

## GRAMMATICALIZATION OF PALM-UP IN LIBRAS: A CORPUS-BASED ANALYSIS

### GRAMATICALIZAÇÃO DO *PALM-UP* NA LIBRAS: UMA ANÁLISE COM BASE EM CORPUS

Carlos Roberto Ludwig<sup>1</sup>

Universidade Federal do Tocantins

**Abstract:** This research describes the grammaticalization processes of the PALM-UP sign from a synchronic perspective in Libras (Brazilian Sign Language). The analysis employs data from the ‘Surdos de Referência’ (Reference Deaf), takne Corpus de Libras. This study examines interviews with eight Libras informants included in this dataset. Data analysis was conducted using ELAN (Eudico Linguistic Annotator). Specific tiers were created for various types of complex sentences and for the linguistic phenomenon of grammaticalization. The data demonstrate an ongoing, complex process of PALM-UP grammaticalization in Libras. These signs primarily function as connectives in conjunctive and adversative paratactic clauses, as well as in causal and conclusive hypotactic sentences. Furthermore, they fulfill discursive roles of emphasis or discourse maintenance within the construction of complex sentences.

**Key-words:** Grammaticalization; Complex Clauses; Palm-up; Libras.

**Resumo:** Esta pesquisa descreve processos de gramaticalização do sinal PALM-UP do ponto de vista sincrônico na Libras. A análise emprega dados dos Surdos de Referência do Corpus de Libras. Na presente pesquisa, descreve-se entrevistas de oito informantes da Libras que integram esse acervo de dados. Realizou-se as análises dos dados no ELAN. Foram criadas trilhas específicas com diversos tipos de orações complexas e uma para o fenômeno linguístico da gramaticalização. Os dados demonstram um processo complexo de gramaticalização do PALM-UP em curso na Libras. Desempenham, sobretudo, o papel de conectivos em orações paratáticas conjuntivas e adversativas, bem como nas sentenças hipotáticas causais e conclusivas. Além do mais, desempenham o papel discursivo de ênfase ou manutenção do discurso na construção de sentenças complexas.

**Palavras-Chave:** Gramaticalização; Orações Complexas; Palm-up; Libras.

**Autor convidado.**

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<sup>1</sup> Professor da Universidade Federal do Tocantins - UFT. Doutor e Mestre em Letras pela Universidade Federal do Rio Grande do Sul (UFRGS). Graduado em Letras- Português, Inglês e Literaturas e Letras - Português, Francês e Literaturas pela Universidade Federal de Santa Maria (2005). Tem experiência na área de Letras, atuando principalmente em Estudos da Tradução, Ensino de Línguas, Documentação em Língua de Sinais e Estudos da Língua Brasileira de Sinais, Cultura e Educação de Surdos. Atualmente, é docente do Curso de Letras: Libras da UFT e atua como Docente Permanente e Coordenador do Programa de Pós-Graduação em Letras, do Câmpus de Porto Nacional/UFT, orientando na área de Língua Brasileira de Sinais - Libras. Coordenador do Inventário de Libras da Região de Palmas - TO. Associado da Abralín, membro da Comissão de Políticas Linguísticas da Revista Roseta da Abralín e membro da Comissão de Línguas de Sinais da Abralín. Universidade Federal do Tocantins. <https://orcid.org/0000-0002-6846-5774>

## **Introduction**

This research discusses the grammaticalization of the PALM-UP sign as a connective in complex sentences in Libras (Brazilian Sign Language). The PALM-UP sign can be characterized as a multifunctional sign, performed with the palms facing upwards. In general, it could be translated as ‘then,’ ‘therefore,’ ‘also, or even ‘but’, in some cases. However, the gloss PALM-UP, already reported in other sign languages (Pfau and Steinbach, 2016) and in Libras (Quadros et al., 2023), is preferred, given its multifunctional character resulting from grammaticalization. This research argues that this gestural sign can perform a connective function in conjunctive and adversative parataxis, as well as in causal and conclusive hypotaxis. In addition, it has a discursive function of turn-taking and emphasis in the analyzed sentences.

