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## **Creating a sign language out of everything and everywhere: an example from the deaf people of Bissau**

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An example from the deaf people of Bissau**

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**Creating a sign language out of everything and everywhere:  
An example from the deaf people of Bissau**

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## List of abbreviations

### Sign Languages

<b>ABSL</b>	Al-Sayyid Bedouin Sign Language
<b>AdaSL</b>	Adamorobe Sign Language
<b>ASL</b>	American Sign Language
<b>Auslan</b>	Australian Sign Language
<b>BSL</b>	British Sign Language
<b>BISINDO</b>	<i>Bahasa Isyarat Indonesia</i> (Indonesian Sign Language)
<b>DGS</b>	<i>Deutsche Gebärdensprache</i> (German Sign Language)
<b>IPSL</b>	Indo-Pakistani Sign Language
<b>ISL</b>	Israeli Sign Language
<b>LSN</b>	<i>Lengua de Señas Nicaragüense</i> (Nicaraguan Sign Language)
<b>KSL</b>	Kenyan Sign Language
<b>LaSiBo</b>	<i>Lingue des Signes de Bouakako</i> (Bouakako Sign Language)
<b>LaSiMa</b>	<i>Lingue des Signes du Mali</i> (Malian Sign Language)
<b>LIS</b>	<i>Lingua dei Segni Italiana</i> (Italian Sign Language)
<b>LGG</b>	<i>Língua Gestual Guineense</i> (Guinea-Bissau Sign Language)
<b>LGP</b>	<i>Língua Gestual Portuguesa</i> (Portuguese Sign Language)
<b>Libras</b>	<i>Língua Brasileira de Sinais</i> (Brazilian Sign Language)
<b>LSE</b>	<i>Lengua de Signos Española</i> (Spanish Sign Language)
<b>LSF</b>	<i>Lingue des Signes Française</i> (French Sign Language)
<b>NGT</b>	<i>Nederlandse Gebarentaal</i> (Dutch Sign Language or Sign Language of the Netherlands)
<b>NZSL</b>	New Zealand Sign Language
<b>ÖGS</b>	<i>Österreichische Gebärdensprache</i> (Austrian Sign Language)
<b>SL</b>	Sign Language
<b>UgSL</b>	Ugandan Sign Language
<b>YMSLs</b>	Yucatec Maya Sign Languages

Other abbreviations

**AGRICE** *Associação Guineense de Reabilitação e Integração dos Cegos* (GB Association for the Rehabilitation and Integration of the Blind)

**AS-GB** *Associação de Surdos da Guiné-Bissau* (Deaf Association of Guinea-Bissau)

**CJS** *Centro de Jovens Surdos* (Deaf Youth Centre)

**ENS** *Escola Nacional de Surdos* (National School for the Deaf)

**TISLR** Theoretical Issues in Sign Language Research (Conference series)

**WOCAL** World Congress of African Linguistics (Conference series)

## **Acknowledgements**

This work is the product not only of research and writing, but of countless conversations, shared ideas, and the quiet encouragement of those who believed in me. Even if it bears my name, it is the result of a collective effort of teachers who inspired me, colleagues who challenged me, and friends and family who supported me throughout this journey.

First and foremost, I thank my supervisors for their guidance. Victoria, for your vision and dedication in turning Leiden University into a key hub for the study of African sign languages and for elevating LGG to new heights with such energy and insight; Hope, for being unfailingly persistent and kind; and Maarten, for your trustworthy patience and professionalism. You have been a steady anchor from start to finish.

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To the Bissau deaf community, dearly in my heart in the faces of so many, but closer in Amaré, Malam, Ana, Mariama, Marcos, Alanam, and José Augusto: thank you for embracing me from the very beginning, and for allowing me to witness and learn from your extraordinary story. I also owe deep gratitude to the Portuguese deaf community, in particular the deaf association and the sign language teachers' association, for not letting go of me during these Dutch years.

To my friends and family, thank you for pushing me forward at every step. To my wife, Marta, there are never enough words to describe what your presence in my life means to me, you are my lighthouse.

Finally, to my children, who watched this thesis grow alongside them. Your endless joy, patience, and love reminded me daily of what truly matters. Thank you for grounding me, for reminding me to pause, and for filling this journey with light.

## **Positionality**

My research on the emerging sign language of Guinea-Bissau is grounded in three interrelated aspects of my identity: my longstanding engagement with deaf communities as a hearing person, my upbringing in Africa, and my professional dedication to linguistics as a discipline centred on people and their languages. These elements shape the lens through which I approach this work and inform the relationships, responsibilities, and ethical commitments I bring to it.

I have been immersed in the deaf world for over two decades, working primarily at the Portuguese Deaf Association, where I have been teaching written Portuguese to deaf adults and sign linguistics to deaf sign language teachers. My involvement with the community has extended beyond teaching, encompassing advocacy for language rights and deaf-led education. These experiences have allowed me to build a role of allyship and collaboration in which I seek to contribute in ways defined by community priorities. Although I am not deaf, my professional and personal life has been profoundly shaped by deaf colleagues, friends, and family, including my deaf wife and our children. All of it has continually reinforced my positionality as someone whose perspectives are intertwined with deaf worlds.

Growing up in Angola and then Mozambique has also marked my identity and research orientation. Despite my whiteness and middle-class background situating me within a privileged minority, my early years on the African continent cultivated a strong sense of belonging and responsibility. This has naturally drawn me toward collaborations with deaf communities in African contexts, including projects in Cape Verde, São Tomé and Príncipe, and, most significantly, Guinea-Bissau.

Guinea-Bissau presents an exceptional sociolinguistic context. In contrast to many countries, its deaf community has developed without external imposition from medical, oralist, or foreign sign language

ideologies. This has allowed a local sign language to emerge in ways that are rare in the global deaf experience. My professional engagements in Guinea-Bissau, conducted in partnership with deaf colleagues over the past twenty years, have been limited in duration but sustained in continuity. These collaborations have fostered a deep familiarity, mutual trust, and shared commitment that I now carry into this research.

Finally, my orientation to linguistics is anthropologically informed: I view languages not as abstract systems but as lived practices embedded in cultural and social life. My work is motivated by a conviction that research should be useful, relational, and accountable to the communities involved. This dissertation, while contributing to linguistic scholarship, is also intended as a recognition of the agency, creativity, and resilience of deaf people in Guinea-Bissau and as a contribution to their visibility and empowerment.

I also acknowledge the broader dimensions of my identity that shape how I engage with this work: I am a white, rainbow, hearing woman of Portuguese heritage. These positionalities bring both privileges and responsibilities, which I approach with reflexivity and humility. Above all, this research is situated, relational, and indebted to the deaf people with whom I have shared professional collaborations and personal ties throughout my adult life.

# 1 UNPACKING THE FIRST YEARS OF SIGN LANGUAGE EMERGENCE IN BISSAU

*In the absence of language input,  
humans will treat information in their environments  
as though it were linguistic.*  
(Morford 1996, 175)

## 1.1 Introduction

An autochthonous sign language, designated locally as *Língua Gestual Guineense*, or *LGG*, has been emerging in the city of Bissau – and elsewhere in the country – at the hands of a growing deaf community. First, in the capital, the number of deaf people has increased since 2003 in school settings and, from then on, also slowly in other regions of Guinea-Bissau. The present thesis captures such a phenomenon by giving a two-pronged record of the deaf people in Guinea-Bissau and their language. On one side, I draw a detailed historical account of the rise of the deaf community and the circumstances leading to the emergence of their sign language. On the other side, I conduct linguistic analyses to understand where LGG signs come from and how the lexical system builds up in the first years of language emergence.

I portray here the rise of a deaf community with an uncommon profile. It is set up in a free-signing environment with no hearing aids or speech-oriented educational ideologies. Even though deaf people primarily meet in a school setting, they have established a well-organised gathering system outside the school walls. In this context, it stands out how much they seek to make their hearing peers aware of their presence as deaf people and their sign language. Moreover, with a deep-rooted sense of pride, deaf people seem to engage in everyday activities alongside their hearing peers.

To investigate the endemic sign language of Guinea-Bissau, I focus first on the integration of conventional gestures into LGG. The analysis identifies three integration routes, differing in linearity. The disambiguation of less linear pathways relies on the frequency with which form-meaning pairs occur. At the same time, signers take advantage of cooccurring gestures to also import them as signs.

The study of the diachronic growth of the LGG lexicon looks at the development of kinship and colour terms, families of signs rooted in signs-from-gestures, and the grammaticalisation of 'hit'. The first analysis of the lexical development reveals that signs for family members and colours conform to the universal hierarchies, while being primarily based on gestures adopted as signs. The description of families of signs shows that both compounding and derivation expand differently per semantic domain. It further observes, for the first time, the emergence of a morphological system rooted in specific body-based locations and handshapes. Finally, the grammaticalisation of the gesture-to-sign 'hit' extends to different grammatical functions expressing comparative degrees and emphasis.

In this first chapter, I begin by justifying the choice of this topic (§1.2). Then, I explain the outline of the research (§1.3). This is followed by a discussion of ethical considerations (§1.4). In the end, I describe how the book is organised (§1.5).

## **1.2 Choosing the topic of the thesis**

As a sign linguist who has grown up in Africa, studying the emergence of the twenty-year-old sign language of Guinea-Bissau has been a privilege. Such an opportunity made me restless to understand how sign language emerges from scratch. Witnessing this process has been proof

that deaf people create sign language not from ‘nothing’ but from everything and everywhere around them.

Since I had been watching this community thrive and documenting its sign language emergence since 2005, it was inevitable to bring the two-decade-long relationship a step forward. While instinctively taking on the responsibility to portray the community, it was not easy to choose the research topic in linguistics. I started with argument structure and eventually arrived at the subjects of lexical etymology and structuring.

As a teacher of the deaf, I first aimed to describe the emergence of the morphosyntactic structure of LGG with the ultimate goal of favouring a bilingual approach to learning the written language by deaf students. At the beginning of my PhD journey, I was particularly excited about the opportunity to apply elicitation material specifically adapted to the African context. At the time, Hope E. Morgan had already created short video events based on the Haifa clips (Sandler et al. 2005) to elicit single transitive sentences in Kenyan Sign Language (KSL) (c.f., Morgan 2014, 2020). Little did I know that after contacting her to use her innovative material, she would move to Leiden and become my co-supervisor. The collection of such sentences in the emerging sign language of Guinea-Bissau (LGG) showed appealing results in consistent word order patterns and an agreement system in the making (c.f., Martins et al. 2022; Martins 2022).

However, my initial focus on contributing to deaf pedagogies was eventually redirected to the overarching question of language origins. I ended up not pursuing the study of the emergence of verbal agreement in LGG in the present thesis, as Victoria Nyst’s work drew me to a set of common gestures and signs observed in West Africa.

I had been working with Guinea-Bissau for only a couple of years when Victoria Nyst and I had our first contact in 2007. By then, she was building a network for African deaf studies and has been extensively

researching sign languages developing locally in West Africa, especially in Ghana and Mali (see Nyst 2010a for an overview). As my PhD supervisor, she suggested that, apart from the sentence elicitation task, I collect conventional gestures used in Bissau, which I did in the kick-off field trip in 2018. That same year, Nyst started her VIDI project, “From Gesture to Language”, focused on West Africa. Before that, she had been developing the Gesture Research in Africa database at Leiden University (Nyst 2013b; 2015, 148). Over the years, she gathered evidence that certain gestures and their signed counterparts were shared in West Africa (Nyst 2010a, 39; 2013a; 2015, 135). Nyst proposes that such sharedness derives from language contact in multilingual contexts, such as trade settings (Nyst 2010a, 20, 40–41), and puts forward a *gesturebund* hypothesis, i.e., the existence of a regional gestural system (Nyst 2013a; Nyst & Martins 2022).

Remarkably, in addition to studying the argument structure, Morgan also looked at the emergence of signed words (2015) and the incorporation of gestures into KSL (2016). Influenced by this line of work, the question concerning the roots of LGG progressively struck me. I was especially puzzled by which gestures were shared socially and then picked up and reshaped by deaf signers. As a result, I became increasingly motivated to understand where the signs used by the deaf in Bissau came from and how they were organised within a new sign language.

Overall, I was driven by the broader quest to unravel the origin of language, aware of the rare opportunity to have witnessed and documented the inception of an autochthonous sign language (Martins & Morgado 2008, 2017). In search of the moment when a language becomes one, I look at both the etymology of signs and the establishment of a lexical system. To do so, I resumed previous work on diachronic change in LGG signs (Martins & Morgado 2016, 147–151), focusing the

linguistic study exclusively on the lexicon of LGG, as is further explained next.

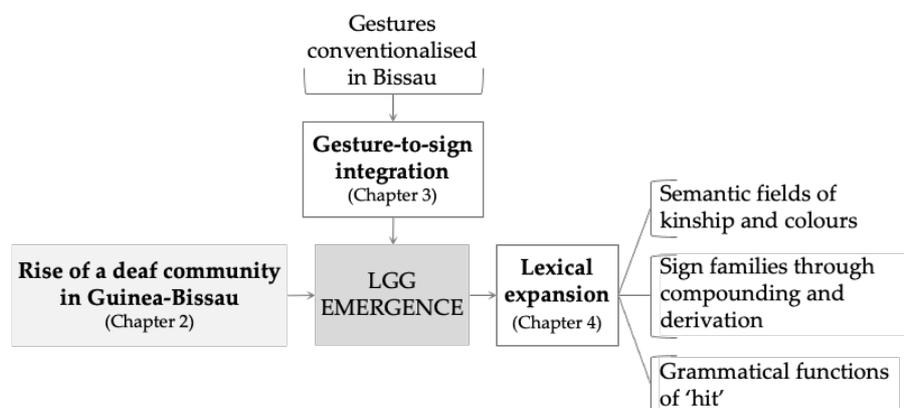
### 1.3 Overview of the thesis's research

The study of the emerging sign language of Guinea-Bissau can be explored from different viewpoints, but the academic influences that surrounded me at Leiden University, primarily centred on Nyst's work, narrowed down the research topic to the origin of the lexicon.

To understand the first two decades of LGG emergence, the thesis develops three main contents: the sociolinguistic description of the deaf community of Guinea-Bissau and its sign language (in Chapter 2); the integration routes of gestures into LGG (in Chapter 3); and the diachronic expansion of the LGG lexicon (in Chapter 4).

