from the Libras Corpus are used, the Libras Inventory of Tocantins and the Deaf Reference Collection, the latter a linguistic collection of deaf leaders from all over Brazil. The Libras Inventory and the Deaf Reference Collection have standardized data collection, storage, and transcription to facilitate research in Libras. Thus, Data analyses were conducted in Elan – Eudico Linguistic Annotator, a multimodal software that supports sound and video media, which can be used in research on spoken and signed languages. Tiers were created for the various types of complex sentences, in addition to a specific tier called grammaticalization.

1 Theoretical Issues on Grammaticalization

The process of grammaticalization is a recent area of research in both spoken languages (Heine; Narrog, 2011) and sign languages (Pfau; Steinbach, 2011). Grammaticalization can be defined as the process of assigning a grammatical function to a word. It is the process that shows how certain lexical items develop into “new grammatical functions” (Hopper; Traugott, 1993, p. 2). Furthermore, the grammaticalization process causes words that already have a grammatical function to consolidate this role from a syntactic point of view, becoming syntactically crystallized and more grammatical over time (Hopper; Traugott, 1993). In that sense, certain lexical items undergo a gradual and unidirectional transformation, resulting in “fluid patterns of the language in use” (1993, p. 2).

Grammaticalization is a natural process that occurs in any language, even if there is no written record of the language. Meillet (1912) was the first linguist to use the concept of grammaticalization in his essay *The Evolution of Grammatical Forms*, in his work *Linguistique Historique et Linguistique Générale* (2020 [1912]). Meillet conceptualizes grammaticalization as “the attribution of a grammatical function to a previously autonomous word”. (1912, p. 131). In other words, grammaticalization can be defined as the process by which a given word begins to have an assigned grammatical function. In that way, it is the process that demonstrates how certain lexical items develop into “new grammatical functions” (Hopper; Traugott, 1993, p. 2). Grammaticalization also makes words that already have a grammatical function to consolidate this role from a syntactic

point of view, which turns out to be syntactically crystallized and more grammatical over time (Hopper; Traugott, 1993). In that sense, Meillet argues that

the “grammaticalization” of certain words creates new forms, introduces categories that had no linguistic expression and transforms the system as a whole. This type of innovation results, in fact, like analogical innovations, from the use made of the language; it is an immediate and natural consequence of use. (Meillet, 2020, p. 87)

Therefore, in grammaticalization, certain lexical items undergo a gradual and unidirectional transformation, resulting in “fluid patterns of the language in use” (Hopper; Traugott, 1993, p. 2).

An important concept is phonological erosion. According to Hopper and Traugott (1993), phonological erosion consists of the “loss of phonological segments, as the fusion process continues” (1993, p. 57). According to the authors, this phonological loss tends to occur, in general, at “borders, such as at the end of a word or morpheme”. In that case, phonological erosion is associated with the semantic loss that a given lexical item suffers when it becomes a word with a grammatical function. Meillet (2020) introduced an analysis of the processes of phonological reduction and semantic loss, aligned with the grammaticalization process. According to the French linguist,

accessory words are found in particular conditions that determine particular pronunciations: its constituent elements, being abbreviated and weakly articulated, are exposed to weakening and disappearing in cases where the elements of a main word remain intact or undergo very different modifications. (Meillet, 2020, p. 91)

Thus, phonological reduction tends to occur in the grammaticalization of grammatical items in several documented languages. According to Gonçalves, Lima-Hernandes, Cassab-Galvão and Carvalho (2007), “phonological reduction seems to act on the form undergoing grammaticalization to adjust it to the domain of grammatical items, the vast majority of which present little phonetic substance, due to the “little” expressive content.” (2007, p. 34). Thus, phonological reduction effects certain transformations in the form of the new grammaticalized item, aligned with the process of changing the syntactic roles of the terms undergoing grammaticalization in discourse.

In principle, a grammaticalized item would pass from a lexical form to a grammatical form, whereas the reverse process of which would be quite unlikely. From a diachronic point of view, Hopper and Traugott (1993) represent this gradual passage in the following grammaticalization continuum:

content item > grammatical word > clitic > inflectional affix

(Hopper and Traugott, 1993, p. 7)

Considering the synchronic perspective, a cline can be considered a *continuum*, defined by Hopper and Traugott (1993, p. 6) as “an arrangement of forms along an imaginary line at one end, in which there is a complete, perhaps ‘lexical’ form, and, at the opposite end, the compact and reduced, perhaps ‘grammatical’ form. Thus, it is possible for the same word to perform multiple functions in a given language, either with a more lexical function or with a more grammaticalized function.