Data from the Libras Corpus are used, particularly Surdos de Referência (Reference Deaf) data, taken from Corpus de Libras. This is a linguistic collection containing interviews and narratives from deaf leaders throughout Brazil. The Surdos de Referência collection has standardized data collection, storage, and transcription procedures to facilitate research in Libras (Brazilian Sign Language). In this research, interviews with eight Libras informants were analyzed. The analyses were conducted using ELAN – Eudico Linguistic Annotator, a multimodal software that supports both audio and video media, which can be used in research on oral and signed languages. Tiers were created for various types of complex sentences, in addition to a specific tier called grammaticalization. Eighty complex sentences using the PALM-UP sign were found. This research analyzes only the grammaticalization of the PALM-UP, whose multifunctional characteristics point to a complex grammaticalization process.

## **Grammaticalization in Spoken Languages**

Grammaticalization is a relatively recent field of linguistic research in spoken languages (Heine; Narrog, 2011), as well as in sign languages (Pfau; Steinbach, 2011). This linguistic phenomenon can be conceptualized as the process of assigning a grammatical function to a word in language in use. It is the linguistic mechanism that demonstrates how certain lexical items develop into ‘new grammatical functions’ (Hopper; Traugott, 1993, p. 2). Furthermore, grammaticalization causes words that already display a grammatical function to consolidate this role from a syntactic, semantic,

and discursive point of view. Those words become crystallized in the language and more grammatical (Hopper; Traugott, 1993).

Grammaticalization is a natural process, evident in any natural language, even if there is no written record. Meillet (2020 [1912]) was the first researcher to develop the concept of grammaticalization. Meillet defines grammaticalization as ‘the attribution of a grammatical function to a previously autonomous word’ (2020 [1912], p. 131). Thus, grammaticalization can be defined as the process by which a given word comes to have a grammatical function. assigned. In this sense, Meillet argues that

the ‘grammaticalization’ of certain words creates new forms, introduces categories that had no linguistic expression, and transforms the entire system. This type of innovation, like analogical innovations, results from the use of language; it is an immediate and natural consequence of use. (Meillet, 2020, p. 87)

Thus, lexical items without a grammatical function undergo a gradual and unidirectional linguistic change, resulting in “fluid patterns of language in use’ (Hopper; Traugott, 1993, p. 2).

An important concept in grammaticalization studies is phonological erosion. According to Hopper and Traugott (1993), phonological erosion can be defined as the ‘loss of phonological segments as the merging process continues’ (1993, p. 57). According to the authors, this phenomenon tends to manifest itself, in general, at ‘boundaries, such as at the end of a word or morpheme.’ In that case, it is observed that phonological erosion also presents semantic loss that a given lexical item experiences when it becomes a word with a grammatical function. At the beginning of the 20th century, 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 in particular conditions that determine particular pronunciations: their 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)

As research demonstrates, phonological reduction occurs in the grammaticalization of grammatical items in several languages already studied. According

to Gonçalves, Lima-Hernandes, Cassab-Galvão, and Carvalho (2007), ‘phonological reduction seems to act on the grammaticalizing form to adjust it to the domain of grammatical items, the vast majority of which have little phonetic substance, due to the “little” expressive content.’ (2007, p. 34). Therefore, phonological reduction consolidates transformations in the form of a new grammaticalized item, which results from the process of changing the syntactic roles of terms in discourse.

Another important principle discussed in grammaticalization is unidirectionality. Braga and Neves (1998) conceptualize unidirectionality as ‘the gradual and continuous passage from lesser to greater regularity, from lesser to greater predictability, with greater subjection of the speaker to the determinations of the system’ (1998, p. 195). This principle specifies that a given grammaticalized item would pass from a lexical form to a grammatical form, the reverse process of which would be quite improbable.

Considering the diachronic point of view, Hopper and Traugott (1993) represent this gradual passage of the principle of unidirectionality in the following grammaticalization continuum:

content item > grammatical word > clitic > inflectional affix

(Hopper e Traugott, 1993, p. 7)

From a synchronic perspective, a cline can be classified as a continuum, which, according to Hopper and Traugott (1993, p. 6), can be defined as “an arrangement of forms along an imaginary line at one end, where there is a complete, perhaps ‘lexical’ form, and at the opposite end, the compact and reduced, perhaps ‘grammatical’ form”. Therefore, the same term can perform multiple grammatical functions in the language in use, either with a more lexical function or a more grammaticalized function. From a diachronic point of view, the authors define the cline as the “natural trajectory along which forms transform” (1993, p. 6). This cline is represented by Hopper and Traugott (1993, p. 7) as follows:

lexical item > grammatical word > clitic > inflectional affix

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, where there is a complete, perhaps ‘lexical’ form, and at the opposite end, the compact and reduced, perhaps ‘grammatical’ form.’ The authors highlight that, from a synchronic point of view, lexical items can reveal categorical slippage between lexicon and grammatical items.