Studying the dynamics of a community in the making and a language at such an early stage allows us to witness how a sign language becomes one in the hands of deaf people. After exploring the sociolinguistic context where LGG is emerging, I undertake linguistic analyses of the LGG lexicon. I first seek to understand how gestures are adopted as signs and then how these items drive lexical expansion over time.

To study a sign language, it is essential to understand what characterises its users and the dynamics of their social interactions. Only then will we know how such a sign language is shaped and what motivates and sustains its use. As shown in Figure 1, the study of the emergence of the LGG lexicon branches out into two analyses: the integration routes of gestures as signs and the lexical expansion. The latter focuses specifically on the diachronic hierarchies of kinship and colour terms, the development of families of signs and the extension of 'hit' into different grammatical functions.



**Figure 1.** Organisation of the thesis's studies, which include the sociolinguistic description of the rising deaf community of Guinea-Bissau (in Chapter 2); linguistic analyses of the emerging LGG lexicon, namely of the integration routes of gestures as signs (in Chapter 3), and the lexical expansion (in Chapter 4), of the semantic fields of kinship and colours, sign families through compounding and derivation, and the grammatical functions of 'hit'

In this third section, I present the motivations for this research (§1.3.1), I raise the research questions (§1.3.2), and summarise the methodological approaches (§1.3.3).

### 1.3.1 Research motivation

The current subsection focuses on the three content chapters of this thesis: the sociolinguistic description of the deaf community of Guinea-Bissau and its sign language (§1.3.1.1); the linguistic analysis of the integration routes of gestures into the LGG lexicon (§1.3.1.2); and the diachronic expansion of those signs (§1.3.1.3). Here, I present the motivations and contributions for each topic.

*1.3.1.1 The deaf community of Guinea-Bissau and its sign language (Chapter 2)*

The sign language of Guinea-Bissau (*Língua Gestual Guineense* – LGG) is documented in three dictionaries collected at different moments in time (2005, 2006, and 2017) and is further described in several more specific works (see Table 1). However, the community is yet to be described. Having observed LGG emerging for the past two decades in a school setting within a fast-growing and close-knit deaf community, I aim to thoroughly explain the sociolinguistic context in which such emergence is taking place.

This description is fundamental, not only because it has not been done yet in Guinea-Bissau, but also since historical reports of emerging deaf communities are scarce (e.g., Polich 1998, for the Nicaraguan case). Thus, the characterisation of the deaf community of Guinea-Bissau and its sign language is outlined here in the context of the most relevant studies of sign language emergence to highlight the unique opportunity LGG presents of witnessing sign language emergence in real time.

*1.3.1.2 Routes of gesture integration into LGG (Chapter 3)*

Capturing the emergence of the LGG lexicon from its inception in an exceptionally vibrant community provided a rare opportunity to witness a linguistic system in the making. Given this, the first question that comes to mind is: how does the LGG lexicon come about?

According to the literature on gesture use in West Africa and the integration of gestures into sign languages, LGG is likely to have arisen from gestures and maintained a high level of autochthony throughout its first twenty years. In West Africa, Nyst was particularly aware of the impact of gestures integrating different sign languages (2010a,

2013b, 2015). In the region, such a phenomenon was given special attention within locally-evolved deaf communities, like the ones in the city of Akure, in Nigeria (Orie 2012, 81; 2013, 244), and in the Extreme North Cameroon (Lutalo-Kiingi & de Clerck 2015, 48, 51; Sorin-Barreteau 1996, 207, 212).

Studies on homesigners ('isolated' among hearing people) show that a deaf person – relying mainly on the visual-manual modality – treats gestures as linguistic input (Morford 1996, 175). Based on such gestures, they create a communicative system with language-like properties (Goldin-Meadow 2012, 2017). It is then expected that, in the hands of deaf people, the available gestures within the surrounding community give rise to a sign language (Washabaugh 1986, 185, in Providence Island). This is especially the case with more conventionalised gestures (Le Guen et al. 2020, 339, in the Yucatán Peninsula).

The incorporation of a larger set of conventional gestures into sign languages has been explored in only a few studies. When comparing gestures and their signed counterparts in Providence Island, Washabaugh (1986, 187–188) observes that deaf people adopt most conventionalised gestures directly as signs. They further make the most of all available gesture variants, incorporating them into the sign language, often maintaining their form and meaning. In line with Washabaugh's observations, Le Guen and colleagues also argue that conventional gestures are always directly adopted as signs in Yucatec Maya Sign Languages, YMSLs (2020, 301).

Although Washabaugh had already hinted at the presence of gesture variants, Coppola went further to identify in Nicaragua less linear pathways involving polysemous gestures for related concepts and cooccurring gestures for the same concept, i.e., synonymous forms, which then had their meanings specified as signs of the *Lengua de Señas Nicaragüense*, LSN (2020, 365–366). Still, in terms of the integration of

signs, Morgan identified clusters of KSL signs as polysemous and closely related in form, associated with the same gestural source (2016).

Therefore, I aim to identify a set of gestures that have been conventionalised in Bissau. Through such a collection of gestures, I seek to assess how linear their recruitment as signs is by observing any adjustments occurring in their form and meaning.

#### *1.3.1.3 The expansion of the LGG lexicon (Chapter 4)*

Conventional gestures are likely to extend the lexicon through polysemy and morphological processes of derivation and compounding (Washabaugh 1986, 187–188). Thus, the signs identified in the analysis of the gesture integration routes are now analysed in terms of their impact on lexical expansion. From this groundwork, the study of the diachronic growth of the LGG lexicon focuses on the hierarchies of kinship and colour terms, families of signs relying on compounding and derivation and the particular case of the grammaticalisation of ‘hit’.

Several studies have proven that specific semantic fields, like kinship and colours, follow a similar sequential arrangement across languages (Greenberg 1980, Berlin & Kay 1969, for spoken languages; and Zeshan & Sagara 2016, for sign languages). However, there are no real-time reports of the diachronic development of these particular topics in emerging sign languages. For that reason, I aim to see how they develop from the very beginning and during the first two decades.

The processes of derivation and compounding have been established to push the lexical expansion forward (e.g., Wilcox & Occhino 2016, 12, for sign languages; and Hockett 1960, 8, for all human language). The emergence and development of the lexicon have been studied mainly in deaf homesigners (Goldin-Meadow 2002). In this initial period, the

formation of signed compounds has been extensively described again in homesigners (Morford & Kegl 200), sign languages used by very small groups of people (Hou 2016, in San Juan Quiahije, Mexico; and Osugi et al. 1999, in Amami Island, Japan), and young sign languages, like KSL (Morgan 2015), and the one used by the Al-Sayyid Bedouin, ABSL (Meir et al. 2010; Tkachman & Meir 2018). From these accounts, patterns of semantic relationships between compound members arise, in line with Downing's claims of particular motivations for different semantic classes (1977, 831). Hence, I propose to observe the nature and the extent of such combinations in the emerging LGG.

In contrast, in emerging sign languages, derivation was examined only in terms of the distinction between nouns and verbs in both homesigning and in the young ABSL (Tkachman & Sandler 2015). In established sign languages, it has been described as being rooted in specific locations and handshapes (Frishberg & Gough 2000 [1973]; Fernald and Napoli 2000, 28–29; Lepic & Occhino 2018, 156–157, in American Sign Language [ASL]; Zeshan 2000, 28–33, in Indo-Pakistani Sign Language [IPSL]; Zwitserlood et al. 2021, 16–17, in *Nederlandse Gebarentaal* [NGT]; and Meir 2012, 80, in Israeli Sign Language [ISL]). Therefore, I aim to describe the emergence and development of derivational paradigms.

Finally, the more gestures are conventionalised, the easier they will be syntactically integrated with a grammatical function (Le Guen et al. 2020, 331–332). The concept of 'hit', also expressed by a conventional gesture in Bissau, offers a clear example of grammaticalisation. It occurs as a comparative marker in spoken (Heine & Kuteva 2002, 123–127) and sign languages (Costello 2015, 195–196, in *Lengua de Signos Española*, LSE; Wilbur et al. 2018, 65, in ASL; and Martins & Machado 2024, shortly referencing it in LSN). It is also observed as an emphatic marker in *Língua Brasileira de Sinais*, Libras (ibid.) and KSL (Morgan 2022, 284). I aim then to look at the grammaticalisation of 'hit' in LGG, namely as a comparative marker and an emphatic.

Overall, the three expansion processes – semantic, morphological, and grammaticalisation – have not yet been systematically studied across different domains in an emerging sign language.

### 1.3.2 Research questions

To understand the process of LGG emergence, I conduct different linguistic analyses, focusing first on the gestural origin and then on the lexical expansion resulting from that gestural origin. Of course, such analyses presuppose a deaf community creating an autochthonous sign language based on the surrounding gestures. If that is so,

→ How does a signed lexicon emerge and expand from gestures?

Nyst suggests that West Africa is a gesture-prone region, where local sign languages feed from (2010a, 2013b, 2015). Since the emergence of LGG is occurring within this geographic area, deaf people likely have access to a gestural stock that is ready to be used as signs.

The few scholars who have examined the integration of a larger set of conventional gestures into sign languages (Washabaugh 1986, in Providence Island; Morgan 2016, in Kenya; Coppola 2020, in Nicaragua; and Le Guen 2020, in the Yucatec Peninsula, Mexico) agree that such integration occurs directly. Nonetheless, Coppola identified polysemous and synonymous forms that, only as signs, were semantically specified (2020, 365–366).

Therefore, I assume that the integration route from gestures to signs is not always linear. This implies that some gestures are more likely to be directly recruited than others, especially concerning their semantics.

With this in mind, and benefitting from the real-time data available for gestures and signs, I question

- What are the routes incorporating conventional gestures into LGG?
  - In particular, what exactly occurs in the form and meaning of gestures, ready to be picked up by signers, when integrated into an emerging sign language?

Considering the integration of gestures into LGG, I question what the role of these signs-from-gestures is in expanding the lexicon. I postulate they act as sources in semantic hierarchies, families of signs and grammatical extensions. Overall,

- How does lexical structure unfold over time in the sign language emerging in Bissau?

Semantic hierarchies of kinship and colour terms provide universally tested implications across spoken (respectively in Greenberg 1966; and Berlin & Kay 1969) and sign languages (c.f., Zeshan and Sagara 2016). However, this has not been studied yet in an emerging sign language likely grounded on gestures. Thus, specifically,

- How do signs-from-gestures expand during the first years of language emergence in the semantic domains of kinship and colours?

When examining the incorporation of gestures into the sign language of Providence Island, Washabaugh (1986<sup>12</sup>, 187–188) observes that such forms extend the lexicon through polysemy and morphological processes of derivation and compounding. Assuming that there is also a set of gestures being incorporated into LGG that expands over time,

- What are the trajectories of development of derivation and compounding in families of signs-from-gestures?

Besides lexicalising, gestures can also grammaticalise as signs (Wilcox 2004, 48–49). The process of grammaticalisation is illustrated by the different grammatical extensions of ‘hit’ in spoken (Heine & Kuteva 2002, 123–127) and sign languages (Costello 2015, 195–196, in LSE; Wilbur et al. 2018, 65, in ASL; Morgan 2022, 284, in KSL; Martins & Machado 2024, in Libras and shortly referencing it in LSN). Presuming that such a phenomenon will occur as early as the emergence of a new sign language,

- How do grammatical functions extend from ‘hit’ in LGG?

### 1.3.3 Methodological approaches

In the three chapters that describe data about the deaf community and its sign language, I employ different methods. In Chapter 2, the description of the uncharted terrain of the deaf community in Guinea-Bissau is based on various field trips conducted over the past 20 years. In addition, I rely on the available documentation on the sociolinguistic environment in general and the deaf population in particular.

In Chapter 3, the methods to collect gestures used in Bissau bring innovation to gesture studies. On one hand, I elicit gestures with groups of four people to check the response agreement level. On the other hand, besides asking hearing participants, I rely on the expertise of deaf people as the primary beneficiaries of gesture use.

In addition, to analyse the linearity of gesture incorporation routes into the signed lexicon, including any eventual modifications that occur in the process, I compare a set of gestures elicited by a list of 41 concepts with LGG signs from the three existing dictionaries (collected in 2005, 2006, and 2017). Here, I introduce a semantic-based approach, where the examination of cooccurring forms for the same concept intersects with polysemous forms. This methodology reveals three integration routes with different linearity levels.

In Chapter 4, I follow up on the signs recruited from gestures expanding into the semantic fields of kinship and colours and as families of signs through compounding and derivation. To do that, I benefit from the three LGG dictionaries collected over time – in the first couple of years of language emergence and a decade later – to track lexical growth.

To analyse the grammaticalisation of ‘hit’, the individual signs documented in the 2017 dictionary were insufficient. For that reason, I collected additional videos with several uses of the signed forms deriving from the gesture for ‘hit’ in discursive contexts.

#### **1.4 Ethical considerations**

Studying a young deaf community and its emerging sign language comes with a weighty responsibility. Inevitably, researchers have an outsider look. Thus, when opening that door, ethical values become

especially relevant. In the present statement, I address the principles I held as fundamental in relating with the community during the research.

Essentially, I made a point of learning the language used by the deaf people of Bissau as well as I could through informal conversations, while knowing about the community's internal dynamics, values, and rituals. I aimed at explaining the research clearly to them in LGG, so that participants could engage consciously and consent to it (as stated by the Linguistic Society of America for research with people<sup>1</sup>, but see also Nyst 2015b, 114). In the end, to avoid personal disputes, and following the leaders' advice, participants were compensated as a group with food items.

Although I highly value the principle of deaf people's involvement and have made quite an effort to apply it, I have unfortunately not been able to practice it more intensively. For one, online contact with the deaf people of Bissau has proved impractical in fostering tighter collaboration and mentorship. Moreover, physical contact time has been far from enough to develop it appropriately. Still, the training occasions have left seeds regarding awareness of deaf culture, sign language rights, documentation techniques and linguistics.

Since the deaf community of Bissau is very young, deaf individuals are still navigating their educational path – a path, I must add, where digital literacy receives too little attention. As slow as the captivating process feels, deaf individuals have become keen on thinking about their language and increasingly engage in its analysis. In this regard, I have been cautious in avoiding the gender gap since men, at least in Guinea-Bissau, are usually privileged in their educational opportunities. In addition, I have shared the research development to the extent their

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<sup>1</sup> <https://lsaethics.wordpress.com/2008/07/> (accessed 03-06-2024).

interest allows. Finally, as a point of honour adopted since the beginning, products made public about the community and its sign language result from requests by local leaders or discussions with community members.