Moreover, grammaticalization can be analyzed from a synchronic and diachronic point of view. Braga and Neves (1998) approach grammaticalization from a functional point of view:

We treat grammaticalization here not in the strict sense of diachronic evolution, but in the functional sense of activating concomitant possibilities, representing different degrees of semantic and/or syntactic coalescence in the organization of the statement. More than evolution, the gradual nature of grammaticalization represents a choice between more or less grammaticalized constructions, between more or less established paradigms, between items that are more or less within the grammar. In the study of sentence articulation, for example, this represents the consideration, especially, of the existence of degrees of (non-morphological) case marking, that is, in the integration of the hypotactic clause of emphasis with the nuclear clause. (1998, p. 194-195)

Hopper and Traugott (1993) represent this categorical shift in a cline from a less grammatical point to the extreme point of more grammatical features. According to the authors, this cline is characterized by a process of change in which grammatical forms “do not change abruptly from one category to another, but go through a series of small transitions” (1993, p. 6) until a given item is fully grammaticalized. The term cline is used by the authors as a metaphor to represent the process of grammaticalization in several languages. From a diachronic or historical point of view, it is considered the natural path in which some forms may be transformed (1993).

Hopper and Traugott (1993) emphasize that grammaticalization constitutes a diachronic process of natural languages that elucidates how grammatical items emerge, develop, and consolidate in languages in general. These grammatical items that have undergone the grammaticalization process perform functions such as prepositions, auxiliary verbs, articles, conjunctions, and pronouns.

From a synchronic point of view, a cline can be considered a continuum, defined by Hopper and Traugott (1993, p. 6) as “an arrangement of forms along an imaginary line at one end, on which is a complete, perhaps ‘lexical’ form, and, at the opposite end, the compact and reduced, perhaps ‘grammatical’ form.” The authors emphasize that, from a synchronic point of view, lexical items can reveal multifunctional slippage between lexicon and grammatical items. Grammaticalization, therefore, can describe languages from a synchronic and diachronic point of view, which enriches knowledge of consolidated and ongoing grammaticalization processes.

2 Grammaticalization in Sign Languages

Studies on grammaticalization in sign languages are relatively recent. Just like spoken languages, sign languages also undergo similar grammaticalization processes. Pfau and Steinbach (2011, p. 684), when discussing the grammaticalization of sign languages, state that “nouns and verbs are common sources for the grammaticalization of complementizers.” In German Sign Language (DGS), for example, the noun REASON, glossed in English, was grammaticalized to perform the function of a connective in causal adverbial clauses. The authors observe the existence of a break in the prosodic pattern between the nuclear sentence and causal. In addition, the sign REASON “is phonologically reduced” (Pfau; Steinbach, 2011, p. 684), which indicates that it is a feature of grammaticalization. The authors present the following example from the DGS, glossed in English:

(1) INDEX1 SAD REASON POSS1 DOG DIE

I am sad because my dog died.

The process of grammaticalization of a verb into a connective can also be described in American Sign Language (ASL). Fischer and Lillo-Martin (1990) discuss the grammaticalization of the sign UNDERSTAND, which functions as a verb in ASL. This verb underwent the process of grammaticalization, becoming the conjunction UNDERSTAND’, which introduces adverbial clauses. In this case, the possible meaning of UNDERSTAND’, in English, is that of the conjunctive phrase *provided that*. The sign UNDERSTAND’ presents linguistic features that are distinct from the verb UNDERSTAND, such as the repeated movement and the overlapping of non-manual

markings over UNDERSTAND', in addition to a distinct syntactic function. Among the sentences presented by the authors, two sentences were chosen as examples:

(2) ME GO-STORE NOW NIGHT, UNDERSTAND' YOU WATCH MY CHILDREN, OK?

I'll go to the store tonight provided that you babysit, ok?

