# Toponymy in Brazilian Sign language.
# Formation and Motivational Aspects of
# Tocantins State's Cities (Brazil)

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## Abstract

This article presents the results of a research on toponyms of cities in the state of Tocantins, Brazil, in Brazilian Sign Language (Libras). Signs were collected from observation and interviews with deaf people. The state of Tocantins consists of 139 municipalities and, so far, we have surveyed 61 toponyms. Signs were categorized into (1) native, (2) initialized and (3) fingerspelled (exclusive categories). Regarding motivation, toponyms categorized as iconic motivation, covering (1) material and (2) cultural and Portuguese language motivation, covering (3) calque and (4) writing. The spelling motivation is the most prevalent in the toponyms of the cities of Tocantins, also combining with other types of motivation, such as (5) material and spelling, (6) cultural and writing, and (7) calque and spelling. We bring further considerations on these categories and suggest forearm as a productive point of articulation for toponymic signs in the context of Tocantins.

## 1 Introduction

This article brings the results of a research on toponymy in Brazilian Sign Language (Libras), whose proposal is to survey, register and analyze signs of cities in the state of Tocantins-Brazil. The research is called *Toponímia em Libras: descrição e análise dos sinais das cidades do Tocantins* and included the participation of a deaf researcher in all research processes (cf. Miranda 2020).

Regarding the analysis, the research sought to understand the process of creation of these signs in order to propose a typology based on their articulatory and motivational properties. We highlight that the procedures of collection, recording, description and analysis is led by a deaf researcher.

The article is divided into four sections. In the first section we present some processes of sign creation, underlying the toponyms of our corpus of analysis, with the intention of covering some considerations about iconic signs and signs motivated by the Portuguese language. In the second section we describe the data collection procedures, the lexicographic-toponymic form that was used to register the toponymic signs, and the analysis categories. In the third section we present the results of the analysis of these toponyms in Libras in relation to their formational

and motivational aspects. Finally, in the fourth section, we discuss the productive use of the point of articulation of some of the toponyms, such as the forearm and suggest the emergence of the notion of base morpheme meaning "city" in the context of the signs of cities in the state of Tocantins.

## 2       Iconic signs and signs motivated by the Portuguese language

Initially, we present the process of sign formation that involves the lexicalization of classificatory constructions. More specifically, constructions related to the description of shapes and surface extension, i. e., to the description of the deaf people's conception about visual image of a specific referent.

Gestural actions and classificatory constructions are an important source of lexical-grammatical expansion in sign languages. According to Johnston/Schembri (1999) and Zeshan (2003) there is a point at which such actions and constructions become lexemes, generating signs with a clearly identifiable, replicable citation form that is regularly associated with a meaning. In turn, this meaning is unpredictable and/or a bit more specific than constructions that feature a compositional semantics. Thus, the compositional semantics is lost and the sign is no longer analyzed from its components. The meaning of the lexical sign is relatively context independent and the parameters as a whole form the meaning.

The process of lexicalization of gestural actions goes through semi-lexicalized constructions (cf. Zeshan 2003), which seem to be also named descriptive verbs (cf. Liddell 2003). Regarding the semi-lexical constructions referring to shapes and surface extension, hands can take on a multitude of possibilities, based on the physical properties of the referent. Hands can move or remain in the sign space to represent a visual outline of the referent, or even represent the referent himself (cf. Liddell 2003; Zeshan 2003).

Signs arising from a lexicalization process of gestural actions and classifying constructions, more specifically the type we refer to, namely, description of shapes and extension of surfaces, may present a highly iconic character.

According to Carneiro (2015), sign languages make this relationship among language, world conception, shared experience, and reality explicit due to their manual-corporeal-spatial nature. This brings an iconic character to sign languages, from a more transparent relationship between form and meaning. In this path, considering the role of the body in understanding reality and iconicity in the lexico-grammatical organization of sign languages, Carneiro (2016) observed the role of body experience and visual input during the process of lexical expansion of Libras. The author analyzes a group of new toponymic signs created by members of the deaf community of the city of Araguaína, state of Tocantins (TO), Brazil.