Regarding research outputs, the Sign Language Linguistics Society (SLLS) calls for caution when handling signers' privacy since exemplifying linguistic aspects of signs often implies showing the signers' faces. Even if informants in Bissau have consciously consented to disseminate their facial identities, it is difficult to determine the limitations of such a disclosure. Thus, when is too much enough, if ever? The exposure to which signers and their sign languages are subject by the academia, showcasing unique phenomena, puts them on a list of must-see attractions to be explored by anyone who wishes (e.g., Moriarty 2020, on deaf tourism in Bali).

As Erard (2019) discussed, the linguist studying an "untouched" community may be tempted to shield it from the external risks of altering its natural development and consequently losing its scientific value. For any linguist, witnessing the birth of a language in real time is indeed a rare opportunity. When you are at the right place and time, you want to keep the original story as "pure" as possible. But how much of this concern is about science rather than the community's wishes? Does the community want to remain "isolated"? Do not surviving languages shift over time and eventually absorb features from their contact languages? I must distinguish between the gradual change based on "social and cultural trends" and language replacement for ideological reasons, such as status. In this case, the community's attachment to its language must be supported with responsibility.

By letting the world know about these "isolated" deaf communities, audiological intervention will also be in the cards. When ENT doctors and hearing aid technicians know about untreated ears, their saviour

instincts are likely to step in. Even if we wish instead to leave the community in a “pure” state, is it not inevitable that such an intervention will occur along the way? Would not a number of deaf individuals prefer to have the chance to choose a hearing aid rather than having no options at all? (see the interview with Zeshan in Erard 2019<sup>4</sup> on the ethical responsibilities of undescribed sign languages).

In the end, I cannot overprotect a community from outside influences in an increasingly global world. The physical and virtual mobility of deaf people has promoted language contact, leaving some traces (Moriarty 2020, 196) inevitably. So, as an observer of language phenomena, I have to trust signers’ communication choices and determination to self-preserve their sign language (e.g., in the interview with Hou and Mesh in Erard 2019<sup>4</sup> on Chatino Sign Language, in Mexico). Crucially, I was positively surprised, in Guinea-Bissau, by deaf people’s pride in their sign language.

Finally, although I had a clear educational goal at the beginning, giving back to the community from a more scientific context still occupies my mind. Therefore, I am constantly thinking of ways to make the present thesis accessible – and appealing – to the deaf people of Guinea-Bissau (see Nyst 2015b, 114). And again, no matter how much I idealise materials for them, whatever is produced must always have their previous endorsement.

Above all, the community’s true interests will have to be taken into account. To conclude this first chapter, I explain next how the book is organised.



## 2 THE DEAF COMMUNITY OF GUINEA-BISSAU AND ITS SIGN LANGUAGE

*[...] understanding iconicity in another language  
is experienced as gaining insight into another culture.*  
(Moriarty 2020, 201)

### 2.1 Introduction

Chapter 2 presents the first detailed description of the deaf community coming together in Guinea-Bissau and the contexts in which its language has thrived. Although the circumstances of the emergence of *Língua Gestual Guineense* (LGG) have been briefly portrayed in previous publications (Martins & Morgado 2008, 2016, 2017; Martins 2022; Morgado 2024), I now aim to describe it in more depth. With this detailed account of a rising deaf community, I hope to contribute to the field of deaf histories, which remains scarce in its early years.

In this chapter, after this introduction, I review the literature on sign language emergence to better understand the way LGG has emerged in relation to other sign languages in the world (§2.2). In particular, the places where they typically emerge, i.e., where deaf people usually interact with each other (§2.2.1), the relevance of community size (§2.2.2), and how to study diachronic change in sign language emergence (§2.2.3). I then describe the fieldwork undertaken on site over the past 22 years (§2.3). Next, I expand on the ethnographic data collected for the characterisation of the local deaf community and its sign language (§2.4).

Based on the available data, I set out to describe the dynamics shaping the deaf community of Guinea-Bissau over the years (§2.5). The socio-linguistic description presented here focuses on the deaf people's ways

of life (§2.5.1), deaf schools as important gathering spaces (§2.5.2), other places where deaf people meet (§2.5.3), contexts of language contact (§2.5.4), and sign language use (§2.5.5). In the end, I propose to portray LGG's emergence in relation to the literature (§2.6).

## **2.2 Sign language emergence: places, community size, and timeframe**

Given that sign language has only recently arisen in Guinea-Bissau, it is essential to look at the concept of sign language emergence and how *Língua Gestual Guineense* (LGG) fits within it. Sign languages have been emerging everywhere whenever deaf people get together. It is well attested for at least 250 years since the first school for the deaf was established in Paris. Even if it is usually associated with school contexts, its emergence has been observed in diverse settings, beyond the educational context, and within groups of different sizes and shapes. It has even been documented well before the 18<sup>th</sup> century at the Ottoman Court (c.f., Miles 2009).

To situate the emergence of LGG in the existing literature, the present chapter seeks to clarify the terminology on this topic to understand what is implied by the concept of sign language emergence. I begin by exploring the different places where deaf people typically interact, which leads to the emergence of sign language (§2.2.1). I then look into the importance of community size to language development and the reasoning behind signers' quantification (§2.2.2). Finally, I review how sign language emergence has been studied over time through signers' cohorts (§2.2.3).

Based on the hypothesis that LGG is autochthonous, I give special attention in the literature to sign languages that have emerged locally, i.e., with limited influence from other sign languages.

### 2.2.1 Places of interaction between deaf people fostering sign language emergence

The geographies where sign languages come about can be associated with educational contexts or not. In this subsection, I briefly review sign languages that are said to be either school or locally-based, with a special focus on West Africa, to contextualise LGG. In both settings, sign languages may come into contact with spoken/written languages and other signed languages.

#### 2.2.1.1 *School-based sign languages*

The documented history of sign languages has followed a path parallel to the history of deaf education, which can be traced back to the first public school for the deaf, established in 1760 in Paris. Deaf children of various backgrounds are usually concentrated in special schools in urban areas, where they grow up. Later, they tend to gather in other places that can be fixed, such as deaf clubs, or mobile, like occasional events of the community.

Sometimes, once their education is completed, they move to different parts of the country, spreading sign language. Moreover, gathering deaf people from various schools in clubs and events scattered across the country promotes the development of a national sign language (Branson & Miller 1998). Thus, sign languages emerging in schools tend to be used outside as well, expanding to other deaf spaces and becoming mainstream, not only as a communication medium but also as a privileged way to access information.

In general, it will be the variant used by most signers that will be adopted in formal education, media, interpreters, sign language materials, and various language dissemination channels (Eichmann 2009). These sign languages are legally recognised in some countries, strengthening their national status (de Meulder 2015). However, more recent educational ideologies, especially in the global north, tend to mainstream deaf students, i.e., to include them in hearing-only classes, which compromises school settings as privileged meeting places for deaf children and youngsters.

#### 2.2.1.2 *Locally-based sign languages*

Sign languages that have not expanded from a school basis, but are locally circumscribed, typically arise in small villages or wider rural areas with a high incidence of deafness. Since they serve primarily a close-knit community of both deaf and hearing members, the so-called *village* (Zeshan 2006) or *rural sign languages* (de Vos 2011) are highly unlikely to spread beyond the outskirts of their habitual gathering location(s). It is also important to note that, even if schooling is provided locally or if deaf people receive education elsewhere, the local sign language can develop irrespective of the educational process.

This simplistic classification is not without shortcomings. Zeshan (2006) considers that village-based sign languages may involve one village (e.g., Nyst 2007, for the sign language used in the village of Adamorobe, in Ghana) or a group of villages (e.g., Safar 2020a, for the sign languages used in four villages of the Yucatán state, in Mexico). To include broader regions (e.g., Lutalo-Kiingi & de Clerck 2015, for the sign language used in the extreme north Cameroon), such as islands (e.g., Omardeen 2021, for the sign language of Providence Island, in the Caribbean), the term *rural sign language* seems more adequate.

However, sign languages that develop in urban areas outside school settings do not fit within this traditional classification. Nyst (2010a, 17-21) distinguishes these as *local sign languages*, i.e., locally evolved outside of formal education, especially in the West African context. A good example of this distinction is made by Yoruban deaf bilinguals when designating the sign language prevailing outside schools – where Nigerian ASL is used – as *local sign* (Orie 2013, 245). In this line of thought, I put forward the term locally-based sign languages to include sign languages that may be geographically circumscribed to both rural and urban settings.

The primary purpose of such a designation is to distinguish sign languages developed informally outside school, regardless of their community size, from the typical (national) widespread school-based sign languages. At the same time, it allows for including urban sign languages that are not school-related. In this way, it becomes more adequate to account for sign languages developing in a city district (e.g., Yano & Matsuoka 2018, for Miyakubo SL), a city capital (e.g., Nyst 2015, for the sign language of Bamako, the city capital of Mali), a small city (e.g., Jirou 2008, for the sign language of the fishing town of Mbour, in Senegal), a small-scale combination of urban and rural settings (e.g., Nyst et al. 2012, for the sign language[s] used in the circle of Douentza, in Mali), a large scale area involving both environments (e.g., Schmaling 2000, for Hausa Sign Language, in the Kano state of northern Nigeria) or even people that migrate to different places (e.g., Lanesman & Meir 2012, for the sign language used by the Algerian Jewish community, initially in the city of Ghardaia, in Algeria, and later in parts of France and Israel).

### 2.2.1.3 *Locally-based sign languages in West Africa*

Classifying locally-based sign languages to encompass both rural and urban settings can be especially useful in West Africa, where these co-exist, side-by-side, with school-based ones, mainly ASL variants (e.g., Asonye & Edward 2022, 42, for Ghana and Nigeria; Tano 2016, 57-58, for Ivory Coast). Here, locally-based sign languages can be used by a few deaf people in villages as part of the same family (e.g., Tano 2016, in Bouakako, Ivory Coast; Nyst 2010a, 31, in Nanabin, in Ghana; Nyst et al. 2012, 265-266, in Berbey, Mali), or scattered within a larger region (e.g., *ibid.*, for the Dogon area in Mali).

Until now, the village sign language studied in more detail in West Africa – and the whole continent – is the 250-year-old sign language used by the 33 deaf people in Adamorobe, Ghana (cf., Nyst 2007; Kusters 2015; Morgado 2024). Jirou also identified a few dozen deaf people in the fishing city of Mbour, Senegal. Here, deaf people, especially men, have the habit of meeting under a central tree to socialise (2008, 140-141).

Other local sign languages are instead concentrated around important urban centres, extending into macro-communities of deaf users. The more thoroughly documented is Hausa Sign Language or *maganar hannu*. It is used by thousands of deaf people in Hausaland, meeting in rural and urban settings within Kano state. It is probably the oldest macro deaf community developing outside the educational context, at least in West Africa, since it has been transmitted through a strong network over generations (Schmaling 2000, 47). Whether scattered or part of different subgroups, deaf people feel connected to each other by a common identity and language (*ibid.*, 14-15). The sociocultural context in which deaf people often meet outside prioritises male over female interactions (*ibid.*, 50).

Also, in Nigeria, a local sign language based on conventional gestures is used in the city of Akure, Yorubaland, and outside the schools for the deaf (Orie 2012, 81; 2013, 244). Here, deaf people meet in markets and religious settings (*ibid.*, 81). Apart from scattered deaf people using a gestural communication system, Orie (2013, 245) identified gender-based micro-communities, such as a group of 32 deaf women.

Another well-documented local sign language is the *Langue des Signes Malienne* (LaSiMa), based in Bamako (also known as *Langue des Signes de Bamako* or *Bambara*). LaSiMa is mainly used by older urban or younger deaf people lacking education and/or living in rural areas (Nyst et al. 2012, 253). This sign language emerged from the communication between deaf people, especially men (*c.f.*, Pinsonneault 1999, 6), gathering in the afternoon around *grins* (informal, traditional gatherings) in someone's house or workplace in the capital of Mali, Bamako (Nyst et al. 2012, 253). Gender distinctions in gathering habits of deaf people reflect cultural patterns from a larger patriarchal society (Pinsonneault 1999, 5-6; but also Mildner 2021, 68, for Benin), leading to consequences in communication opportunities, favouring deaf men, as seen in LGG by Morgado (2024). Although varieties of LaSiMa are used in other urban centres, including the town of Douentza and surrounding villages in the Dogon area (Nyst 2015, 135), it is unclear how much it has spread across the country (Nyst et al. 2012, 254).

Similarly, in the city of Maroua and surrounding villages, in the Extreme North of Cameroon, a local deaf community with about 200 deaf members (Lutalo-Kiingi 2014a) expanded the gestural communication used in rural areas (Lutalo-Kiingi & de Clerck 2015, 48) into an "indigenous sign language" (*ibid.*, 51). Deaf people seem to have gathered for at least the past 100 years (*ibid.*, 57) in an informal network of deaf and hearing peers that facilitates their social inclusion (de Clerck 2012, 98-99).

In this region, Sorin-Barreteau (1996, 25, 38, 211-212) looked at the propensity of the Mofu-Gudur people to use gestures and was overwhelmed by the presence of many deaf members integrated into the community's daily life. This author is likely referring to the same group that de Lutalo-Kiingi and de Clerk mentioned, since the closest urban reference to the Mofu-Gudur is also Maroua, about 50 kilometres to the east. At the time, she identified 161 deaf people (Sorin-Barreteau 1996, 211), 103 men and 58 women (*ibid.*, 215).

Sorin-Barreteau observed that they usually met with each other at the market, where they signed in a “more elaborate and faster” way than the gestural system that they used with hearing people (*ibid.*, 207, 212). In individual interviews, she states that almost everyone could easily communicate with family members and neighbours, most with hearing people at the market and some with the hearing in the city (*ibid.*, 215-259). One of the most communicative deaf men travelled frequently for work with Fula people (*ibid.*, 221), who constitute the largest ethnic group in Guinea-Bissau (INE 2009a, 26).

Markets have a central role in daily life, not only in buying and selling goods but also as essential gathering places. This is especially true in West Africa (Fréchou 1984, 445, cited in Sorin-Barreteau 1996, 8). Communication in local markets is based on visual strategies, such as pointing and finger numbers, which enable deaf people's participation in traditional bargaining (Mildner 2021, 94, in Benin).