Thus, grammaticalization can be analyzed from both a synchronic and diachronic point of view. Braga and Neves (1998) discuss grammaticalization from the functional point of view of language use in complex sentences of Brazilian Portuguese:

We treat grammaticalization not in the strict sense of diachronic evolution, but in the functional sense of activating concomitant possibilities, representative of different degrees of semantic and/or syntactic coalescence in the organization of the utterance. More than evolution, the gradual character 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 into the nuclear clause. (1998, pp. 194-195)

In spoken languages, grammaticalization has been analyzed from both synchronic and diachronic perspectives. For the latter perspective, there are sufficient historical linguistic records for a diachronic analysis. However, in sign languages there are no historical records of these languages due to their recent recognition. Thus, this research will conduct a synchronic analysis of Libras (Brazilian Sign Language), demonstrating that relevant grammaticalization processes are already occurring in sign languages in general and in Libras in particular.

### **Grammaticalization in Sign Languages**

Research on grammaticalization in sign languages is relatively recent. Like spoken languages, sign languages show similar grammaticalization processes. Pfau and Steinbach (2011, p. 684), when discussing the grammaticalization of sign languages, argue that ‘nouns and verbs are common sources for the grammaticalization of complementizers.’ As an example, they mention the sign REASON in German Sign Language (DGS), which has become grammaticalized from a noun to function as a connective in causal adverbial clauses (because, since). The authors describe the occurrence of a break in the prosodic pattern between the main clause and the causal clause. Therefore, it is observed that the sign REASON in DGS ‘is phonologically

reduced' (Pfau; Steinbach, 2011, p. 684), which indicates that it is a grammaticalization feature.

The process of grammaticalizing a verb into a connective has also been described in American Sign Language (ASL). Fischer and Lillo-Martin (1990) discuss the grammaticalization of the sign UNDERSTAND, functioning as a verb in ASL. This verb underwent a grammaticalization process, becoming the connective UNDERSTAND'. This connective introduces causal adverbial clauses, in this case, it is translated into English by the conjunctive phrase 'provided that'. The sign UNDERSTAND' presents phonological features distinct from the verb UNDERSTAND, such as the repeated movement and the superimposition of non-manual markings on UNDERSTAND', which overlap with the syntactic function of a connective.

Fischer and Lillo-Martin (1990) also discuss the grammaticalization of other signs, such as the verb FINISH → FINISH', which plays the role of a temporal adverbial connective. Similarly, they analyze the grammaticalization of the adjective WRONG → WRONG', functioning as an adversative conjunction, meaning, in English, 'but unexpectedly' (Fischer; Lillo-Martin, 1990, p. 74). The authors observe specific prosodic features overposed on the sign WRONG': it is executed with a faster movement, accompanied by 'tense lips, as well as elevation and straightening of the body.' (1990, p. 74). This would be an example of phonological reduction, in which the alteration of movement stems from the grammaticalization process.

Grammaticalization in Libras still has few studies that describe and map the different connectives used in this language. The research by Rodrigues and Souza (2019) and Quadros et al. (2021; 2023) makes some analyses on grammaticalization in Libras, especially with the sign MOTIVO (motive), which shows a causal relationship in causal sentences.

Furthermore, Ludwig (2021; 2022), Rodrigues and Souza (2019) describe that non-manual markers can perform a grammatical function. This specific behavior suggests that they may be undergoing a grammaticalization process. In this way, non-manual expressions tend to play a syntactic role in the articulation of complex sentences. Ludwig (2021; 2022) and Quadros et al. (2023) highlight that blinking acts as a marker between the boundaries of the main clause and paratactic, hypotactic, or embedded clauses.

Some research on grammaticalization in Libras has been carried out recently. For example, Vasconcellos's master's thesis (2023) describes the sign QUE/QUEM

(what/who) in Libras from a multifunctional perspective. Considering the grammaticalization process, the research demonstrates the presence of a cline in this sign, presented as interrogative pronoun > indefinite pronoun > subordination. Furthermore, non-manual markers are also analyzed as possible linguistic mechanisms that operate in combining complex clauses in Libras.