The analyzed corpus was composed of 31 signs, which refer to basic and higher education institutions, commercial establishments in the food industry, gyms, squares and a street in the commercial center. Of these, 18 signs – 60% of the data – presented characteristics of the referent, which provides iconic character in their formational parameters. According to the author, these toponyms were motivated by the "arrangement" of the referent: sidewalk layout, building features, monument features, and establishment logo. Articulatory features related to movement, configuration, orientation and hand position encoded, in some way, a clipping of

the signers' conception of these features, through the visual input of the place itself or of a symbol (in the case of a logo).

Figure 1 below illustrates the sign of one of the gyms in the city, whose parameters were motivated by the visual input of the establishment's logo. The configuration and orientation of the hands, as well as the arrangement between them, refer to the conception of how the speech community refers to this place, from the bodily experience.



**Figure 1: Sign and logo of a gym in the city of Araguaína-TO (Taken from Carneiro 2016: 114)**

The other 13 signs – 40% of the data – were motivated by the spelling of the referent in Portuguese. In one of these signs, there was a calque type motivation. Figure 2 illustrates the sign of a basic education institution, motivated by the spelling of the name in Portuguese.



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**Figure 2: Sign a school in Araguaína (TO) motivated by the spelling of the name in Portuguese (Taken from Carneiro 2016: 116)**

Libras and Portuguese coexist in the same territory and, because they are languages in contact, it is expected that there are linguistic borrowings mainly from the majority language to the minority language.

According to Ferreira (2010), the Libras developed a hand alphabet that is used to refer to names in oral language. Through the use of these hand configurations, it is possible to match a hand configuration of a sign language with a letter of the spelling of an oral language. However, according to Nascimento (2011), dactylology (or finger spelling) itself is not lexical borrowing. This visual representation of a word in the oral language, through mention of the spelling, merely fills a gap at a given time and may (or may not) become part of the system.

The dactylology becomes a lexicalized sign when it is restructured, i. e., when it undergoes a phonological adaptation (cf. Adam 2012; Nascimento 2011; Ferreira 2010; Quadros/Karnopp 2004).

According to Nascimento (2011) the spelling gains fluid movements in this process, in such a way that it can camouflage the foreign origin and make it as native as the signs originating from within the sign language itself. Some signs can erase any trace of elements of alien origin which can only be recovered in diachronic analyses.

Quadros/Karnopp (2004) state that there are phonetic-phonological constraints on the formation of signs in libras. The hand configuration may change from an initially open hand to a final closed hand, or vice versa. It is expected, likewise, that there is little change in the orientation of the palm, as well as the maintenance of the selected fingers in the hand configuration. Thus, still according to the authors, spelling tends to undergo a change in which there is a reduction in both the number of configuration and orientation involved in the articulation of the sign. The semilexical signs (classifiers) also follow the same lexicalization pattern, acquiring a more specific meaning, more independent of context, with the loss of semantic compositionality and meeting these constraints.

Another process of sign formation, from dactylology, is initialization. Generally this term refers to signs that use a hand configuration that corresponds, in the manual alphabet, to the first letter of the equivalent word in an oral language (cf. Ferreira 2010). According to Adam (2012), new signs can also arise from an existing sign in which a hand configuration is added to refer to the name in the oral language.

There is a discussion about the status of spelled signs, even if they are lexicalized: whether they would be linguistic borrowings from an oral language or not. Faria-do-Nascimento (2009) assume that the use of dactylology is linguistic borrowing and comprises the different possibilities of using the manual alphabet. According to the author, borrowings from the Portuguese to Libras can be categorized as (1) transliteration, which may be of the (2) pragmatic or (3) lexicalized type, (4) transliteration of the initial letter, (5) visual 'configuration' of the lips, (6) semantic, (7) stereotyped, and (8) cross-language.

According to the author, transliterative borrowing refers to the representation of words or part of words from oral languages in sign language, through grouped use of hand configurations equivalent to the representation of letters of the alphabet of an oral language, at a specific point of articulation in the sign space, in which all the letters are articulated. Transliteration borrowing can be of two types: pragmatic and lexicalized.

Pragmatic transliteration borrowings are in most cases provisional, since the tendency of the language is to fill the lexical and terminological gap. Lexicalized transliteration borrowings are more stable and part of these borrowings become lexically "dactylogized", according to the author, and the typing of whole words may be lexicalized.