(3) ME GONE TO EUROPE, UNDERSTAND' FLY-THERE-DIRECTLY

I will go to Europe provided I can get a non-stop flight. (Fischer; Lillo-Martin, 1990, p. 72)

The authors point out that the non-manual markings raised eyebrows, forward chin, raised lip and wide eyes are overspread over the sign UNDERSTAND' in (2) and (3). The authors argue, based on tests on sentences selected in their research, that UNDERSTAND' can be considered a subordinating conjunction. Furthermore, they argue that there are evident changes from the phonological, semantic, and syntactical points of view of this sign in complex sentences.

Fischer and Lillo-Martin (1990) also present the grammaticalization of other signs, such as the verb FINISH → FINISH', which performs the function of a temporal adverbial conjunction. In addition, there are also specific non-manual markings that overlap the sign FINISH':

(4) YOU EAT FINISH', WE-TWO GO SHOPPING.

After you eat, we will go shopping. (Fischer; Lillo-Martin, 1990, p. 74)

Similarly, the grammaticalization of the adjective WRONG → WRONG' occurs, with the function of an adversative conjunction, meaning, in English, *but unexpectedly*" (Fischer; Lillo-Martin, 1990, p. 74). The authors also observe a specific prosodic behavior associated with the sign WRONG': it is executed with a faster movement, accompanied by "tensed lips, as well as elevation and straightening of the body." (1990, p. 74). This would be a case of phonological reduction, in which the change in movement is aligned with the grammaticalization process. The example presented is the following:

(5) STUDENT TYPE HER T-E-R-M PAPER TYPE,[asp:cont.]

(SHE*) (CAN*) WRONG' ROOMMATE BOTHER-HER.

A student is typing her term paper, but her roommate pesters her.

The authors point out that the gloss (SHE*) (CAN*) indicates that, if these signs are placed before the sign WRONG', the sentence becomes ungrammatical, since, in that case, the sign WRONG' does not admit a subject or modal verbs. This syntactic characteristic is also verified in the sign UNDERSTAND', which indicates that the syntactic role of these lexical items is not adjective (WRONG), nor verb (UNDERSTAND), but adversative and adverbial conjunction, respectively.

Grammaticalization in Libras has few studies that analyze and map the different connectives used in spontaneous statements. The research by Rodrigues and Souza (2019) and Quadros et. al. (2021; 2023) present some analyses on grammaticalization in Libras, especially with the sign MOTIVE, which indicates a causal relationship in causal sentences. Therefore, this research aims to analyze and map the grammaticalization of signs with the syntactic function of connective in adverbial hypotaxis.

In Libras, Ludwig (2021; 2022), Rodrigues and Souza (2019) point out that non-manual expressions (facial expressions) can perform the grammatical function, which suggests that they may be undergoing a grammaticalization process. In this way, non-manual expressions can play a syntactic role in the articulation of sentences. Ludwig (2021; 2022) and Quadros et. al. (2023) highlight that the eye blink plays the function of a mark between the limits of the main sentence and the paratactic, hypotactic, or embedded sentences.

Some research on grammaticalization has been carried out recently. The research by Vasconcellos (2023) is cited, which analyzes the sign WHO in Libras from a multifunctional perspective. From a grammaticalization perspective, the research shows that there is a cline to this sign, represented as follows: interrogative pronoun > indefinite pronoun > subordination. In addition, non-manual markers are also identified in the analysis, as possible linguistic mechanisms that operate in the articulation of complex sentences in Libras.

Teixeira (2023) makes a multifunctional analysis of the sign HOW in Libras. The research shows that the sign HOW can have the function of a connective. The research reveals the use of this sign in full questions, rhetorical questions, semi-rhetorical

questions, as well as in subordinate clauses. In addition, non-manual markings are overspread over the use of these signs, mainly the use of mouthing.

Although research on the articulation of complex sentences is relatively recent, recent investigations have demonstrated the complexity of complex sentences in Libras (Brazilian Sign Language). For example, research on parataxis reports the presence of manual and non-manual linguistic strategies. (Aleixo et al., 2023; Barbosa et al., 2021)

Adverbial hypotaxis also presents manual mechanisms, such as the use of connectives for the articulation of sentences. Furthermore, non-manual markings and the use of juxtaposition are also reported in research on Libras (Aleixo et al., 2023; Barbosa et al., 2021; Carneiro et al., 2023; Carneiro and Ludwig, 2020a; 2020b; Ludwig et al., 2023; Ludwig, Carneiro and Khouri, 2020, Ludwig, Quadros and Santos, 2022; Ludwig, Quadros and Silva, 2022).