Similarly, Teixeira (2023) develops a multifunctional analysis of the sign COMO (how) in Libras. The research discusses that the sign COMO (how) can function as a connective in some clauses. Thus, the use of this sign is observed in full questions, rhetorical questions, semi-rhetorical questions, as well as in sentences. subordinate clauses. Non-manual marker are overposed on the use of this sign.

### **Palm-up in Spoken and Sign Languages**

Research on palm-up usage is relatively recent, with some studies focusing on sign languages. One study addressing palm-up in sign languages is by Cooperrider, Abner, and Goldin-Meadow (2019). The authors propose categorizing palm-up into two main families: palm-up presentational and palm-up epistemic. According to the authors,

We distinguish two gestures within the palm-up form family: the *palm-up presentational* and the *palm-up epistemic*. The latter is a term we introduce to refer to a variant of the palm-up that prototypically involves lateral separation of the hands. (Cooperrider, Abner; Goldin-Meadow, 2019, p. 1)

Cooperrider, Abner, and Goldin-Meadow (2019) analyze the palm-up gesture in terms of the different meanings it can assume in spoken and sign languages. The authors point to the challenge of researching and analyzing this linguistic phenomenon in both spoken and sign languages: ‘Palm-up gestures remain ubiquitous today, and yet their meanings are still difficult to pin down precisely; they are generally interpretable and yet confoundingly elusive.’ (Cooperrider, Abner, and Goldin-Meadow, 2019, p. 2). This variety of meanings associated with the palm-up gesture may be related to its high occurrence in sign languages. For example, in British Sign Language (BSL), the palm-up, glossed as WELL, is the second most frequent sign in this language, with the first-person personal pronoun being the most used. This same occurrence of this gestural sign is found in Australian Sign Language (Auslan) and New Zealand Sign Language (NZSL). In Swedish Sign Language (SSL), it is the third most frequent sign in that language.

Cooperrider, Abner, and Goldin-Meadow (2019) analyze this phenomenon in several categories of diverse meanings: a) lack of knowledge, concern, or ability; b) uncertainty; c) interrogative function; d) hypothetical function; e) obviousness; f) exclamations. These functions have been mapped in various sign languages around the world. However, they remain at the level of the simple clause. The authors focus only on these categories, not delving into grammaticalization or connectives in sign languages.

Other research reports that, whenever the palm-up is analyzed as a sign, the grammatical classifications adopted vary. For example, Engbert-Pedersen (2002) describes the palm-up as a discourse marker; Conlin et al. (2003) classify this phenomenon as other grammatical particles, as well as analyze it as incorporated into the signs WHAT and MAYBE in ASL; Others describe the palm-up as having cohesive, modal, and interactive functions (Engberg-Pedersen, 2002; McKee and Wallingford, 2011), or as interrogative markers and indefinite pronouns, functions that are performed by the palm-up (Zeshan, 2004).

Pfau and Steinbach (2016) also propose that the use of the palm-up can be multifunctional in sign languages. According to the authors, in some sign languages, the palm-up can be related to co-discursive gestures. In this way, they can function as discursive particles. According to the authors,

A common element across sign languages that is often translated as ‘well’ or ‘so’ is the palm-up gesture (holding one or both hands open with the palms facing upwards), and this seems to operate as a discourse marker in many sign languages. [...] Such particles that express the speaker’s attitude are often treated as interjections [...]. (Pfau; Steinbach, 2016, p. 154)

Furthermore, Pfau and Steinbach (2016) report that, in some sign languages, the palm-up can be described as being used in imperatives. These cases occur in Italian Sign Language (LIS) and Dutch Sign Language (NGT).

Another issue observed in Austrian Sign Language (OGS), as well as in Libras, is the position of the palm-up in turn-taking. In OGS, according to Pfau and Steinbach (2016), it generally occurs at the beginning and end of an utterance. In Libras, the data also reveal that, when used as a discursive element, the palm-up can occur at the beginning and end of an utterance.

In Libras, the research by Qaudros et al. (2023) points to some occurrences of the palm-up. In this case, adversative sentences were found in which the PALM-UP sign

occurs with an adversative meaning (but). Furthermore, in paratactic conjunctive (additive) sentences, the PALM-UP occurs as a sign that marks the relationship between sentences.