The loan by transliteration of the initial letter apparently refers to the exclusive use of the initial letter of a word in oral language as motivation for the construction of a lexical unit in Libras. In the literature, these signs are known as initialized signs. Lip's visual configuration borrowing refers to the visual clue of a given phonological unit articulated by speakers of oral languages, simultaneously with the articulation of the equivalent sign in Libras. Semantic borrowing, as described by the author, is generally known as calque, which is described later.

Stereotyped borrowing refers to those terms that are established in Libras from geometric shapes, mathematical symbols, and punctuation symbols. The articulation of these signs corresponds to a visual image of the referent in neutral space. Finally, cross-lending is a calque from the visual similarity between homographous or paronymous words of the Portuguese language.

Sousa (2022; 2023) seems to expand the term from transliteration to transemiotization, as he argues that borrowing occurs not only from the orthographic representation of an oral language, but also from numerals and symbols in general.

Another sign creation process is calque, in which there is a literal translation of a word from a spoken language into a sign language. Calque can also include semantically incongruous but quite usual forms in sign languages (cf. Adam 2012).

In the next section, we describe the procedures for collecting, recording, and analyzing the toponymic signs. We also present the platforms where the videos of these signs will be broadcasted for dissemination to the community in general.

## 3        Data collection, recording and categorization methodology

The collection of toponymic signs happened through participant observation and interviews. The proposal was to identify which toponymic signs are in circulation and then analyze the articulatory and motivational characteristics of these signs.

The researcher who led the activities is deaf and is also part of the deaf community of Tocantins. In this sense, initially, we raised the signs referring to the cities of Tocantins that arose spontaneously, from informal conversations among deaf people.

Later, interviews were conducted to continue collecting the toponymic signs. We made contact with deaf residents of some cities in Tocantins who are members of the deaf community in their respective localities. We also had the participation of a hearing person, a Libras interpreter who is considered by the deaf as a reference person and member of the deaf community. The interviewees were informed about the research, its objectives and possible contributions. A questionnaire was prepared to assist in conducting the interview, in order to contribute to the elicitation of toponymic signs.

A lexicographic-toponymic form was elaborated for the registration of the toponyms, with the following microparadigms: (1) the image of the toponym in Libras, (2) the map and location of the town, (3) the link to access the video on the YouTube platform, (4) the registration of the sign in signwriting, through the signwriting system, (5) the name of the toponym in Portuguese, (6) the administrative region of the state of Tocantins to which the town belongs, (7) description of the sign in its articulatory aspects, (8) morphology of the sign (simple or compound), (9) category of the toponym (native, initialized or fingerspelled), (10) motivation of the sign (iconic motivation or Portuguese language motivation), (11) name of the researcher responsible for surveying the toponyms, (12) validation group of the toponym, (13) source type, and (14) the date of collection. Figure 3 illustrates the lexicographic-toponymic form.
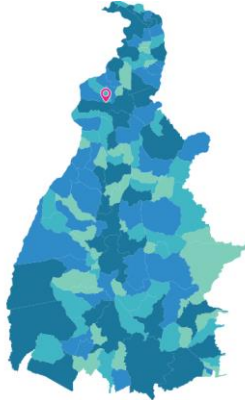
| Toponym in Libras **Map and localization of the city** |  |  |
|---|---|---|
| **Video** | Araguaína-TO | Source: IBGE Araguaína |
| **Signwriting** |  | |

| **Toponym in Portuguese** | Araguaína -TO | **Administrative region** | I – Araguaína Region |
|---|---|---|---|
| **Description of the sign** | The sign is monomanual and simple. The dominant hand adopts two configurations. At first, the dominant hand is configured in A and touches the dorsal region of the forearm (point of articulation). Next, the dominant hand is configured in R and touches a slightly posterior region of the forearm. | | |
| **Morphology** | Sinal simples | | |
| **Category** | Native | **Inicialization** | Fingerspelling |
| **Motivation** | The sign is motivated by the name of the toponym in Portuguese. Iconicity → Material ↘ Cultural     Portuguese → Calque ↘ Writing | | |
| **Researcher** | Roselba Gomes de Miranda | | |
| **Validation** | Validation group | | |
| **Kind of source** | Source | | |
| **Date of collection** | 1st semestre of 2019 | | |

**Figure 3: Lexicographic-toponymic form (Taken from Miranda 2020: 126)**

After the survey, the toponymic signs were analyzed and categorized in terms of form and motivation. Regarding the form, the toponyms were arranged in three categories: native, initialized and fingerspelled. Regarding motivation, the toponymic signs were arranged in Iconic Motivation and Portuguese Motivation.