Moreover, the multilingual setting in which commercial exchanges typically occur relies, usually, on gestures. Mildner (2021, 106) illustrates a gestural negotiation between a deaf man and a Fula saleswoman in a city market in Benin, where she probably did not notice that he was deaf and “definitely did not care”. Street vendors in particular tend to value gestural communication (Mildner 2021, 64). These interactions can involve discussing goods and lead to conversations,

including teasing (Kusters 2015, 64-65, in Adamorobe, Ghana). Dalle-Nazébi (2010, 3) also witnesses playful interactions between deaf and hearing people on the streets in the Republic of Congo.

These sign languages used by various deaf communities have been studied to different extents. It is, however, worth mentioning that some of them have been compiled in individual corpora, like the sign languages of Adamorobe, in Ghana (Nyst 2000-2004), Bamako (Nyst 2010b) and Dogon, in Mali (Nyst 2010c), Bouakako, in Ivory Coast (Tano 2013), and the Extreme North Cameroon (Lutalo-Kiingi 2014b).

Thus, even if LGG has emerged in a school setting in Bissau, it seems essential to consider the possibility of signs having been used previously outside the school space.

#### *2.2.1.4 Contexts of sign language contact*

In truth, it is rare to find documentation on sign language isolates or “indigenous sign languages” (Woodward 2003) emerging on school premises. Here, deaf students are potentially exposed to the language(s) of education: the written (and spoken) language and eventually a foreign – and more prestigious – sign language. Still, their communicative backgrounds when entering school will likely be similar, i.e., based on individual homesign systems (e.g., Coppola 2020, for Nicaraguan Sign Language).

When talking about languages with which deaf people have contact, settings are crucial. In their daily lives, deaf people are continuously exposed to the spoken language(s) used by their surrounding hearing peers. Visually, they also have contact with the written language, which they can understand only if they are literate, i.e., if they are schooled. Importantly, the interaction with other sign languages is most likely dependent on the community's access to the ‘outside’

world, i.e., to deaf people from different places. Quite recently, social media has also become an enormous influence, especially in spreading International Sign across borders and generations (c.f., Morgado 2025).

In an educational setting, the presence of the written/spoken language in teaching materials is constant and available to be absorbed by school-based sign languages. Its impacts may be visible in different ways, such as employing mouthing and fingerspelling, modifying word order or applying literal translations in sign formation. Similarly, sign languages that are locally circumscribed cannot avoid the fact that the spoken language is present in daily interactions between deaf and hearing individuals. In these contexts, where deaf people usually have very little access to schooling, they may grasp the shape of spoken words through lipreading and combine such mouthings with signs of similar meanings (e.g., Nyst 2007, 54).

In addition to inter-modality contact, schooled signers are more likely to develop a higher awareness of, or even interaction with, other sign languages. For instance, outside the school context, local deaf communities can also be exposed to other (more widespread) sign languages, such as through religious practices or contact with signers from different parts of the world, such as volunteers, tourists or researchers.

When a deaf school is established, different sign languages can be occasionally merged (e.g., Meir 2010, for Israeli Sign Language emerging out of the contact between signers from Germany, Austria, France, Hungary and Poland), but, more frequently, a foreign sign language is introduced. This usually more instrumentalised sign language tends to superimpose on the local one(s). In reality, it is not unusual, and more so in recent decades, to observe the prompt adoption of an older sign language when the need to educate deaf children first arises. For example, American Sign Language has influenced the development of

about half of the school-based sign languages in Africa and South and Central America to different degrees.

Especially in West and Central Africa, Andrew Foster, a deaf African-American missionary, had an essential role in founding schools for the deaf in thirteen countries between 1957 and 1987 (Runnels 2020, 233), as shown in Figure 2, in dark grey. Moreover, he trained teachers for the deaf, many of whom were deaf themselves, from eight more countries during annual summer schools held in Ghana and Nigeria, indirectly influencing the spread of ASL (Sanogo & Kamei 2019, 8), as shown in Figure 2, in light grey.



**Figure 2.** African countries influenced by Andrew Foster, where he established mission schools for the deaf, in dark grey (adapted from Runnels 2020, 233), and where he did not establish schools but trained teachers, in light grey (adapted from Sanogo & Kamei 2019, 8)

Particularly in French-speaking African countries, Sanogo and Kamei (2019, 1) observe that varieties of ASL look like a creole of ASL, French and indigenous signs. They propose to designate them as a unique *Langue des Signes de l'Afrique Francophone*. Although national varieties would constitute dialects of such creole (ibid., 9), the authors are mainly overwhelmed with the similarities involving signs from ASL and the use of (parts of) French words.

However, taking the example of Benin, Mildner (2021, 27, 86, 92) notices an entire spectrum in deaf people's signing, varying between more significant use of local signs (more prominent in rural areas by unschooled deaf people) and their mixing in different proportions with ASL signs supported in French grammatical features (predominant in urban centres by schooled deaf people). This was also the case in Ghana, where Hadjah describes three major signing varieties: a *local* native variety; an intermediary *broken* variety, mixing local and ASL signs; and an ASL-based and English-influenced variety (2024, 22). He further finds that native varieties across the country, which include the one used in the village sign language of Adamorobe, are very close to each other (ibid., 135). Overall, he concludes that the local variety is highly influenced by the gestural environment, homesigns and locally evolved signs (ibid., 359–366).

Local sign languages based in urban centres where schools for the deaf have been established, like Bamako, Mali, and Kano, Nigeria, are more easily threatened by the higher prestige of ASL (Nyst 2010a, 10, 22). Even if deaf education in Mali started advocating for sign language in 1993, it shifted towards ASL in 2001 (Nyst 2015, 129).

As mentioned previously (in §2.2.1.3), gender differences from the general society also reflect on the deaf schooled population. In this way, women are also expected to clean and cook at schools, limiting their socialising time. Many, however, do not even go to school, being

preferably kept at home to protect them from sexual abuse and early pregnancies (Mildner 2021 69, for Benin). Similarly, in Cameroon, de Clerck reveals the existence of systematic reports of sexual abuse of girls – and boys – in deaf schools (2011, 1426).

To summarise, sign languages can emerge within or outside educational settings. In West Africa, both scenarios can occur side by side, as is likely the case with LGG. Either way, deaf people are often exposed to other languages. Thus, if gesture represents the common ground in local interactions with hearing people, the written language is mainly dependent on schooling.

### 2.2.2 Community size

In addition to the places of emergence, community size also plays a role in how sign languages emerge and, especially, in how fast the language develops, as the community size increases. To understand how deaf communities can be classified in size, it is essential to review the existing terminology, seeking to clarify two main aspects: what the implications of community size are in language dynamics and which users are to be included in the sign language community.

#### 2.2.2.1 *Why does community size matter?*

To weigh the implications of community size on its inner dynamics, I first seek to identify the dividing line between micro and macro-communities, as suggested by Schembri (2010), relating such a partition to language use. Studies on the impact of community size have shown that the more speakers a language has, the more conventionalised it is and the more likely it is to expand linguistically (Wray & Grace 2007). In larger communities, conventionalisation occurs faster because individual variations seem to disturb the effectiveness of broader

communication. On the contrary, idiosyncratic differences are readily accepted in smaller groups since they can be retained. Still, Lutzenberger and colleagues (2023) have challenged such a distinction by specifying that variation in larger signing communities, like the BSL one, is more evident at the community level rather than locally, within subgroups.

According to Wray and Grace's (2007) analysis, in a smaller community, (esoteric) communication is mainly restricted to familiar topics, where knowledge is shared without the need for contextualisation. In opposition, (exoteric) communication is used between strangers as a lingua franca. When a larger group is constituted, interactions by its members involve both familiar (esoteric) and unfamiliar (exoteric) people and a multitude of contexts, pressuring messages to systematic coding, lexical expansion, grammatical regularities and complex constructions.

When comparing language structures of different communicative ecologies, community size is decisive in motivating complexity. Thus, micro-communities are usually associated with simpler structures, whereas macro-communities typically present more complex ones with a faster rate of language change. It has even been suggested that this distinction is compatible with a developmental cline, where linguistic complexity could be ordered according to the number of deaf signers in a community (c.f. Meir et al. 2010).

Nyst (2012, supported by other scholars such as Hou & Kusters 2019) rejects this evolutionary notion that puts 'immature' systems of signs or gestures and 'fully-fledged' sign languages on opposing sides of a developmental scale. She argues that each communicative context adjusts to the needs of the interlocutors, and the language being construed upon those interactions expands accordingly.

Contrasting with the micro-sized sign languages based locally in villages, those used in urban settings can spread over small or large scales. Also, not all school-based communities are macro-sized. Considering that many sign languages have fewer than ten thousand users, even at a national level, I turn to Dunbar's (1993) study on the evolution of social bonding in smaller communities. By observing the distribution of group sizes in traditional societies, Dunbar (1993, 684) identifies three distinct patterns:

- Small groups (or camps) of 30 to 50 members
- Intermediate groups (villages or clans) of 100 to 200 members
- Large groups (or tribes) of 500 to 2.500 members

Small and intermediate groups have high longevity within these community sizes (Dunbar & Sosis 2018). Intermediate social networks may be dispersed geographically, but the interaction between their members occurs regularly enough to establish the necessary bonds to maintain social cohesion. At this level, 150 represents a functional threshold enabling direct individual interactions. When that threshold is reached, groups usually fission into smaller units or grow further to organise their members hierarchically (Dunbar 1993). If they increase, they tend to be more linguistically homogeneous and reach a long-term stable size of around 500 members. Beyond this upper limit, new pressures arise for more sophisticated social structures (Dunbar & Sosis 2018, 110).

In the end, it is possible to argue that community size impacts language conventionalisation, particularly with larger communities. Still, one has to keep in mind the particular communicative contexts in which language use is shaped. To further understand these contexts, I look next at the typical users of sign languages.

#### 2.2.2.2 *Who to include when counting signers?*

To begin with, a community depends on the physical concentration of a (minimal) number of users. Of course, the smaller the community, the easier it is to count its speakers. In opposition, it becomes harder to track them the more there are, especially when non-native speakers are included. Thus, it becomes challenging to count the number of users and whether to add non-native signers to the total number of community members.

Signs created idiosyncratically by a deaf person and agreed upon with the hearing co-habitants are traditionally referred to as *homesigns* (c.f., Goldin-Meadow 2012, for deaf children growing up in hearing families without exposure to a conventional sign language). Thus, a sign language label is given only when arising in sociolinguistic ecologies where deaf people constitute a group and, together, experience the mutual pressure to create a sign language, triggering linguistic properties to unroll. When they belong to the same family, their communication can be designated as *family sign language* (Hou 2016, in San Juan Quiahije, Oaxaca, Mexico) or *family homesign system* (Haviland 2013, in Zinacantán, Chiapas, Mexico).

On closer inspection, locally-based sign languages are not always used by a close-knit deaf community (e.g., Nyst 2007, in Adamorobe, Ghana). Deaf people may also be gathered in small groups, such as a family (Dikyuva 2012, in Mardin, Turkey), or scattered across a larger rural area (e.g., Reed 2021, in Papua New Guinea). When a few deaf signers do not strictly constitute a community, scholars tend to be more cautious in labelling signed communication as a sign language.

In the case of signing populations, classifications are again applied dichotomously. In this way, schools typically give rise to large *deaf community sign languages*, often adopted within country borders. At the same time, those more locally circumscribed are usually related to

much smaller communities of both deaf and hearing members, using *shared sign languages* (Nyst 2012, based on the term *shared signing communities* by Kisch 2008). For that reason, Schembri (2010) suggests a categorisation based on the community size, designating them as *micro* or *macro-community sign languages*.

Even though a bipartite classification based on demographics may seem adequate, the relation between population size and geographical settings brings to light intersections that challenge such duality. It can be the case where school-based sign languages, especially if still in their first years of emergence, are used by smaller deaf communities (e.g., Mineiro et al. 2021, for the sign language of São Tomé and Príncipe). Otherwise, communities of different sizes can use sign languages that are circumscribed to urban areas outside the school context. In such settings, micro-communities can be present in a city district, a town or a small-scale combination of urban and rural environments, as seen in the previous subsection. In contrast, large deaf communities, such as the ones in Bamako, Mali (c.f. Nyst 2010a, 2015), and in Kano state, northern Nigeria (c.f. Schmaling 2000), can also occur.

While it seems unproblematic to distinguish sign languages based on community size, one has to wonder who exactly counts as a community member. Tracking the exact number of speakers of a specific language or linguistic variant is often challenging. Sign languages, in particular, are potentially available to all deaf people, but only a part of them engage with the community for various reasons. Thus, statistical data about people with different degrees of hearing loss, usually calculated under the generalised proportion of about 0,1% of the total population, will not necessarily correspond to the actual number of deaf signers, especially in non-Western, educated, industrialised, and rich countries. For instance, according to the Ethnologue (Eberhard et al. 2022), Portuguese Sign Language is said to have 10.000 users in an overall population of about ten million people, while the European

Union of the Deaf estimates 60.000 users for the same language (Wheatley & Pabsch 2012, 22). Crucially, estimates on the deaf population vary, since such information has likely not been collected adequately in censuses, as is again the case in Portugal.

Locally-based sign languages in urban settings may also reach estimates up to a few thousand. In such circumstances where deafness is caused mainly by diseases, such as meningitis or malaria, and medical care is insufficient to diagnose and treat it adequately, the generalised proportion of deafness incidence may double. In addition, in countries of the global south, statistics may be more challenging to apply, and counting the approximate number of deaf people, or more arduous still, the number of deaf signers, becomes extremely difficult (e.g., Schmaling 2000, for Hausa Sign Language).

By contrast, deaf members of sign language micro-communities are much easier to identify, especially considering that deafness is often hereditary and, in such contexts, limited to family circles (e.g., Nyst et al. 2012, for a family of six deaf members in the village of Berbey, Mali). Out of the documented sign languages in rural areas, the highest number referring to deaf signers is about 150 (e.g., Panda 2012, for Alipur Sign Language, in India), to which hearing signers can also be added in various proportions to establish the community size (c.f. de Vos & Zeshan 2012, 4–5, for an overview).