Porto (2021) points out that the use of the PALM-UP sign may have been lexicalized into the sign QUAL (which) in Libras. In that sense, Porto (2021) points out that

the understanding is that the production [of this sign] has the function of an ‘epistemic gesture,’ which pragmatically expresses the notion of ‘not knowing or not understanding something,’ and sometimes the gesture is accompanied by a shrug and facial expression, when it approaches the notion of an emblematic gesture, which would mean something like ‘I can’t do anything.’ (Porto, 2021, p. 16)

Although there is some research that indicates that the palm-up can be used quite productively in sign languages, there is still no research that systematically describes this linguistic phenomenon in Libras, from the point of view of the articulation of complex clauses. Therefore, this research aims to analyze, in a seminal way, the use of PALM-UP in Libras, particularly in complex clauses.

## Methods and Materials

In this research, data from the Libras Corpus, specifically from the Surdos de Referência<sup>2</sup> collection, were used. Videos of eight deaf informants were analyzed. The interviews of these Libras informants were also analyzed; four women and four men were interviewed.

Specific tiers were created in ELAN to identify complex sentence types, as well as a path to identify the grammaticalization of signs. After identifying the data, Excel was used to store the data with the glosses, translation, and the link to access the video.

The following results were found in the analyzed sentences:

Women Interviewees	Clauses	Clauses with <i>palm-up</i>
Marisa Lima	70	19
Fernanda Machado	70	6
Marianne Stumpf	62	7

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<sup>2</sup> This research has been approved by the ethics committee CAAE No. 17028413.0.3002.5519 and has permission to publish the images of the informants.

Priscilla Ferreira	93	23
Men Interviewees		
Rimar Romano	80	10
Sandro Pereira	83	13
Jackson Vale	64	2
André Reichert	65	3

This research adopts a synchronic analysis, given that there are almost no records of Libras from the last century. Only with the emergence of new technologies is it possible to develop a diachronic analysis of connectives in Libras. However, since it is a fully-fledged sign language, it is evident that there are several cases of signs (words) that are in the process of grammaticalization.

The glosses used in this research follow those adopted by the national inventory of Libras. They are transcribed in capital letters. In this case, PALM-UP will also be referenced in this way. Meanings or referents will be included in parentheses to clarify the signing context. In addition to the glosses, translations of the analyzed sentences will be presented. Glosses will be depicted both in Portuguese capital letters and in English in lowercase letters, in order to make clear the meaning of the clauses.

### **Data Analysis**

The data from the signs analyzed in the research interviews are described below. The analysis will consider the categories of complex sentences distributed in a gradient continuum proposed by Hopper and Traugott (1993), Lehmann (1988), as well as the research of Quadros et al. (2023), namely: Parataxis, Hypotaxis, and Embedding. In addition, discourse particles that demonstrate emphasis, explanation, or turn-taking will be considered.

The PALM-UP sign is depicted in the figure below:

Figure 1 – PALM-UP



Source: Ferreira (2017).

The PALM-UP sign is phonologically configured with both hands facing upwards, with the palm open, in the neutral signing space. Sometimes, signers use only one hand, resulting from the natural signing process. Small variations occur in the extension or flexion of the fingers, which is natural for the language in use. As already pointed out by Cooperrider, Abner and Goldin-Meadow (2019), in sign languages, the raising of the shoulders is overposed on the execution of the PALM-UP sign. In Libras it is no different: there are several cases wherein the PALM-UP sign is executed with the raising of the shoulders.

The first three sentences of this research are classified as conjunctive parataxis:

(01) Conjunctive Parataxis

MAS VER-PALAVRA IMPORTANTE PORTUGUÊS IX(mão) **PALM-UP**  
 EXEMPLO **PALM-UP** COLOCAR ESCREVER **PALM-UP** SANDUICHE **PALM-UP**  
 IX(mão) ESCREVER MOSTRAR OUTRO **PALM-UP** E(tela)

but see-word important portuguese ix(hand) palm-up example palm-up put write palm-up sandwich palm-up ix(hand) write show another palm-up e(screen)

*Translation: But we see the word that is important for Portuguese to write, for example, put and write 'sandwich' so we write and put it on the board.*

**Clause 01** (Ferreira, 2017)

(02) Conjunctive Parataxis

VERDADE, IX(eu) VER-EU IX(eu) SINALIZAR **PALM-UP** NATURAL  
 truth, ix(i) see-i ix(i) signal palm-up natural