The categories in relation to the form are exclusive and, in this case, we observed the absence/ presence of characteristics that refer to the name of the toponym in Portuguese. Native topo-

nyms are signs formed by Libras parameters whose form does not refer to the name in Portuguese. As much as some of these signs may come from calque, their configuration in Libras does not correspond to the representation of the writing of the name in Portuguese. Still on the native toponyms, they may (or may not) exhibit iconic features. The initialized toponyms refer to the name of the toponym in Portuguese through the configuration, but the parameters of articulation and movement are free and not restricted as in the fingerspelled signs. Like native signals, initialized signals may (or may not) exhibit iconic characteristics. Finally, the finger-spelled toponyms come from the spelling of the name of the toponym in Portuguese and underwent a phonological adaptation. In these signs, the point of articulation parameter is restricted to the neutral space, more specifically to the ipsilateral region of the hand responsible for performing the sign. Differently, he movement parameter, is restricted to internal configuration change movements, as well as movements that prepare a hold.

The native, initialized and fingerspelled categories classify the toponyms based on an analysis of the hand configuration parameter, which refers in a gradient way to the name of the toponym in Portuguese. According to Quadros (2019), deaf people have a certain resistance to initialized or fingerspelled signs. The Portuguese language, in some way, refers to power relations between deaf and hearing people and to issues of coloniality. Figure 4 illustrates the gradient of native, initialized, and fingerspelled categories.



**Native**          **Initialized**          **Fingerspelled**

- Portuguese                              + Portuguese

**Figure 4: Gradient between native, initialized and fingerspelled categories (cf. Miranda 2020)**

Regarding motivation, the first category was Iconic Motivation, which considered both physical characteristics of the place and cultural characteristics related to the place. Such features are somehow encoded in the form of the sign. The second category was Motivation in Portuguese, which was motivated both by calque and the presence of a hand configuration that refers to the writing of the name in Portuguese. We highlight that there were toponyms that presented two types of motivation, involving both the same domain and different ones. Figure 5 illustrates such categories.



**Figure 5: Types of motivation in toponyms in Libras (cf. Miranda 2020)**

After the survey of toponyms, we followed with the process of validation of these signs, with some members of the deaf community, who confirmed that these signs were/are in circulation.

For the purpose of socialization and dissemination of the signs of the cities of Tocantins, we broadcasted videos about the toponyms collected on the YouTube platform (Miranda 2014–). A next step, in progress, is the publication of these toponyms on the website of the Toponymy in Libras Project, of the Federal University of Acre, and on the Toponymic System of Tocantins Software (Sistop), of the Federal University of Tocantins.

## 4        Results: form and motivation of toponymic signs

Tocantins is located in the North Region of Brazil and it borders the states of Maranhão, Piauí and Bahia (east), Pará and Mato Grosso (west) and Goiás (south). With an area of 277,620, 914 km2, it represents 3.26% of the national territory and 7.2% of the Northern Region. Figure 6 illustrates the Political and Administrative Map of the state of Tocantins.
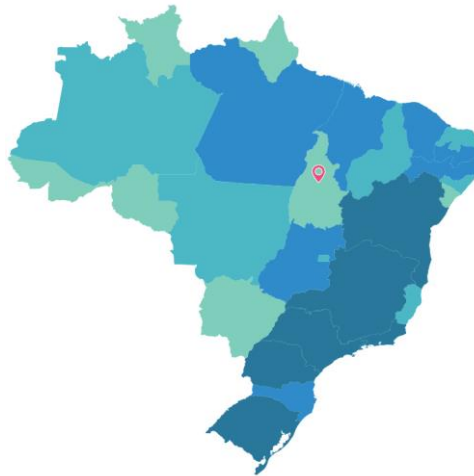