If it is arduous to account for the exact number of deaf people who use sign language, the fact that not only deaf people use sign language cannot be overlooked. In this line of thought, Jokinen (2006) argues that the group of sign language users should include hearing members, such as professionals, family and friends, who, unlike most deaf, use sign language as a second language.

When counting sign language users, the role of hearing signers is not always straightforward. School-based sign languages have deaf

people as native signers at their core. Because these sign languages used by large deaf communities are usually widespread at the national level, through formal education and media, many hearing people are motivated to learn them. This results in many hearing professionals, family members and friends with different fluency levels gravitating around deaf spaces.

In a different way, in village settings, where hereditary deafness usually persists across generations, hearing people view the local sign language as part of daily life, naturally using it to communicate with their deaf cohabitants. However, in these shared sign language cases, hearing kin, friends, and neighbours present different proficiency levels, most likely dependent on how regular deaf-hearing interactions occur (Nonaka 2009, 225–226, for the village sign language of Ban Khor, in Thailand).

The main difference regarding the motivations of hearing people in being part of these deaf communities is that national sign languages are usually learned by choice (often a career-driven one). It is crucial to notice that schooled deaf people (many with access to hearing aids and speech therapy) are usually expected to use the spoken language, ‘relieving’ their families from the need to learn the sign language. In opposition, at a local level, sign languages are embedded in daily routines and acquired readily in regular interactions between deaf and hearing individuals. Even if deafness is not positively acknowledged by the local cultures (where medical assistance is often nonexistent), sign languages are usually perceived as “the natural way of communicating with deaf people” (Nyst et al. 2012, 268).

The fact that the fluency of non-native signers, both hearing and deaf, is highly variable in school-based and locally-based sign languages makes the task of counting signers harder. By trying to add up all these

numbers in the most accurate way, calculating the size of a sign language community becomes even more complicated as it grows.

### 2.2.3 Studying diachronic change

To study diachronic change in the early stages of a language, it is essential to understand the time window for its emergence. Thus, I review relevant studies on language unfolding over time. In addition, I explore the implications of time depth in language emergence and how signers can be accounted for in diachronic studies.

#### 2.2.3.1 *Agreeing on a time window for the emergence status*

Understanding the emergence status is especially relevant for the study of LGG, since its emergence is being observed through real-time data. To highlight how unique its situation is, it becomes crucial to look at LGG in the light of other so-called ‘emerging’ sign languages.

By definition, emerging sign languages are young (Meir et al. 2010, 8) and are created by “deaf people without any prior exposure to either signed or spoken language” (ibid., 3). However, as previously shown, language contact is often difficult to avoid, especially in school settings. In that case, the notion of a ‘young’ or even a ‘new’ language remains ambiguous. Scholars have not yet been clear about when and how a language is regarded as emerging (Hou & Kusters 2019). Kisch (2012) offers one criterion: a new sign language should be traceable back to its initial users to establish a timeframe. Brentari and Goldin-Meadow highlight the importance of looking at the “moments in historical time when non-linguistic systems become linguistic” in the emergence of a language (2017, 1).

To assign the status of 'emerging' to a sign language, it seems essential to determine beforehand what exactly 'young' or 'new' means. For how long can we consider a language as being in an emerging process?

In school-based sign languages, the milestone case of an emerging sign language has been, for decades, the Nicaraguan Sign Language (LSN), which was created by successive cohorts of deaf children in a school setting in Managua (e.g., Senghas & Coppola 2001). Although Nicaraguan deaf children had been attending special schools (for disabilities in general) since 1946 (Polich 1998, 89), the emergence of the national sign language is considered to have begun with the foundation of the Managua school. Contrasting with the previous temporary gatherings involving very small groups, it was only at the establishment of that school, in 1977, that the systematic contact between an increasing number of deaf children and youngsters set off a deaf community and, consequently, a sign language to emerge.

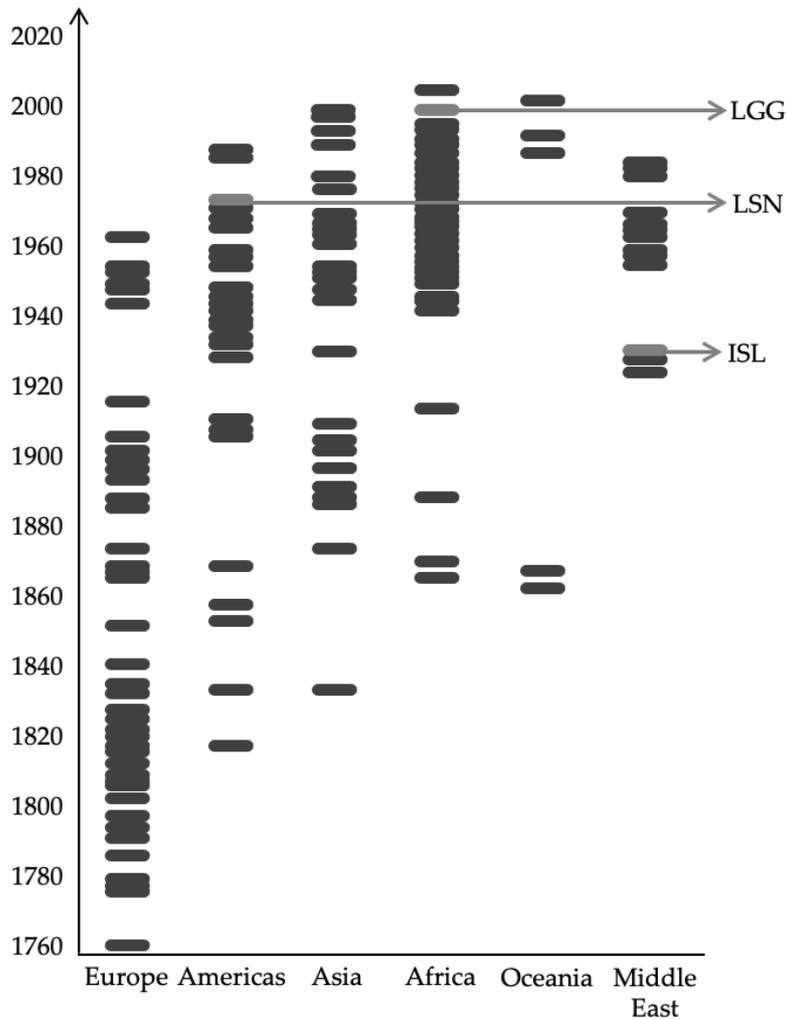
With twice its time depth, Israeli Sign Language (ISL) has been comprehensively described since its earliest signers. Although the first school for the deaf was established in Jerusalem in 1932, the first generation of deaf people had already attended other educational institutions in Germany, Austria, France, Hungary or Poland (e.g., Padden, Meir, Aronoff & Sandler 2010). Even if traceable to its first users, Israeli Sign Language is, in some way, rooted in pre-existing sign languages, making it similar to a creole (Meir & Sandler 2007, 5–6). Consequently, it can only be considered partially new, which breaches one of the defining criteria proposed by Meir and colleagues (2010, 2) for the status of sign language emergence: signers who had prior exposure to other sign languages.

Besides these two well-known studies of school-based sign languages, studies of other languages with ages between LSN and ISL have also been labelled as emerging, new, or young. These include the ones of

Kenya (Morgan 2015, 2020), Jordan (Hendriks 2008) and the Mauritius Islands (Adone 2012). In addition to LGG in Guinea-Bissau (Martins & Morgado 2008, 2017), the emergence of sign languages in school settings after the year 2000 has been documented in two other places: Tibet (Hofer 2017) and São Tomé Island (Mineiro et al. 2017, 2021). Although they appear to be similar to LGG, they differ in the kind of data they provide. In Tibet, Hofer (2017) presents only a short ethnographic report. The study of the emergence of the sign language of São Tomé Island has focused instead on two years of sign collection, particularly in the modifications from initial mimetic enactments to more reduced signs in their form. Overall, as shown in Figure 3, there is a significant number of sign languages emerging after ISL that remain understudied, at least under the status of emerging.

Focusing on school-based sign languages, such as that of Guinea-Bissau, a time window for emergence has spread out based on the two reference studies of the sign languages of Israel and Nicaragua. Figure 3 situates Guinea-Bissau Sign Language (LGG) in terms of those two time marks and the overall panorama of the time-depth range of the about 160 school-based sign languages worldwide. Here, Europe hosts the majority of older national sign languages (35 of 41 European sign languages have existed for more than 90 years). In all remaining continents, around 60% of the sign languages have emerged after the establishment of the first deaf school in Israel in 1932. In addition, 34 school-based sign languages (of which 17 are African) are less than 48 years of age, the same as Nicaraguan Sign Language. I stress here that setting an initial date for the birth of a sign language based on establishing a specific school for the deaf is not straightforward. Thus, although this is what has been reflected in the literature, one should not assume it marks the emergence of a sign language. Therefore, I prefer to give a general idea of the distribution of such sign languages worldwide in

Figure 3 (but see Appendix 1 for details on the chronological listing that I collected from different sources).



**Figure 3.** Overview of the time depth of school-based sign languages in the world per continent (the bars refer to the years in which deaf schools were first established per country), pointing out Israeli Sign Language (ISL) since 1932, Nicaraguan Sign Language (LSN) since 1977, and Guinea-Bissau Sign Language (LGG) since 2003

With the perception that most school-based sign languages are very young, they could be easily seen as emerging. However, the question remains of having had prior exposure to other sign languages. How many sign languages can be said to be truly autochthonous? In my review of the literature, only around 30 out of the 160 school-based sign languages did not adopt any other sign language in the education of deaf students. Besides an overwhelming implementation of American Sign Language, many schools have imported an older sign language from one of the European or neighbouring countries' sign languages. As such, only a small percentage could be attributed to a fully autochthonous origin. Of these, 22 have had their onset in the last 90 years, making them good candidates for the study of sign language emergence (in Appendix 1<sup>2</sup>).

The opportunity to observe language building up from a very early stage is crucial for understanding how non-linguistic systems become linguistic, as stated by Brentari and Goldin-Meadow (2017, 1). Therefore, studying locally-based sign languages, i.e., beyond the school setting, is particularly important. Still, only a few such sign languages have been described in more detail and are thus used as case references. For one, the sign language used in the village of Al-Sayyid in Israel (e.g., Sandler et al. 2011) has been studied alongside the national sign language of that country. With a similar time depth of a little over 90 years, it is used by about 130 deaf signers. Of approximately the same age but with significantly smaller communities, two other sign languages have been studied at length, the ones of the villages of Bengkulu, in Indonesia, known as Kata Kolok (e.g., de Vos 2012), and

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<sup>2</sup> In the chronological listing of school-based sign languages in Appendix 1, I refrain from including influences from other sign languages. I considered their actual impact on the language used by the overall community to be hard to estimate.

the one of Ban Khor, in Thailand (e.g., Woodward 2003). More recently, the emergence process has been looked at in other rural settings, such as the ones developing in four Yucatán villages in Mexico (Safar 2020a) for about 80 years and in three villages of the Taurus mountains in Turkey (Ergin 2017), for about 50 years.

Thus, a time window for language emergence corresponding to a life span of 90 years enables tangible contact with living first signers, at least when there is a higher life expectancy. The observation of language change from the first generation onwards represents a unique opportunity “to track emergence in ‘real time’” (Jaraisy & Stamp 2022, 2).

Yet, zooming in to look at language change from the beginning might be the key to recognising the moment when it can finally be considered an *established sign language*. Even though an established language continues to change, as demonstrated by historical linguistics (Abner et al. 2019, 259), real-time emergence may reveal clear stages of language development. Most research has been done on sign languages that are many decades old. In those cases, how has sign language emergence been studied through the lens of change over time?

#### 2.2.3.2 *Determining the first generations of signers*

In crosslinguistic comparisons, one challenge is the delimitation of generations – or cohorts. To address this, research on the two best-documented school-based sign languages, in Nicaragua and Israel, has followed different assumptions. Moreover, the partition of cohorts of deaf people acquiring sign language from their peers in a school setting has been decided according to principles distinct from those subject to village sign languages, where language transmission is vertical.

In the earliest study of Nicaraguan Sign Language, Senghas (1995, 544) distinguishes between age and year of entry at school. The first factor presupposes that the younger the child is, the easier it will be to acquire a language. The second factor implies that an earlier year of entry encounters the sign language still in its first stages of development. With these two variables in hand, Senghas (1995) confirmed that the language was easier to master by both younger children and those entering school in more recent years. In subsequent studies on Nicaraguan Sign Language focused on language change over time, the main criterion has been the year of entry, i.e., social contact occurring in school. This led to a general delimitation of cohorts of deaf people for approximately every ten years (Senghas 2021). Such division of signers was set for the first three decades and has been systematically followed by other scholars.

Since Israeli Sign Language is supposedly twice as old as Nicaraguan Sign Language, and thus, harder to track its initial stages in real time, the Haifa team has implemented the apparent-time hypothesis in their studies (Sankoff 2006, for an overview). This approach allows us to interpret diachronic language change by studying synchronically different age groups (e.g., Stamp & Sandler 2021, 6). When aiming to reconstruct language history from a specific point in time, it is necessary to set aside internal variations at the individual level and focus on an age range generally assumed to be more stable. The age of speakers for such assessment should then be considered ideally only after adolescence, when changes occurring during the individual lifespan are not so significant anymore (Sankoff & Blondeau 2007).

Moreover, the concept of generation in school-based sign languages is not straightforward. Because communication is often transversal across relatively small school cohorts, changes are likely to occur more or less at the same time across the community. Nonetheless, language transmission operates downwards in the long run, from older to

younger signers. Thus, in an emerging multigenerational school-based community, younger signers tend to show linguistic modifications, often as more complex forms, in their productions (Senghas 2021, 78). The comparison between cohorts reveals an increasing linguistic complexity across generations in both LSN (e.g., Flaherty 2014, in argument structure; Senghas 2021, in motion events) and ISL (e.g., Dachkovsky et al. 2019, in discourse relations).

Within a different sociolinguistic setting, generations of locally-based sign languages are naturally associated with kinship relations that promote the early acquisition of a sign language (or system) in deaf children. However, Kisch (2012) points out the importance of distinguishing cohorts by their contemporary shared sociocultural experiences and regular communicative networks. This is expressed by a partition of age groups within a range of approximately 20 years each for the specific case of the Al-Sayyid Bedouin signing community (*ibid.*, 96). For the Central Taurus signers, Ergin (2017) determines the scope of three cohorts based on their ages, but within shorter periods of about ten years.