Regarding embedded clauses, the research by Aleixo et al., (2023), Ludwig (2021; 2022; 2023) and Ludwig, Quadros and Rocha (2024) reports the presence of manual markers, albeit less frequently. However, non-manual markings, the use of role shifting, and recursion are frequent strategies for articulating embedded clauses in Libras (Brazilian Sign Language).

3 Methods and Materials

In this research, data from the Libras Corpus were used, specifically from the Libras Inventory of Tocantins and Deaf Reference collections. Initially, ten videos of deaf informants were selected. After analyzing the examples found, data from nine informants were analyzed in order to identify examples of signs at different stages of grammaticalization. The interviews of these Libras informants were analyzed, with four women and four men interviewed, in addition to one interviewer informant. The interviewer was also analyzed, since he was the only case who used the sign WHY in the context of a full question.

This research integrates the National Inventory of Libras (Brazilian Sign Language), with data from Reference Deaf Individuals. Therefore, we will use data from this Libras Inventory, following the methodology standardized by this inventory. The National Inventory of Libras uses a standardized methodology for data collection, storage, transcription, translation, and validation. All states that have implemented the

Libras Inventory use the same data collection methodology, as described by Ludwig, Quadros, Silva, and Nogueira (2020) and Ludwig et al. (2020). Data collection is carried out in a film studio, with 4 cameras positioned at different angles of the studio to record different perspectives of signing.

The research also takes into account that deaf people are bilingual signers, with Libras as their L1 and Portuguese as their L2. In this sense, possible influences are considered in the analysis, demonstrating the relationship of the interlanguage that is integrated into the articulation of complex sentences. Furthermore, the age at which Libras (Brazilian Sign Language) is acquired can influence Libras performance, as demonstrated by Ludwig and Oliveira (2024).

Data from the Libras Sign Bank, a database of signs collected in the Libras Corpus, specifically in the National Libras and Deaf Reference Inventory, were also accessed. The data are in the public domain and are available to anyone interested to research in Libras.

Specific tiers were created to identify types of complex sentences, as well as a tier to identify the grammaticalization of the signs. After identifying the data, an Excel spreadsheet was created with the gloss, translation, and link to access the video. In addition, a search in the Sign Database was carried out in order to identify the available signs and compare them with the data of the language in use.

Glosses are written in capital letters, according to the research methodology employed by the Libras Corpus in Brazil. Besides that, translation into English language has been provided after the glosses. For the translations in English, it has been taken into account a rather details translation, since some discursive contexts in Libras are provided by non-manual markers and omissions.

The research adopts a synchronic analysis, given that there were few records of Libras in the last century. Only with the emergence of new visual technologies has it been possible to develop a diachronic analysis of connectives in Libras. However, since it is a full sign language, there are several cases of signs (words) that are in the process of grammaticalization. Thus, in the description of Libras connectives, the gradient *continuum* of Hopper and Traugott (1993) will be used as a basis to describe the signs that, synchronically, present multifunctional uses and that are probably in the process of grammaticalization.

4 Data Analysis

The following describes the data on the signs analyzed in the research interviews. We analyze three examples of the occurrence of the EXAMPLE sign:

Sign EXAMPLE in Libras



Link of the video of the sign EXAMPLE

Source: <https://signbank.libras.ufsc.br/pt>

(6) POSITIVE GOOD EXAMPLE IX-that IX-I SON DOCTOR EXAMPLE IX-that SIGN-LANGUAGE FS-well

A good example of this is my son who is a doctor, his example is that he signs well in sign language. (Miranda, 2023)



Link of teh video - clause (6)

(7) DEPENDS THEN I DEAF GROUP THEN EXAMPLE RESTAURANT THEN LIBRARY ANY MAINLY HAVE TO READ PORTUGUESE DEM-THAT, SOME DEAF POSITIVE PORTUGUESE DOES NOT READ UNDERSTAND-NO DEM-THAT LOOK I SUPPORT I KNOW I EXPLAIN THEN

Sometimes, when I meet deaf people, for example in a restaurant, a library, any (place) where we mainly have to read in Portuguese, if some deaf person does not read and understand Portuguese very well, I give support and I explain. (Albuquerque, 2017).