**Figure 6: Political and Administrative Map of the state of Tocantins (IBGE Tocantins)**

According to information from the Brazilian Institute of Geography and Statistics (IBGE Tocantins 2022), the state of Tocantins has 139 municipalities and a population of 1,511,460 residents. Only five cities have more than 50,000 inhabitants, namely: Palmas, Araguaína, Gurupi, Porto Nacional and Paraíso do Tocantins. Of these, only Palmas and Araguaína are medium-sized cities, with 313,000 and 186,000 inhabitants, respectively. Most of the municipalities in the state of Tocantins are small cities, and 80% of the cities have less than 10 thousand inhabitants.

The total number of cities with lexical signs is 53. Some of these cities have more than one sign (variation), so we surveyed 61 toponyms in Libras.

Regarding form, from a total of 61 toponyms, 14 (23%) were considered native, 39 (64%) were considered initialized signs, and 8 (13%) were considered fingerspelling signs. Figure 7 illustrates the frequency in each of these categories.
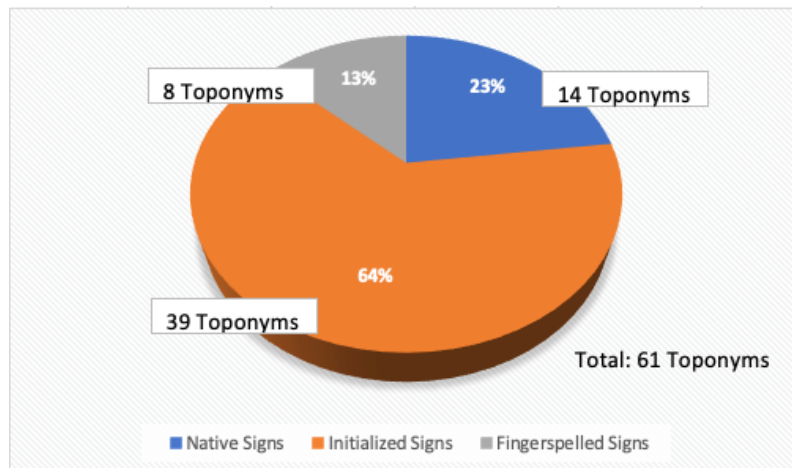
**Figure 7: Distribution of toponyms in relation to form (cf. Miranda 2020)**

The majority of the signs were considered initialized, characterizing more than half of the sample. All initialized signs had Portuguese as their motivation, since a hand configuration that corresponds to the representation of the toponym's writing in Portuguese prevails in all of them. But the parameters movement and point of articulation present a wider range of possibilities, and may express iconic characteristics.

The signs of the cities of Dueré (TO) and Natividade (TO) are examples of initialized toponyms, without iconic features. Differently, the sign of Ponte Alta do Bom Jesus (TO), although initialized, exhibits iconic characteristics because the movement of the sign refers to the height of a telecommunications antenna in the city.

**Figure 8: Sinal of Dueré-TO (Miranda 2020)**

**Figure 9: Sign of Natividade-TO (Miranda 2020)**

**Figure 10: Sign of Ponte Alta de Bom Jesus-TO (Miranda 2020)**

It is not always possible to note the iconic characteristics of toponyms. Deaf signers may not be able to recover the (possible) iconicity of the sign. A change in the visual dynamics of the place may also occur, both in relation to material referents and to people's life experiences that, once having motivated the toponymic sign, may be lost in the long run. Moreover, according to Zeshan (2003), with frequency of use, there may be a change in the complexity of iconic representation of a sign that, in a diachronic process, such representations become more simplified and subtle, and may lead to a loss of transparency between form and meaning.

The second most frequent category was native toponyms, which includes calque-motivated toponyms. This means that not every native sign exhibits iconic features. The signs of the cities of Almas (TO) and Palmas (TO) are examples of native (calque-motivated) toponyms.