Overall, relying on successive cohorts enables understanding language change throughout its earliest stages (or versions). If each sociolinguistic ecology witnesses some language change over time, how many generations does it take to stabilise? When can we, without a doubt, accept a language as being ‘mature’, ‘established’ or ‘full-fledged’? There is some reluctance to do so with locally-based sign languages, which have been assigned an emerging status, even when possessing a more extended time depth (e.g., Godoy 2020, for the Ka’apor Sign Language, with a little over a century). This suggests that smaller communities take more time to conventionalise linguistic features, maybe because the existing forms of communication satisfy their immediate needs as they come. Alternatively, larger deaf communities may rapidly systematise a linguistic structure, pressured by the variety

and frequency of social interactions and less shared knowledge, as seen in the previous subsection. However, it seems to take at least three generations to obtain greater linguistic consistency, as shown in Nicaraguan and Israeli sign languages.

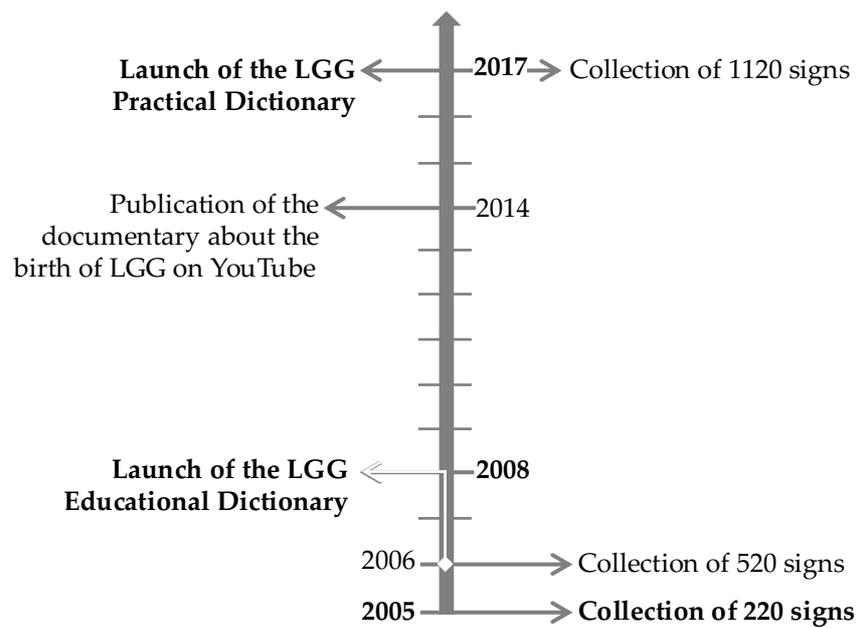
In sum, a sign language emerges whenever deaf people meet. If school is the usual place where they are brought together, it is often the case, especially in West Africa, where they gather locally, i.e., regardless of the educational context. To understand how autochthonous a sign language can be, one must consider that, in education, deaf students are more exposed to the written and spoken language(s) of schooling, and sometimes to a foreign sign language as well. It is outside of school that deaf people, relying foremost on gestures, tend to develop an autochthonous sign language. Finally, when is a sign language considered to be still emerging? Importantly, it will exhibit a higher conventionalisation the larger its community is, and will grow up to the third generation.

The existing literature on emerging sign languages highlights the exceptionality of the LGG case, particularly in terms of its short time depth.

### **2.3 Previous fieldwork and methodologies used in Guinea-Bissau**

This section presents the main initiatives in which I was involved concerning the documentation of the sign language of Guinea-Bissau, for the past two decades. These include sign collection for three dictionaries, in 2005 (§2.3.1), 2006 (§2.3.2) and 2017 (§2.3.3), as summarised in Figure 4. Apart from the dictionaries, Marta Morgado and I published additional materials (§2.3.4) and conducted our doctoral projects on LGG (§2.3.5). Such initiatives involved staying in Bissau for a few

weeks, and deaf signers and hearing teachers flying to Lisbon for a few months. During these occasions, training for Guinean deaf instructors and hearing teachers was generally provided in Lisbon at educational institutions for deaf people.



**Figure 4.** Chronology of relevant events concerning the documentation of LGG (with relevant events in bold)

Having grown up in former Portuguese colonies in Africa (Angola and Mozambique) and working at the Portuguese Deaf Association<sup>3</sup>, I was especially interested in gathering information about deaf people in Portuguese-speaking countries in Africa (which include, besides

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<sup>3</sup> The Portuguese Deaf Association, locally designated as *Associação Portuguesa de Surdos* (APS), besides hosting social gatherings, plays an important political role in advocating for deaf people's rights and is a key institution in the professional training of deaf sign language teachers.

Angola and Mozambique, Guinea-Bissau, Cape Verde and São Tomé and Príncipe). Thus, when the delegation from the Guinean<sup>4</sup> Association of the Blind<sup>5</sup> visited the Portuguese Deaf Association to ask for support in educating deaf children, we agreed to organise training for the teachers working with deaf students. As funds were minimal, this started as a volunteer project.

### 2.3.1 The informal LGG dictionary, printed in 2005

In July 2005, I visited Bissau for the first time with a deaf colleague. Marta Morgado was, at the time, the Portuguese Sign Language department coordinator at the largest school for the deaf in Portugal.<sup>6</sup>

The training in Bissau was addressed to hearing teachers. Nevertheless, one deaf person attended the training, Amaré Soares, who was studying economics at the public university at the time. It is important to note that Amaré represents an unusual case as a deaf person in Bissau. This could be due, at least in part, to a significant investment from his middle-class parents in his literacy development from an early age.

Because it was the summer holidays, only a few deaf people (about 50 students) were attending school during that first training. The ones we saw were actively communicating with local signs. However, the local teachers did not value that communication, as they were very attached to the *Língua Gestual Portuguesa*, LGP dictionary that had been brought from Lisbon in their earlier visit.

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<sup>4</sup> I will use 'Guinean' throughout this thesis to designate someone or something from Guinea-Bissau. This corresponds to the term used locally in both Portuguese and Creole, *Guineense* and *Guinensi* respectively.

<sup>5</sup> Associação Guineense de Reabilitação e Integração dos Cegos – AGRICE.

<sup>6</sup> Locally designated as Centro de Educação e Desenvolvimento Jacob Rodrigues Pereira, Casa Pia de Lisboa.

To show the hearing teachers some of the autochthonous signs already in use, we gathered with those few deaf people. Without previous preparation, Marta Morgado and I met for a couple of days with around ten deaf children and youngsters aged 5 to 25 years. Based chiefly on pictures from school books and drawings, we encouraged them to discuss and agree on which signs they would use for specific concepts. Then, when posing for photos, the signers quite naturally reduced and segmented the agreed-upon signs into frozen frames for the picture taking. This resulted in 220 signs of different semantic areas glossed in Portuguese and Creole that were informally printed and given to the school; two sample pages are shown in Figure 5.

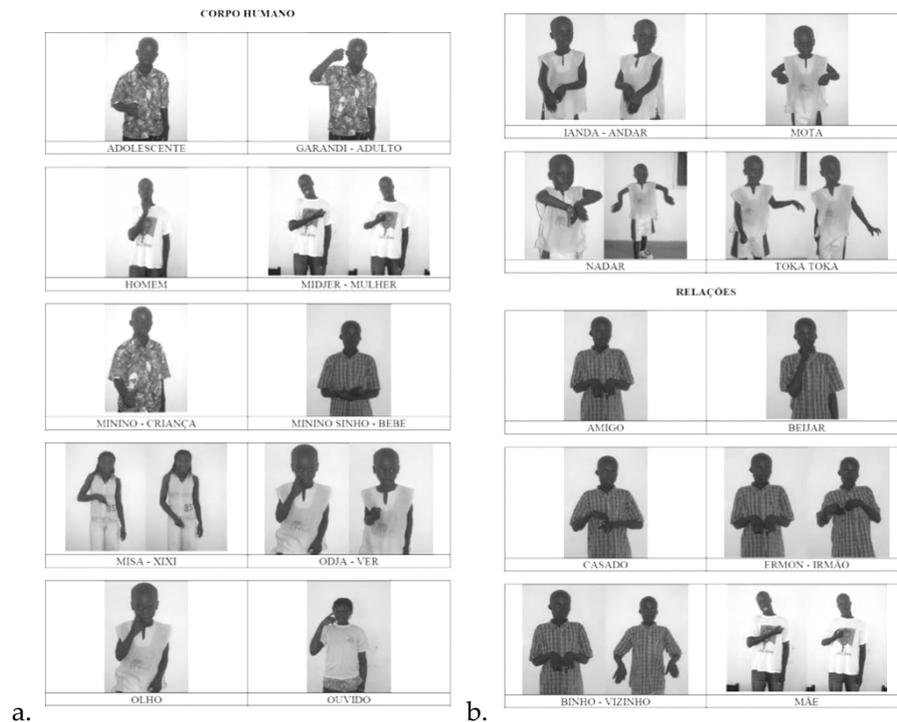


Figure 5. Sample pages of the informal LGG dictionary printed in 2005 about the human body (a), transports and relationships (b)

In addition, the school decided to invest in Amaré Soares' training as a sign language teacher. Thus, that same year, he went to Portugal for a four-year course at the Portuguese Deaf Association.

### 2.3.2 The first formal dictionary, collected in 2006 and published in 2008

The informal printing of the first collection of signs made such an impact that we were asked to go back to make a proper dictionary. Hence, the following year, 2006, Marta and I returned to Bissau in July and August, together with Amaré, to collect more signs. That summer, a sizeable group of deaf people of different ages was gathered at the school, the usual meeting place, and we filmed the discussions based on topics from school books of natural sciences.

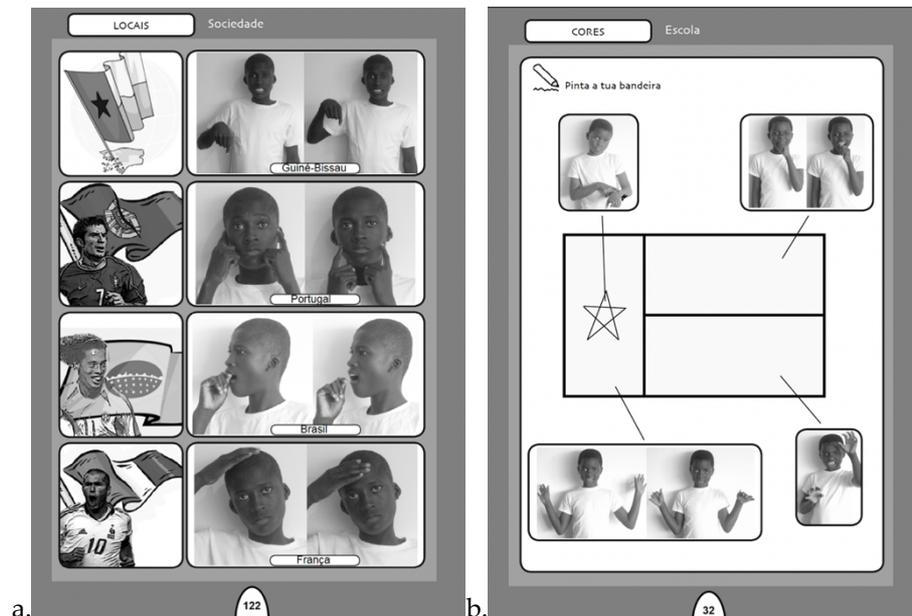
The sessions took place over two weeks. In the mornings, all deaf students were welcome and free to join, so the number of participants would fluctuate, reaching a few dozen every time. In the afternoon, only around 15 of the most active community members<sup>7</sup> were invited to confirm and elaborate on previously discussed topics. All sessions were filmed. Topics were freely discussed, not only in describing concepts but also in deliberating which signs were the most appropriate and why. When a lexical item was agreed upon, one of the deaf contributors would rise and sign it to the camera. Those video recordings consequently supported the pictures in the dictionary-making.

Since the goal – as they asked us – was to produce a dictionary for school use, two children were later photographed for the signs. One deaf boy from Bissau, Altair Gomes da Silva, went to Lisbon for three

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<sup>7</sup> The election of the most active members was based on suggestions of deaf people themselves and on our own observations of communicative dynamics during informal gatherings.

months for picture-taking, from April to June 2008. In these sessions, we photographed another deaf Guinean boy living in Portugal, Abubacar Turé, who was compensated with a trip back to Bissau to see his family in October 2008. The educational dictionary (Martins & Morgado 2008) was finally published that year. It included 520 signs with illustrations and exercises promoting bilingualism. Similar to the previous one, it was organised by topics and translated into Portuguese and Creole. Sample pages are shown in Figure 6.



**Figure 6.** Sample pages of the LGG Educational Dictionary (Martins & Morgado 2008) about countries (a) and an exercise for colours (b)

In addition, a couple of Guinean teachers went to Lisbon for practical training at the deaf school where Marta worked, and at the Portuguese Deaf Association. Over the years that followed, Marta and I

maintained regular contact with people from Bissau, especially with Amaré and José Augusto Lopes, the school headmaster.