*Translation: Actually, I look at myself signaling, and it's natural.*

Clause 02 (Segalla, 2017)

(03) Conjunctive Parataxis

MAS PERCEBER<sub>x</sub> PERCEBER<sub>y</sub> APRENDER EXPERIÊNCIA MUNDO SURDO  
MUNDO OUVINTE DIFERENTE **PALM-UP** CULTURA<sub>x</sub> CULTURA<sub>y</sub> **PALM-UP**  
TAMBÉM DIFERENTE ENTÃO

but perceiv<sub>x</sub> perceiv<sub>y</sub> learn experience deaf world hearing world different palm-up  
culture<sub>x</sub> culture<sub>y</sub> palm-up also different then

*Translation: I learned a lot, I perceived different worldviews and also (perceived) different cultures.*

Clause 03 (Ferreira, 2017)

As observed in these examples, sentences (01), (02), and (03) employ the PALM-UP with an additive meaning, which could be translated as ‘and,’ ‘also,’ or even ‘then,’ in an additive sense. The use, in those examples, does not have the epistemic or presentational meaning of the PALM-UP, as discussed by Cooperrider, Abner, and Goldin-Meadow (2019). Thus, it is observed that the use of the PALM-UP sign may be undergoing a grammaticalization process with the function of a possible connective in Libras. Quadros et al. (2023) had already reported conjunctive parataxis clauses in Libras. Moreover, in the research by Quadros et al. (2023), the PALM-UP is already listed as a connective used in conjunctive parataxis.

Another function found in the data was that of a connective in adversative hypotaxis. However, this specific function was verified in only two examples in the data of the present research.

(04) Adversative Parataxis

IMPORTANTE IX(isso) ACESSIBILIDADE PESSOA-eu **PALM-UP** MAS **PALM-UP**  
VIVER SÓ UM IX(eu) LETRAS-LIBRAS IX(eu) USAR ACESSIBILIDADE

important ix(this) accessibility person-me palm-up but palm-up living alone ix(me)  
letters-libras ix(me) use accessibility

*Translation: It's important to have accessibility for the person, but if I were alone in the Letters: Libras course, then I would use accessibility.*

Clause 04 (Ferreira, 2017)

(05) Adversative Parataxis

DEM(aquele) GESTO LÍNGUA-DE-SINAIS E(gesto) **PALM-UP** IX(eu) SABER-NÃO  
PERCEBER ENCONTRAR IGUAL SURDO NÃO

dem(that) gesture sign language e(gesture) palm-up ix(i) know-not perceive find equal  
deaf no

*Translation: I didn't know that articulating gestures was Sign Language, but I still didn't know that a deaf person was equal to me who is deaf, I hadn't discovered it.*

Clause 05 (Machado, 2017)

In complex clause (04), the signer uses the sign BUT and the PALM-UP together. In this case, the PALM-UP can function emphatically, highlighting the adversative relationship. In the complex sentence (05), the PALM-UP is used as a connective to mark the adversative clause. As can be seen, the PALM-UP, in Libras, has been used in a multifunctional way in paratactic sentences in Libras.

Below are two examples of causal clauses.

(06) Causal Hipotaxis Clause

TER-NÃO LÍNGUA-DE-SINAIS IX(eu) ESCREVER **PALM-UP** BATALHAR

i had no sign language ix (i) writing palm-up battle

*Translation: I didn't have sign language, I used writing, so it was a battle.*

Clause-06 (Stumpf, 2017)

(07) Causal Hipotaxis Clause

MAIS IX(eu) POUCO CONTATO MAIS CONTATO É INTÉRPRETE MAIS AMIGO  
**PALM-UP** ACESSIBILIDADE ENTRE-ASPAS ACESSIBILIDADE

more ix(i) little contact more contact is interpreter more friend palm-up accessibility in  
quotes accessibility

*Translation: I had little contact (with colleagues), I had more contact with the interpreter with whom I became closer friends because it had accessibility, in quotes it was accessibility.*

Clause 07 (Ferreira, 2017)

Clauses (06) and (06) depict the use of PALM-UP as a connective in causal hypothetical sentences. In these two complex clauses, PALM-UP indicates a causal relationship between the sentences, which could be replaced by the connectives ‘because’ and ‘therefore’. In this sense, it is noted that PALM-UP in Libras is undergoing a process of grammaticalization, assuming multifunctional meanings in causal sentences.