**Figure 11: Sign of Almas-TO (Miranda 2020)**          **Figure 12: Sign of Palmas-TO (Miranda 2020)**

Finally, the lowest frequency category was the fingerspelled toponyms. All fingerspelled signs were motivated only by the writing of the toponym in Portuguese. In an analysis of the hand configuration of the fingerspelled toponyms, we observed a variation of the "letter" of the Portuguese name composing the sign. We observed toponyms formed by hand configurations that correspond to (1) the first letter of the name in Portuguese, also considering the initials of compound names; (2) the last letter of the name; (3) the first and the last letter of the name; or yet, (4) the first letter and another letter of the name (different from the last one). Figure 13 illustrates this variation. The "letters" in the spelled toponyms are highlighted in red.

**GURUPI**

**NOVA OLINDA**

**GUARAI**

**ARAPOEMA**

**GOIATINS**

**PAU D'ARCO**

ARAGUAÍNA

ARAGUANÃ

**Figure 13: Variation of "letters" in fingerspelled toponyms (Miranda 2020)**

Regarding motivation, we established the categories Iconic Motivation, encompassing the types (1) **material** and (2) **cultural** and Portuguese Motivation, encompassing the types (3) **calque** and (4) **writing**. During the analysis, there were toponyms categorized in more than one type, i. e., they presented more than one motivation, including from different domains. The categories representing more than one type of motivation were (5) **material and writing**, (6) **cultural and writing**, and (7) **calque and writing**. The writing type motivation is the most prevalent in the toponyms of the cities of Tocantins.

Figure 14 illustrates the absolute frequency and relative frequency (percentage), considering the prevalence of these motivation categories, from our corpus of analysis.
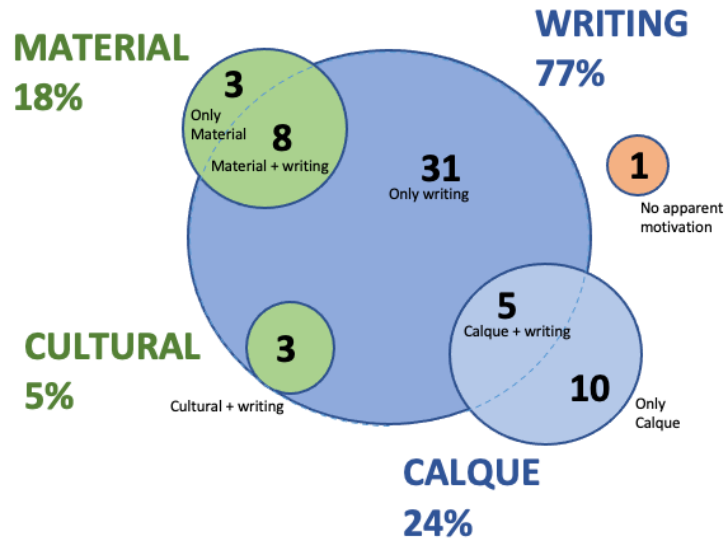
**Figure 14: Distribution of toponyms in the types of motivation (cf. Miranda 2020)**

According to Figure 14, 77% of the toponyms present the motivation of the writing type, either only writing or combined with some other motivation – **material and writing, cultural and writing, and calque and writing**. Next comes the calque type motivation, present in 24% of the toponyms, either only calque or calque combined with writing. Finally, there is a material motivation in 18% of the toponyms, and a cultural motivation in 5% of the toponyms.

Also according to Figure 14, eleven toponyms presented a **material** motivation and, among those, eight of presented motivation of type **material and writing**. The sign Arraias (TO) is a toponym motivated only by material. The sign is iconic and motivated by the geography of the city. The center of the city of Arraias is in a depression, where it is possible to recognize that the city is surrounded by a higher region. In this way, the sign refers to the concept of the signers about the visual image of the city center.



**Figure 15: Sign of Arraias –TO (Miranda 2020)**

The sign of Tabocão (TO) is a toponym motivated by **material and writing**. The sign is motivated by the spelling of the toponym's name in Portuguese. Therefore, the non-dominant hand is configured in T. The configuration, position and movement of the dominant hand refer to the town's gas station, which serves as a stop for vehicles on BR-153, and make reference to the roof of this establishment.