### 2.3.3 The second formal dictionary, collected and published in 2017

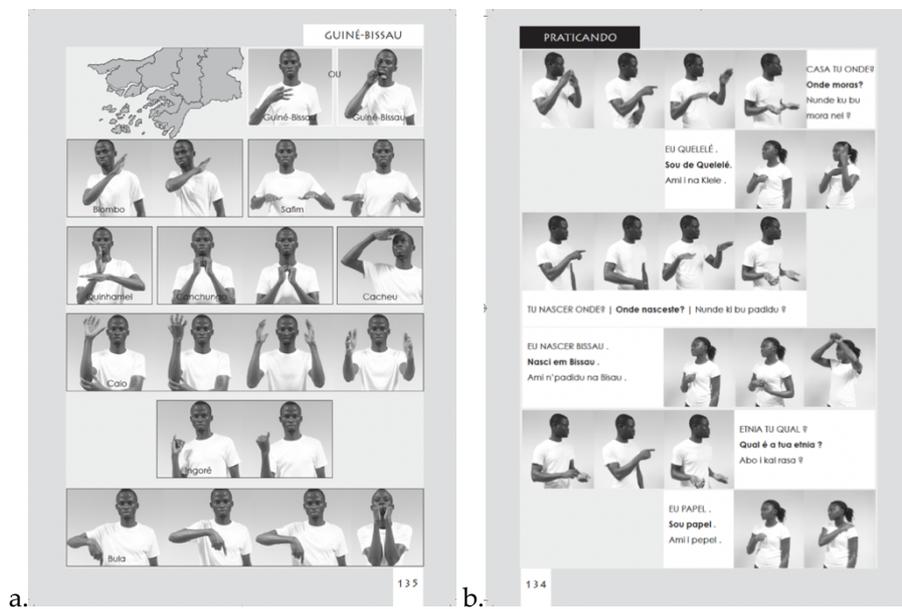
After a nine-year hiatus, I returned to Bissau in February 2017. This time, I went with Amílcar Furtado, a deaf sign language teacher from Guinean origin raised in Portugal, to update the dictionary. This time, the director of the deaf school wanted a dictionary update, aiming at the general population, so that more people could learn LGG. For that reason, the team – the 12 deaf LGG instructors working at the National School for the Deaf (*Escola Nacional de Surdos* – ENS) and I – decided to include as much vocabulary as possible and examples of real-life conversations in LGG per topic.

For that purpose, signs were discussed at the ENS within the group of deaf sign language instructors. The discussions were freely led, taking the 2008 dictionary as a starting point to check if signs had changed and to add any new signs within those topics. Examples of real-life conversations were simulated for each topic – or new ones that would arise in the discussions. All signs identified in the discussions and dialogue samples were filmed individually.

In a second moment, for the picture taking, four deaf people from the ENS and three from the other deaf school in Bissau, the Mariposa school, which had started a couple of years before, including Amaré, went to Lisbon for four months. The deaf leaders from the Mariposa school chose the deaf participants who were considered the most active in the community.

The fact that, at this time, there were two deaf schools in Bissau inevitably split the deaf community into two main groups. For that reason, the participation of the Mariposa group was crucial to confirm the

signs collected at the ENS. As a result, a few signs were adjusted, and, in some cases, variants were added. This more practical dictionary (Martins & Morgado 2017), comprising 1120 signs, is now directed at the general population, was again divided by topic, and translated into Portuguese and Creole. Sample pages are shown in Figure 7.



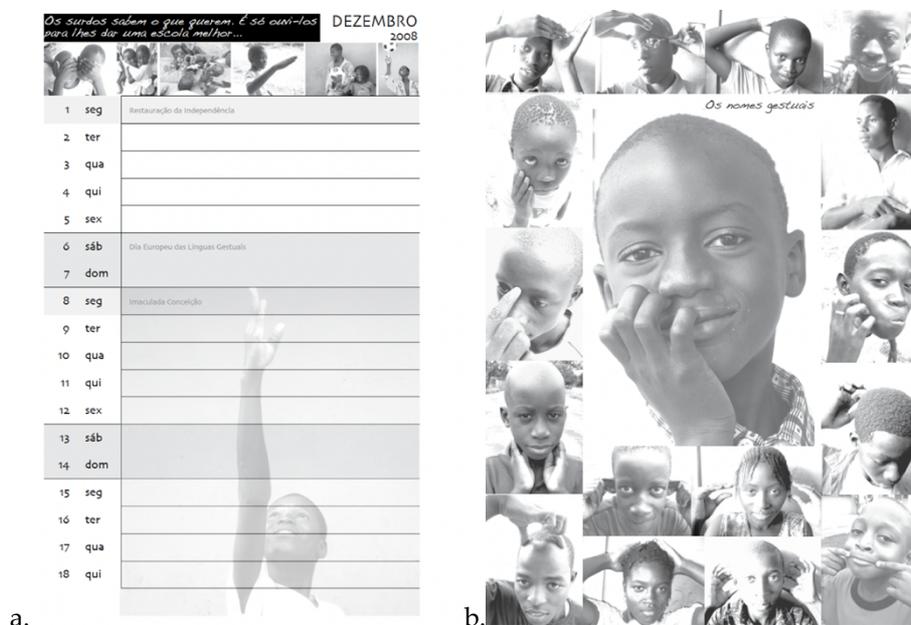
**Figure 7.** Sample of the LGG Practical Dictionary (Martins & Morgado 2017) about cities of Guinea-Bissau (a) and with a dialogue about place of residence, birthplace and ethnic group (b)

During this time, they also received additional training at the deaf school in Lisbon and the Portuguese Deaf Association. Currently, only the 2008 dictionary is available online. The 2005 one was never published, and the 2017 dictionary is now out of print.

#### 2.3.4 Additional materials about LGG and the Guinean deaf community

On top of the dictionaries, we published additional materials to showcase the uniqueness of the Guinean deaf community. These include an annual agenda, a children's book and a documentary film (see below). Since the second formal dictionary aimed at the general population, we made the point to produce LGG resources specifically for the deaf students as well.

In 2008, besides the dictionary, we published an awareness-raising agenda as a printed booklet, in Figure 8. It included messages advocating for sign language in deaf education, clarifications about deaf culture, like the sign names, and an overview of the context of deaf communities in other Portuguese-speaking countries. That annual agenda was freely distributed to stakeholders, parents, politicians and NGOs. During our visit to Bissau that same year, we gave a second teacher training course focused on bilingual methods.



**Figure 8.** Sample of the 2008 annual agenda to raise awareness for December, saying: “The deaf know what they want. It’s just hearing them to give them a better school...” (a), and with the sign names of deaf students (b)

During this time, Marta Morgado wrote and illustrated a children’s book about a deaf Guinean boy who, as an adult, became a teacher at a deaf school in Bissau (Morgado 2008). After this, we made a documentary film about the emerging sign language of Guinea-Bissau, which has been publicly available on YouTube since 2014, “Guinea-Bissau: the birth of a language”<sup>8</sup> in Figure 9. We based this video on a series of recordings we did in 2005, 2006 and 2008. During these first three visits, we registered what we saw as much as possible without a defined goal, except when collecting signs for the dictionaries. Other

<sup>8</sup> <https://www.youtube.com/watch?v=crYLr5D0JQU> (accessed 03-04-2024).

than the process of agreeing on specific signs, we filmed the deaf in informal interactions; we interviewed some of the deaf adults and hearing teachers, and kept a video diary of our impressions. In the end, we just wanted to show how valuable what was happening was.



**Figure 9.** Snapshots of the documentary film “Guinea-Bissau: the birth of a language” on YouTube since 2014: an interview with Amaré by Marta in 2006 (a) and deaf children at the deaf school in 2008 (b)

In 2017, apart from the dictionary, Marta Morgado illustrated a set of ten vocabulary posters for educational purposes, as exemplified in Figure 10.



Figure 10. Poster sample about the cities of Guinea-Bissau in LGG

Besides these materials resulting from the community's requests, Marta and I carried out linguistic studies, especially during our doctoral projects.

### 2.3.5 Doctoral projects about LGG

More recently, in the context of the present doctoral project, Marta Morgado and I returned to Bissau in October and November 2018, where we engaged and worked with deaf people from both school-based groups in Bissau, the ENS and the Mariposa school. At this time, the two of us collected data for our respective doctoral theses. Marta filmed narratives about wild animal encounters in both schools. I collected transitive sentences from the Mariposa deaf people group and conducted interviews on gestures with groups of deaf people from

both schools and hearing teachers from the ENS. Considering the travel restrictions during the COVID-19 pandemic starting in 2020, the deaf leaders of both schools were involved, as much as possible from a distance, for the preliminary analysis of the incorporation of gestures in the signed lexicon (Martins, Soares & Barros 2021). Finally, I returned to Bissau in October 2022 to update some information lacking from the analyses I had carried out.

Table 1 lists the work about LGG and the deaf community of Guinea-Bissau that has been published so far. All of these were authored by at least one of us, myself and Marta Morgado.

**Table 1. Publications about LGG and the deaf community of Guinea-Bissau**

Year	Author(s)	Title	Format
2008	Martins & Morgado	<i>Dicionário escolar de Língua Gestual Guineense</i>	Dictionary
2008	Morgado	<i>Mamadu, o herói surdo</i>	Children's book
2014	Martins & Morgado	<i>Guinea-Bissau: the birth of language</i>	Documentary film
2016	Martins & Morgado	<i>Deaf communities in Portuguese-speaking African countries: The particular case of Guinea-Bissau</i>	Book chapter
2017	Martins & Morgado	<i>Dicionário prático de Língua Gestual Guineense</i>	Dictionary
2019	Martins, Morgado & Nyst	The contribution of emblematic gestures to the emerging sign language of Guinea-Bissau	Poster (TISLR <sup>9</sup> 13)

<sup>9</sup> Theoretical Issues in Sign Language Research (Conference series)

2021	Martins, Soares & Barros	The incorporation of emblematic gestures to the emerging sign language of Guinea-Bissau	Video paper (WOCAL <sup>10</sup> 10)
2021	Nyst, Morgado, Martins et al.	<i>Object and handling handshapes in 11 sign languages: towards a typology of the iconic use of the hands</i>	Paper
2022	Martins, Morgan & Nyst	<i>Argument structure in the emerging sign language of Guinea-Bissau</i>	Book chapter
2022	Martins	Distinguishing human arguments in the new sign language of Guinea-Bissau (LGG)	Poster (TISLR14)
2022	Nyst & Martins	West Africa as a 'gesturebund': mapping the spread of emblems and their influence on the lexicons of unrelated sign languages	Poster (TISLR14)
2024	Morgado	<i>Personal experience narratives in three West African sign languages</i>	Doctoral dissertation
2025	Morgado	<i>Deaf men and women sign differently in Guinea-Bissau: the importance of social interaction</i>	Poster (TISLR15)

It is important to note that the initiatives to document and spread LGG were community-led. There was a need to produce an output in a specific format aimed particularly at addressing risks to the sign language. For instance, the temptation to rely on the older and more instrumentalised Portuguese Sign Language (*Língua Gestual Portuguesa* – LGP) was present at the earliest stages of deaf education in Guinea-Bissau and remains today in schools in other parts of the country that have no information on the importance of LGG to the growing deaf community. The influence of LGP is also unavoidable in the informal contacts between deaf people of Guinea-Bissau and Portugal. Other than these, other contacts occur naturally between deaf people visiting Bissau

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<sup>10</sup> World Congress of African Linguistics

from the neighbouring countries where the American Sign Language variants are dominant. Despite these possible influences that could supplant local LGG signs, the deaf community centred in Bissau is young, vibrant, and, most crucially, very proud of their self-created sign language.

## **2.4 Ethnographic methods**

Understanding deaf people in Guinea-Bissau and the contexts in which their sign language was used has required me to take different approaches. I have relied primarily, of course, on direct observations of the interactions occurring in my presence over the past 20 years (§2.4.1), including repeated viewings of signing on video. I complemented this with interviews with deaf and hearing people, some of which were included in the documentary film (§2.4.2). In my last visit, I sought to verify the information gathered from observations and interviews via documentary sources (§2.4.3).

### **2.4.1 Participant observation on site**

Since the first visit to Bissau in 2005, Marta and I have felt very welcomed in the deaf community, and sensed they were quite comfortable around us. If in the first three visits, we were astounded by what was happening in front of us, in subsequent visits, we had already assimilated the singularity of such a phenomenon. Thus, we moved around their spaces more swiftly.

In 2005, 2006, 2008, and 2018, I went with Marta Morgado. In 2017, I went with Amílcar Furtado (a deaf sign language teacher, born in Guinea-Bissau but raised in Portugal). In 2022, I went on my own, and, in 2024, Marta went by herself.

During our first three stays in Bissau, Marta and I kept a video diary that served as a basis for the documentary film published in 2014 on YouTube. Apart from these daily videos, we often registered personal observations in writing – a habit that was maintained in subsequent visits.

It is important to note that we were not intentionally keeping records of our experience with the deaf community of Guinea-Bissau. This was just the way Marta and I found to express our constant amazement about what we were witnessing. The intent arose more consciously during the visits in the context of our doctoral projects, between 2018 and 2024. Here, we kept a written diary and numerous written observations that we shared.

#### 2.4.2 Interviews and informal conversations

Between 2005 and 2008, Marta and I interviewed pivotal people, deaf and hearing, who had some relevant role in the history of the community. Their reports are included in the documentary film published on YouTube (Martins & Morgado 2014).

For the present thesis, I interviewed more people for specific purposes. I filmed six deaf leaders (four men and two women) about the group division leading to the creation of the Mariposa school. These interviews ranged from around six to 30 minutes, with an average duration of fifteen minutes. I also talked to two hearing directors and four deaf teachers (two men and two women) at the ENS to understand their perspectives. I did not film them, but opted to take notes instead, since they were particularly uncomfortable with this topic. Finally, I sat down with one of the hearing teachers at the Mariposa school, whom we knew from the beginning, to ask him about various topics. Because I wanted to create a more relaxed atmosphere, we met at a café. Here, we talked about interpretation (as he has been acting as an LGG

interpreter for a long time), the group division and the development of deaf people's social status over the years. Again, since we were in a public space, and to make him feel as at ease as possible, I did not film our conversation, but took notes instead.

Apart from these more formal question-answer exchanges, I profited from many occasions where I could chat, mainly with deaf people, but also with some hearing individuals. In these informal conversations, they would tell me about their lives, their homes, their families, their social interactions, their daily activities, their views on politics, cultural habits, and so much more.

#### 2.4.3 Documentary sources

For a more accurate sociolinguistic description of the deaf community of Guinea-Bissau and its sign language, I sought to confirm the data gathered through interviews, informal conversations and observations with available documentation.

To confirm the number of deaf students in the different schools of the country over the years, as well as the number of training courses nationwide, I consulted the schools' archives.

Finally, to embed deaf people's testimonies in the surrounding sociocultural context, I relied on data from the latest census, collected in 2009 and available studies on the topics covered.

## 2.5 Sociolinguistic description of the deaf community of Guinea-Bissau

In this section, profiling the deaf community of Guinea-Bissau, I describe the available statistical information (§2.5.1), the educational initiatives taken so far (§2.5.2), and how the community is organised in different meeting spaces (§2.5.3). In addition, I account for the kind of language contact that has occurred so far (§2.5.4) and the contexts of sign language use (§2.5.5).