The most frequently verified use of PALM-UP as a connective in the data is in conclusive clauses, as we see in examples (08), (09), (10) and (11):

(08) Conclusive Clause

ALGUNS PROFESSORES SABER LÍNGUA-SINAIS PORQUE PROFESSOR SURDO **PALM-UP** DOIS UM POUCO ACABAR

some teachers know sign language because there were deaf teachers, palm-up a few of them end up.

*Translation: A few teachers knew sign language because there were deaf teachers, so one or two, very few, that's it.*

[Clause 08](#) (Ferreira, 2017)

(09) Conclusive Clause

RAIVA **PALM-UP** EU PENSAR COPIAR &(oralizar)

anger palm-up i think copy & (oralize)

*Translation: I felt angry (because I couldn't speak), so I decided to imitate the articulation of the mouth.*

[Clause 09](#) (Pereira, 2017)

(10) Conclusive Clause

ENTÃO EU IDADE 76 EU VELHO **PALM-UP** VOCÊ APROVEITAR VOCÊ CAMI-NHO POSS(sua) VIVER DESENVOLVER

then i age 76 i old palm-up you enjoy you way poss(your) live you develop.

*Translation: She says: Well, I'm seventy-six years old, I'm already old, so you should take advantage (while you're young) to make your way and move on with your life.*

[Clause 10](#) (Pereira, 2017)

(11) Conclusive Clause

IX(ela) É-NÃO INCLUSÃO É-NÃO BILÍNGUE **PALM-UP** COMUNICAÇÃO-TOTAL

ix(it) is-not inclusion is-not bilingual palm-up total-communication

*Tradução: It (the school) was not inclusive, it was not bilingual, therefore it was total communication.*

[Clause 11](#) (Reichert, 2017)

Conclusive clauses can be characterized as clauses that denote an idea of deduction, conclusion, or logical consequence arising from an event presented in the core clause, usually placed before the concluding clause. In Libras, this relationship emerges from the discursive context, and may be marked by the PALM-UP or may not present any connective.

It can be observed in sentences (08), (09), (10), and (11) that the PALM-UP demonstrates the conclusive relationship between the events of the core sentences and the concluding sentence. This use seems to be quite recurrent. Furthermore, the order presented is generally core clause + concluding clause.

Another use of the PALM-UP verified in the Libras data is with the function of a discourse particle. This type of particle functions as a discourse element that marks the taking and maintaining of turn-taking in speech, as well as being used to emphasize and highlight information. In Libras, the most observed use of PALM-UP in the data is as a discourse particle for the introduction or maintenance of discourse. Example (12) shows this use of this gestural sign at the beginning of the sentence, although its use is quite recurrent in discourse. Clause (13) shows this use at the end of the clause.

(12) Discourse Particle

**PALM-UP** EU VERDADE NASCESR SURDA FAMÍLIA SURDA

palm-up i truth born deaf deaf family

*Translation: So, I was actually born deaf, my family is deaf.*

[Clause 12](#) (Lima, 2017)

(13) Discourse Particle

FS(si) RECEBER AMIGO, INTIMIDADE, FS(si) RECEBER NENHUM AMIGO  
**PALM-UP, RESPEITAR PESSOA PALM-UP**

fs(si) receive friend, intimacy, fs(si) receive no friend palm-up, respect person palm-up

*Translation: If a friend arrives, I feel intimacy; if no friend arrives, then I respect the person.*

[Clause 13](#) (Ferreira, 2017)

In both examples, it is noted that the discourse is introduced by the PALM-UP as a specific discursive linguistic strategy at the beginning of the utterance. It can also be

used to maintain the discourse, usually at the end of a sentence, as seen in example (13). In that clause, the signer maintains the flow of discourse through the PALM-UP. Even though, in both examples, palm-up displays no connective function. On the contrary, they play the role of a discursive particle that either introduces or maintains the discourse. In this way, it is perceived that the fluidity of the discourse is also corroborated by these discursive particles.

The PALM-UP can also be used in Libras to highlight information, indicate obviousness or modality in the discourse. Examples (14), (15), (16), (17), (18) and (19) show sentences in which the use of the PALM-UP can have the function of emphasizing certain information.