**Figure 16: Sign of Tabocão-TO (Miranda 2020)**

During the analysis, three toponyms presented **cultural and writing** motivation. There were no toponyms motivated only by **cultural**. Regarding the cultural type motivation, two toponyms were motivated by the signers conception about indigenous peoples, as in Itacajá (TO) and Tocantínea (TO), and one toponym was motivated by river beaches, which motivated an iconic construction. In the Praia Norte (TO) sign, the dominant hand configuration refers to a person on the beach and the hand movement refers to the waves of the Tocantins River. The non-dominant hand is configured as "N" and refers to the word North (Praia Norte). Figures 17, 18 and 19 illustrate these signs.



**Figure 17: Itacajá-TO (Miranda 2020)**　　**Figure 18: Tocantínia-TO (Miranda 2020)**　　**Figure 19 – Sign of Praia Norte-TO (Miranda 2020)**

Still according to the analysis, fifteen toponyms presented motivation of type **calque**, and five of them presented motivation of type **calque and writing**. The signs motivated only by calques happen from a literal translation of the term, as well as from what the deaf community understands to be the literal translation of the term. In other words, there perfect and imperfect calques. The sign for Peixe (TO) is an example of a perfect calque.



**Figure 20: Peixe – TO (Miranda 2020)**

The sign from Brejinho de Nazaré (TO) is an example of imperfect calque. The sign is motivated by what the deaf community understands to be the literal translation of the toponym in Portuguese. The spelling of the word *Brejinho* resembles the word *beijinho* (small kiss), which motivated the calque. Thus, the sign for Brejinho de Nazaré (TO) is homonymous to the sign BEIJAR (to kiss).



**Figure 21: Brejinho de Nazaré–TO (Miranda 2020)**

The sign of Formoso do Araguaia (TO) is also an imperfect calque. The sign is motivated by the literal translation of the toponym in the Portuguese language. The spelling of the word "Formoso" resembles the word "famoso (famous)", which motivated the calque process. Thus, the Formoso do Araguaia (TO) sign is homonymous to the sign FAMOSO.



**Figure 22: Formoso do Araguaia–TO (Miranda 2020)**

Finally, forty three toponyms presented motivation of the type **writing**, thirty one of which were only *writing*, while sixteen were a combination of writing with other motivations. Only one toponym did not present an apparent motivation.

The Araguanã (TO) toponym is a sign motivated only by **writing**. The dominant hand is configured in A and, later, is configured in extended index finger and closed fingers, which moves making an outline of the visual image of a " ~ ". The signal is performed in neutral space, laterally.

**Figure 23: Araguanã–TO (Miranda 2020)**

Still regarding motivation, we can say that there are iconic toponyms that also present a motivation from the **writing** of the name in Portuguese. In other words, there are toponyms whose hand configuration represents a "letter" of the name, but exhibit iconic characteristics in other parameters. Again, the categories related to motivation overlap. Considering only the Iconic Motivation and Portuguese Motivation domains, we have the following distribution:
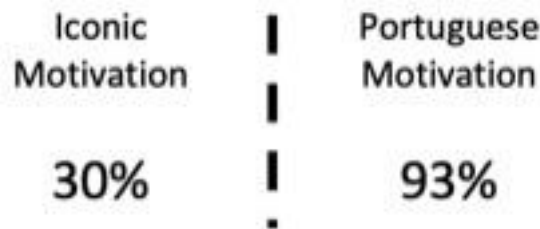


**Figure 24: Distribution of toponyms in Iconic Motivation and in Portuguese (Miranda 2020)**

In this section, we presented the analysis of toponyms based on form and motivation. In the following section, we made some considerations regarding the forearm pivot point parameter of toponymic signs.

## 5        Arm articulation point in the formation of toponyms

We performed a survey of the points of articulation of the toponymic signs, as we realized that most of the signs in the cities of Tocantins are performed on the arm of the non-dominant hand.

We have an intuition that the forearm as a point of articulation constitutes a morpheme to the creation of toponymic signs. In the discussion we propose, the forearm may be related to the meaning of city in the context of the state of Tocantins.

The second most prevalent point of articulation is the forearm, which seems to be quite productive among the toponyms of Tocantins and, according to some of the interviewees, refers to the bridges of the state. The Figures below illustrate some of these toponyms.