Link of the video – clause (7)

(8) EXAMPLE DEAF THEN PLACE CITY FS(or) FRIEND ANY, IX(this) WEAK SIGN-LANGUAGE IS NOT TRUE, IT IS NOT WEAK BECAUSE RIGHT CONTEXT
 If a deaf person from the countryside or a friend, it seems that they have weak sign language, but it is not weak, because it is in accordance with the context where they live. (Segala, 2017).



Link of the video - clause (8)

In sentence (6), the sign EXAMPLE is used as a noun; in (7), this sign is used as an explanatory phrase, equivalent to “for example”. In sentence (8), the sign EXAMPLE functions as a connective in conditional sentences, translated in English by the connective if. Therefore, this sign in Libras can be allocated on a gradient continuum as follows:

EXAMPLE	→	EXAMPLE	→	EXAMPLE
Noun	>	adverbial phrase	>	Connective
The/An example		For example		If

As can be seen, the sign EXAMPLE can be located at three different points on the gradient *continuum*. Originally, it is a noun, which was grammaticalized to the form of an adverbial phrase – for example – until it became grammaticalized as a connective in

conditional sentences. The gradient *continuum* can be represented as follows: noun > adverbial phrase > connective. No changes were observed from a phonological point of view in the three functions in which the sign is used. The use of this sign in Libras demonstrates multifunctional roles, whose discursive context will determine the grammatical function of each sign.

Since Libras does not have past records of the language in use, it is not feasible to develop a diachronic analysis. However, from a synchronic point of view, it is a clear example of how the grammaticalization processes in Libras are productive. Thus, the analysis from a synchronic perspective allows us to verify how this sign performs fluid grammatical functions in Libras discourse.

Below, we present the sign WHY/BECAUSE and the possible grammatical functions in Libras:

SIGN WHY/BECAUSE



Fonte: <https://signbank.libras.ufsc.br/pt>

Link of the video of the Sign PORQUE

(9) WHY IX-DID YOU ACQUIRE SIGN LANGUAGE WILL SIGN LANGUAGE WHY?

Why did you acquire sign language, did you have the desire (to acquire) sign language, why? (Leão, 2023)



Link of the video - clause (9)

(10) BECAUSE PERSON DEAF, THEN CULTURE IDENTITY STRONG, THEN IS SIGN-LANGUAGE, THEN

Because I am a deaf person, culture and strong identity are characteristic of sign language.
(Miranda, 2023)



Link of teh video - clause (10)

(11) IX(I) FEEL HAPPY BECAUSE IX(I) UNDERSTAND POSITIVE

I felt happy, because I understood well. (Stumpf, 2017)



Link of the video – clause (11)

(12) BECAUSE I HAVE GOOD BASIS, I PERCEIVE UNDERSTAND CONTEXT AREA

Because I had a good understanding, I perceived and understood the things around me.
(Lima, 2017).



Link of the video - clause (12)

In sentences (9), (10), (11) and (12), the multifunctional use of the sign WHY/BECAUSE is observed in different contexts of Libras signage. In sentence (9), the use of the sign WHY is used as an interrogative pronoun. The repeated use of the sign at the beginning and end of the question is observed, in an emphatic way, as already observed by Quadros (1999) and Quadros et. al. (2023). Sentence (10) is the answer to the question in (9), in which the signer answers the question asked by the interviewer. In that case, the function of this sign is a conjunction, typically used in answers to full questions. In (11) and (12), both signs are used as connectives to establish the cause and effect relationship. In the first example, in (11), the sentence is combined in direct order, in which the nuclear sentence is presented followed by the hypotactic causal sentence. In (12), the hypotactic sentence is placed before the nuclear sentence, which is less common in Libras.

In this way, the continuum of gradients in the use of this sign can be represented as follows:

WHY	→	BECAUSE
pronoun	>	connective

There are specific non-manual markers in the use of this sign in questions, such as raising the chin, furrowing the brow and squinted eyes. According to Quadros et al. (2023), these markers occur in all questions in Libras. However, these non-manual markers are absent in sentences (10), (11) and (12). This is an indication of phonological reduction, considering the need to adapt the use of the language in a context of affirmative clauses. In addition, these are grammatical roles distinct from the pronouns used in questions, which denotes an ongoing grammaticalization process.