(14) Emphasis

PALM-UP IX(os-colegas) LINGUA-SINAIS &-não LINGUA-SINAIS IX(intérprete)  
SÓ

palm-up ix (colleagues) sign-language &-not sign-language ix (interpreter) only

*Translation: That's how it was, the colleagues didn't know sign language, so they only signed with the interpreter.*

[Clause 14](#) (Ferreira, 2017)

(15) Emphasis

É FSC(idioma) É VERDADE IX(nós-todos) É USAR LINGUA-SINAIS IX(mãos-sinais) **PALM-UP**

is fsc(language) is truth ix(all-of-us) is use sign-language ix(hands-signs) palm-up

*Translation: It's a language, indeed, it's the language we use, that's it.*

[Clause 15](#) (Ferreira, 2017)

(16) Emphasis

E(não) IX(eu) VIVER IX(eu) COMO **PALM-UP**

e(no) ix(i) live ix(i) how palm-up

*Translation: If I didn't have it (the sign language), how would I live then?*

[Clause 16](#) (Segalla, 2017)

(17) Emphasis

ANTES IX(eu) VER LÍNGUA-SINAIS IX(ela) **PALM-UP** É COMUNICAÇÃO  
FAMÍLIA INTERAÇÃO MÃE FS(pai) TODO LÍNGUA-SINAIS

before ix(i) see sign-language ix(it) palm-up is communication family interaction mother  
fs(father) all sign language

*Translation: Before, I saw sign language [so it's obvious that it was] as part of my communication with my family and interaction with my parentes, happening all in sign language.*

[Clause 17](#) (Segalla, 2017)

(18) Emphasis

EU ADMIRAR LÍNGUA-DE-SINAIS DV(fofo) **PALM-UP**

*i admire sign-language dv(cute) palm-up*

*Translation: I admire her (my mother) signing, it's so cute, and that's it!*

*Eu admirava ela sinalizando, é tão fofo e é isso!*

[Clause 18](#) (Pereira, 2017)

(19) Emphasis

IX(eu) **PALM-UP** IGUAL IX(eu) QUEBRAR

ix(i) palm-up equal ix(i) break

*Translation: I looked at the situation, feeling shocked.*

[Clause 19](#) (Segalla, 2017)

Clauses (14), (15), (16), (17), (18), and (19) depict meaning of emphasis, highlighting the explanation given in the discursive context. Generally, this use of the **PALM-UP** can be translated as ‘that’s it!’, as in clauses (15) and (18); ‘so, indicating modality, as in clause (14); and obviousness – ‘it is obvious that’, as in clause (17); and in (16), also meaning obviousness, but in an interrogative clause. Therefore, a very productive fluidity is observed in the various multifunctional constructions that the **PALM-UP** occupies in the various sentences analyzed.

## Final Remarks

This research analyzed the grammaticalization process of the **PALM-UP** sign in Libras. It investigates its transition from an epistemic gesture to an item with complex

grammatical and discursive functions. Based on the synchronic analysis of data from the Libras Corpus (Reference Deaf), it was possible to verify that PALM-UP is not just an accessory sign, but a productive linguistic element in the articulation of complex sentences and in the organization of discourse.

The research results demonstrate that the multifunctionality of this sign plays different roles at different levels. At the syntactic level, it was observed that this sign is used as a connective, establishing parataxis (conjunctive and adversative) and causal and, mainly, conclusive hypotaxis relationships.

At the discursive level, this sign plays fundamental roles in turn-taking and maintaining turns. Furthermore, it can function as a particle of emphasis and highlighting, indicating obviousness or closure of reasoning, as in cases where it is used at the end of a sentence, with a meaning similar to 'that's it'.

The analysis corroborates the thesis that Libras, although lacking extensive diachronic records, presents evident grammaticalization clines, in which a gestural item, such as the PALM-UP, slides towards more abstract and grammatical functions. The frequent presence of non-manual markers, such as shoulder raising and specific facial expressions associated with the PALM-UP, reinforces the characteristics of the visual and spatial modality of sign languages, associated with this process of linguistic change.

Briefly, this introductory research sought to contribute to the mapping of connectives in Libras, revealing that Libras uses complex visual-spatial strategies to express cohesion and discursive fluency. Future research on this and other signs undergoing grammaticalization should be developed, expanding the understanding of the grammar and pragmatics of Libras.

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