**Figure 25: Sign of Tocantins (Miranda 2020)**



**Figure 26: Sign of Araguaína-TO**



**Figure 27: Sign of Natividade-TO (Miranda 2020)**



**Figure 28: Sign of Chapada de Natividade (Miranda 2020)**



**Figure 29: Sign of Formoso do Araguaia (variation) (Miranda 2020)**

A reinforcement of the hypothesis that the forearm refers to the bridge is the Ponte Alta do Tocantins sign, illustrated in Figure 33. This sign is iconic and refers to the visual image of a bridge in the city (Figure 30). The configuration of the hand and the movement that the hand performs refer to the arrangement of this bridge, being performed on the non-dominant arm, which seems to be a representation of a bridge mapped on the signer's body (more specifically on the arm), as mentioned. This point of articulation, somehow, has become productive for the creation of toponyms in Libras of the state of Tocantins.

**Figure 30: Sign of Ponte Alta do Tocantins (Miranda 2020)**



**Figure 31: Main bridge in Ponte Alta do Tocantins (Conexão Tocantins 2017)**

## 6      Final considerations

This article presented the results of a research on the description and analysis of the structural and motivational aspects of toponymous signs in the cities of Tocantins.

Data collection took place through participant observation and interviews. A lexicographic-toponymic form was prepared for the registration, description and presentation of the toponyms, with the following microparadigms: (1) the image of the toponym in Libras, (2) the map and location of the city, (3) the link to access the video on the YouTube platform, (4) the registration of the sign in signwriting, (5) the name of the toponym in Portuguese, (6) the administrative region to which the city belongs, (7) description of the sign in its articulatory aspects, (8) sign morphology (simple or compound), (9) toponym category (native, initialized or fingerspelled), (10) sign motivation (Iconic or Portuguese language motivation), (11) name of the researcher responsible for surveying the toponyms, (12) group for validating the toponym, (13) type of source and (14) the date of collection.

Based on an analysis of the articulatory properties of the signs, the toponyms were categorized into (1) native, (2) initialized and (3) fingerspelled. These are exclusive categories and do not refer to the motivation that permeates the form of these signs.

Most signals were considered (2) initialized. The second most frequent category were toponyms categorized as (1) native, which includes toponyms motivated by calque. Finally, the lowest frequency category was (3) fingerspelled toponyms.

Regarding the analysis of motivation, the toponyms were categorized into (1) material and (2) cultural, within a larger domain (Iconic Motivation), and into (3) calque and (4) writing, within another larger domain (Portuguese Motivation). During the analysis, these categories were presented as non-exclusive. For that, there are toponymic signs that represent more than one type of motivation: (5) material and writing, (6) cultural and writing, and (7) calque and writing. The writing type motivation is the most prevalent in the toponyms of the cities of Tocantins.

Regarding the material type of motivation, we observed that the toponymic signs were motivated by the geography of the place, such as terrain and vegetation, presence of waterfalls, monuments, bridges, television antenna and commercial establishment arrangement (gas station). Characteristics of these locations are present in the parameters of the respective toponymic signs. Thus, the articulatory traits related to movement, configuration, orientation and position of the hands codified, to some extent, the signers' conception of the characteristics of the place. Regarding the cultural type of motivation, there are toponyms motivated by the indigenous population of these locations and by leisure on river beaches.

Signs motivated only by calque can be from a literal translation of the term, as well as from what the deaf community understands to be the literal translation of the term. In this sense, there are the perfect calques and the imperfect calques. There were also toponymic signs that were motivated by calque from part of the name of the toponym in Portuguese.

An interesting finding during data analysis is the high incidence of articulated toponyms in the forearm. The recurrent use of this articulation point suggests that it is being used as a stuck morpheme for the creation of toponymic signs. In this sense, the forearm as a point of articulation may be related to the meaning of city, as it is productive in the creation of toponyms in the context of the state of Tocantins.

More research needs to be done on the toponymic signs of the cities of Tocantins, in order to describe in detail historical, cultural, social and linguistic aspects related to the local deaf community. It is also important to discuss the lexical and phonological variation of toponyms found in our data.

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