In sentences (13) and (14), we see the use of the sign ALREADY and the grammaticalization process that occurred with the mouthing of this sign.

Sign ALREADY



Fonte: <https://signbank.libras.ufsc.br/pt>

Link of the video of the sign ALREADY

(13) IX-you SIGN-NAME ALREADY KNOW SIGN LANGUAGE TIME PERIOD?
NO

Did you already know a little about sign language in this period? No. (Leão, 2023).



Link of the video – clause (13)

(14) SIGN LANGUAGE mouthing-ALREADY SIGN LANGUAGE AND(process)
PREVIOUSLY AND(then) IX(me) AND(then) IX(me) YOUNG IX(me) DEM(that)
JUNE MEET MAN ALWAYS GESTURE GROW ALWAYS IX(me) MEET IX(you)
REMEMBER DEM(that) DEAF

When I was already signing, when I was young, in the month of June, at the market, I met that man, who always articulated gestures, then I remembered that he was deaf. (Machado, 2017)



Link of the video – clause (14)

In this context, the sign ALREADY, as used in question (13), works with the adverb of time, which indicates that the action has finished. In sentence (14), only the use of mouthing occurs, that is, the articulation-mouth of this sign in the complex sentence. Pêgo (2021) distinguishes between mouth articulations and mouth gestures:

Within the scope of non-manual expressions, we have mouth movements, or mouth actions. These actions are divided into two main groups: mouth articulations, which are the focus of this thesis, and mouth gestures. The basic difference between these two groups comes down to the fact that the first derives from the surrounding oral language, while the second is inseparable from Sign Language. (Pêgo, 2021, p. 37).

In this sense, the use of mouthing-already functions as a connective that articulates temporal sentences in Libras. In this case, the sign ALREADY is not necessarily used in the signing, and only the mouth articulations of this word, a loanword from the Portuguese language, can be used. There was a process of grammaticalization in which the sign began to be used, in addition to the function of adverb of time, with the function of connective in temporal clauses.

A gradient continuum can be represented as follows:

ALREADY	→	mouthing-already
Adverb	>	connective

Santos's research (2024) found signs that perform the function of connective in temporal clauses. In addition to mouthing-JÁ, the author found the use of the signs POSITIVE, OK and the non-manual markers raised eyebrows and pressed lips as possible

mechanisms for articulating temporal clauses. Other signs such as READY and PROCESSE are also indicated in the research as possible connectives in temporal clauses.

Final Remarks

The research discussed the grammaticalization processes of signs with possible functions as connectives in adverbial hypotaxis in Libras. As can be seen in all the data analyzed, the grammaticalization process of Libras is quite productive. There are signs that go through grammaticalization to crystallize into connectives for the articulation of complex sentences. It is noted that the language in use, from a synchronic point of view, presents signs that perform multiple functions in the discourse of Libras.

In the research, data from the Libras Corpus were analyzed, in particular the Libras Inventory of Tocantins and the Deaf Reference. The analysis used Elan with specific tiers for types of complex sentences and for grammaticalization. The interviews of nine Libras informants, four women and four men, in addition to an interviewer, were analyzed.

The analysis revealed the grammaticalization of the signs WHY/BECAUSE, EXAMPLE and ALREADY in Libras. All of them present multifunctional syntactic roles, in particular their use as connectives in complex sentences. As can be seen, these signs already have well-established grammaticalization processes in Libras. The sign BECAUSE has the function of a connective in causal sentences, in addition to having the function of an interrogative pronoun. The sign EXAMPLE is used as a connective in conditional sentences, in addition to being a noun and adverbial phrase already established in Libras. The sign ALREADY in Libras has undergone a very peculiar process of phonological erosion: only the non-manual mouthing markers of this sign can be used to articulate temporal sentences.

This research presents initial research data. Even so, the data analyzed already demonstrate well-established grammaticalization processes in Libras. Future research needs to delve deeper into this linguistic phenomenon in order to clarify the possible lexical items that evolve into more grammaticalized forms in Libras.

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