For context, Guinea-Bissau is one of the smallest countries in Africa. The borders of a 36,125 km<sup>2</sup> territory separate it from Senegal to the north, Guinea-Conakry to the east and south and the Atlantic Ocean to the west.

### 2.5.1 Deaf people in society

To view deaf people in Guinea-Bissau as part of the broader socioeconomic community, I present a compilation of data from the latest census, collected in 2009 by the National Statistics Institute (*Instituto Nacional de Estatística*, henceforth INE), concerning the population in general and about deaf people in particular. Data about deaf people is included in the category of people with disabilities. Whenever possible, I also add information based on personal observations from visits between 2005 and 2024 (see §2.3).

#### 2.5.1.1 *Economy*

Guinea-Bissau has been through overwhelming political turbulence in its short history as a republic, including a civil war in 1998–1999 and several coups d'état and coup attempts. Only one president has completed his five-year mandate to the end (2014–2020). This instability jeopardises the national economy and social conditions, making the

GDP (gross domestic product) per capita and its Human Development Index one of the lowest in the world and ranking it as one of the ten poorest countries on earth according to a 2021 report by the International Fund for Agricultural Development of the United Nations.<sup>11</sup>

Subsistence agriculture, small-scale fishing and animal breeding are the main economic activities. At the same time, the country has been highly dependent on cashew production, representing more than 90% of its exports (World Bank 2010, xx, xv). To gain some financial credibility, Guinea-Bissau joined the CFA (*Communauté Financière d'Afrique*) monetary system in 1997, which was used in fourteen francophone countries of West and Central Africa and Equatorial Guinea. There is a high rural exodus, mainly to the capital, Bissau. Moreover, immigration is very low (2.7%), mainly from Senegal and Guinea-Conakry (INE 2009e, 33). In turn, the emigration of young men has been increasing, especially to Portugal, Senegal and Cape Verde (*ibid.*, 44).

#### 2.5.1.2 *Everyday life*

Most of the population lives in large households, with an average of eight people each (INE 2009b, 13). The houses are mainly made of adobe or baked clay, and lack access to energy, running water, or basic sanitation. Under these conditions, most households use candlelight (70%) and fetch water from a well (68%), usually at a considerable distance. About a quarter (26%) do not have sanitary facilities in the house. The garbage is thrown on the street (53%), burned or buried (37%). This is also the case in the capital (ONU-Habitat 2019, 31).

Even if the historical centre in Bissau mirrors colonial architecture, with wide avenues and aligned buildings, the city has grown rapidly

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<sup>11</sup> <https://www.ifad.org/en/web/operations/w/country/guinea-bissau> (accessed 03-03-2024).

and disproportionately up to more than 30 neighbourhoods (*ibid.*, 16–39). The spontaneous and unregulated expansion of the city outskirts has not been managed adequately, with increasing open sewers and litter piles (Mané 2019, 101). Such ‘villages’, as they are called, have expanded in a cluttered and disorderly way, similar to rural settlements, usually in family compounds around a tree or another natural marker, as exemplified in Figure 11a. Compounds share a small private quarter on the exterior for bathing and physiological needs. The common well generally serves a much larger area (Acioly 1993, 88), as shown in Figure 11b for the city of Ingoré.



**Figure 11.** Examples of a street and a well, respectively, in the neighbourhood of Reno, in Bissau (a), and the city of Ingoré (b) in 2024

Typically, the houses in Bissau neighbourhoods follow a Balanta style, a major ethnic group in the area. They are rectangular, with four to six rooms, and surrounded by a porch where people prepare food and wash clothes (*ibid.*, 89–90). They are mostly built from adobe or rammed earth, with a roof of zinc sheets or thatch (Vicente 2021, 47). Family life on compounds is projected to the outside of the houses (*ibid.*, 52–53). Here, an average of ten people per house foster

community relationships around exterior common spaces (ibid., 91). Many of the houses are limited in their interior to a bare minimum. Thus, from observations on the site, houses further away from the main streets do not have furniture, and people sleep on plain mats. In addition, sometimes, houses do not have wooden or zinc sheet shutters on their doors and windows, but cover them instead with fabrics.

In general, but also in Bissau, where a village-like lifestyle is maintained, the typical daily food is cooked on firewood (62%) or coal (33%) (ibid., 15), as shown in Figure 12, and consists mainly of rice or corn, vegetables, tubers and fruit. Fish from the sea and the rivers are highly consumed. Palm and cashew wines are also very popular (INE 2009d, 15). As I have systematically observed in a variety of contexts, people eat together from the same bowl, usually with their hands, as illustrated in Figure 12b.



**Figure 12.** Example of cooking carried out by deaf women (a) and during a meal with deaf men and women (b) in 2022

Despite being a poor country, most people have a cellular phone (85% in urban centres and 43% in rural areas) and a radio (79% in cities and 65% in rural areas). Televisions are owned primarily by people living

in urban areas (30%, the majority of whom live in Bissau) (INE 2009b, 104–105). From our observations (Marta Morgado and mine), especially in the last few field trips to Bissau, we saw that many deaf young adults had mobile phones to access social networks. However, owning a television is a rare commodity among the deaf, and the radio is obviously useless.

Finally, although many use a bicycle for transportation, especially outside the cities (47% in rural contexts and 23% in urban ones) (*ibid.*, 106), long-distance travel relies on shared vans, locally called ‘candongas’.<sup>12</sup> In Bissau, these same vans, with a capacity for 15 people seated plus a few more standing, are called ‘toca-toca’ (in Figure 13a) and, together with shared taxis (in Figure 13b), represent the local ‘public’ transportation. Otherwise, people tend to walk because the city is usually jammed with traffic. Transportation is primarily limited to the main roads because the neighbourhoods are connected by unpaved lanes where cars frequently cannot pass (Mané 2019, 103).

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<sup>12</sup> Branco, Sofia. Táxis, toca-toca e candongas: os heróis do asfalto na Guiné-Bissau. *Jornal Público*. October 6 2003. <https://www.pUBLICO.pt/2003/10/06/mundo/noticia/taxis-tocatoca-e-candongas-os-herois-do-asfalto-na-guinebissau-1169503> (accessed 05-03-2024).



**Figure 13.** Public transportation in Bissau: the inside of a toca-toca with deaf passengers (a) and street view of taxis from inside a toca-toca (b) in 2024

### 2.5.1.3 Population

According to the latest census, Guinea-Bissau hosts a multiethnic population of about 1.5 million inhabitants<sup>13</sup> (INE, 2009c, 8). In the general population, there are slightly more women than men (INE 2009d, 24), mirroring what is observed in the total number of deaf people registered on that same occasion (INE 2009f, 43). A quarter of the entire population lives in the urban area of Bissau (INE 2009d, 23), where the main ethnic groups are the Fula, the Balanta, the Mandinga, and the Papel (INE 2009a, 26). Along with the multiethnicity, the majority of the population (90%) uses the Portuguese-based Creole of Guinea-Bissau (ISO 639 3 pov; Glottocode uppe1455) (INE 2009a, 36), locally designated as *Kriol* (e.g., Kohl 2018, 158) or *Guinensi* (Scantamburlo 2002), as a lingua franca (Kohl 2018).

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<sup>13</sup> The latest estimate for 2022 is 2.105.566 inhabitants, according to the World Bank. <https://data.worldbank.org/country/guinea-bissau> (accessed 02-26-2024).

Most people (60%) live in rural areas (INE 2009d, 25). A similar proportion, 64%, is observed for deaf people living in rural settings (INE 2009f, 44). This is evenly distributed across the country's regions (*ibid.*, 47). The country's population grew 30% between 1991 and 2009, mainly due to its increase in the urban centres of Bissau and Gabu (INE 2009d, 27–28). In the overall country, at the time of the 2009 census, youth was predominant (the average age was 22 years old) (*ibid.*, 52–53), while there were only a few people over 65 years of age (3%). Life expectancy was 47 years of age (INE 2009b, 108), though, according to the World Bank<sup>14</sup>, by 2021, it had risen to 60. Analogously, most deaf people were young (60% were under 34) (INE 2009f, 49).

In general, the unemployment rate in the active population (over 15 years of age) was only 11% (INE 2009a, 57), considering that employment includes self-employed people and those working without payment in a household (INE 2009b, 74). This occurs similarly among deaf people over 15 who are primarily employed (60%), though without payment, either within their family network, as apprentices or on their own (INE 2009f, 76). Most deaf people live with their extended family in households with more than five people (*ibid.*, 84), coinciding with the average household size in the country, composed of 8 family members, mainly descendants and spouses (INE 2009b, 108).

In 2009, half of the Guineans over 15 years of age were illiterate (74% in 1991), most of those being female (63% in 2009, and 86% in 1991) (INE 2009c, 30–31). Although the country has reached gender equality in the admission rate of children at the start of the first grade, the proportion of drop-outs is higher among girls as they grow up (INE 2009c, 52–53). From the first to the sixth grade, compulsory education often lacks the necessary conditions and quality (*ibid.*, 16–17). As a result,

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<sup>14</sup> <https://data.worldbank.org/country/guinea-bissau> (accessed 26-02-2024).

students are usually much older than expected for their grade level, and school attendance gradually decreases the higher the level of education (ibid., 53–58). Escalating these data, the majority of deaf people (70%) at the time of the 2009 census (only a few years after the first school for the deaf was established in Bissau) had never attended school (INE 2009f, 59).

In sum, deaf people reflect the general characteristics of the population, as a very young, multiethnic group, though with slightly more men than women. They are overall more spread across rural areas than concentrated in urban centres. A large percentage, especially of women, is illiterate and lives with extended family, where many contribute to the household economy.

#### *2.5.1.4 Social roles*

Gender roles, led by cultural and religious norms, are uneven in Guinean society. Men are more associated with public, social spaces, while women are relegated to the domestic realm (Roque 2011, 30). Gender and the power relations related to it are internalised as natural (Silva 2019, 6) in such a way that they determine how genders feel compelled to behave in society (ibid., 21). Although they may be seen as having complementary roles, social hierarchies inevitably arise (Lundy et al. 2018, 39–40).

In Guinea-Bissau, the traditional notion of family is not based on the couple unit but on the extension of its members (Lundy et al. 2018, 40). In this context, families deriving from polygamous unions are commonplace across ethnic groups (usually of animist and Muslim beliefs) (Có 2006, 33), including in urban contexts (Domingues 2000, 514). Men are typically the head of the family (Roque 2011, 38), although women are self-sufficient in the informal economy (Domingues 2000, 510; Roque 2011, 53). Generally, women are expected to carry out all

household chores, namely cleaning, preparing food, fetching water, and washing clothes, while caring for children and working on food production or selling (Urdang 1979, 104–106).

Unbalanced power relations are culturally maintained, for instance, by limiting women's participation in managing their income (Silva 2019, 14) or denying them access to inherit the property of their late husband or father (Roque & Negrão 2009, 19). Hierarchised social roles where the authority is associated with men over women, older adults over children (ibid., 14) are socially accepted as "normal", "part of the culture", and "as it has always been" (ibid., 8, emphasis in the original).

Since social roles are much influenced by religion, it becomes relevant to note that, in Guinea-Bissau, there is a long-standing cohabitation between Muslims (45%), Christians (22%), and animist religions (15%) (INE 2009a, 27). Especially in Muslim groups, such as the Fula, the Mandinga and the Balanta, women have a lower status, typically bearing a submissive position towards men (ibid., 107–108, 112). In general, this gender-based imbalance occurs across West Africa, where the systemic patriarchy assigns women a lesser social status, often leaving them outside of education and constrained to domestic tasks (Tuwor & Sossou 2008).

#### 2.5.1.5 *Physical abuse*

Violent acts against women carried out in the name of tradition include genital mutilation and forced marriage. Female genital mutilation is practised mainly by ethnic groups who are predominantly Muslims – Fula, Mandinga and Beafada (Roque 2011, 65) – as a rite of passage to adulthood (designated as *Fanadu* in Creole). It is inflicted on around 2000 girls per year (Roque & Negrão 2009, 17) throughout the country (with less expression in the coastal area), with a total incidence of 45% of the Guinean women (Roque & Negrão 2009, 17).

In marriages arranged by families as a commercial exchange, girls are between 12 and 16 years of age, and their husbands are, on average, 20 years older than they are (Roque & Negrão 2009, 16–17). This often results in early pregnancies (Roque 2011, 20) and consequently decreases young women's access to education. Such early pregnancies may also derive from installed practices of sexual abuse (Roque 2011, 54). This crime represented 70% of the cases reported against children during the years 2004 and 2005, involving primarily girls between 12 and 16 (Roque & Negrão 2009, 15). Because the majority of the sexual abusers are family members and neighbours (Roque 2011, 115), silence is the rule among the victims (Có 2006, 40), and aggressors usually go unpunished (Roque & Negrão 2009, 15). Such a crime is so ingrained in power relationships against women and children that they are often ignored due to cultural acceptance or shame (*ibid.*, 16).

Overall, due to hierarchical gender roles and the expectation of assigning women to domestic chores, which is sustained by the school curriculum, girls are kept from going to school. Moreover, they are frequently exposed to the risk of sexual assault along lengthy distances to and from school and at school by the teachers themselves (*ibid.*, 25). On top of sexual abuse, hitting a child as punishment is considered 'normal' behaviour by adults both at home and at school (Có 2006, 29).

#### 2.5.1.6 Deafness

The healthcare system in such a poor country is particularly fragile, as the World Health Organisation states<sup>15</sup>. This results in people rarely

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<sup>15</sup> <https://www.who.int/about/accountability/results/who-results-report-2020-mtr/country-story/2020/strengthening-guinea-bissau-s-national-health-system-through-infection-prevention-and-control> (accessed 04-03-2024).

being formally diagnosed with a hearing impairment and in the fact that auditory and speech rehabilitation are practically non-existent to the present day. Before there was an educational facility prepared for the deaf, they rarely attended school at all, and many did not even have an identity card. However, the inability to hear does not seem to have impeded deaf people from contributing to subsistence activities.

In Guinea-Bissau, a child with a disability is traditionally seen as a curse to the family, especially amongst the Balanta, the Manjaco and the Mancanha. From time to time, they are thrown into the sea or to the termites because they are said to belong to the god of water or the earth. Under such a stigma, they are often hidden within the family (INE 2009f, 20). Due to limited, non-standard, or absent speech, deaf people are commonly addressed as 'deaf-mutes' or 'mutes' and have often been kept out of school, especially outside Bissau. Nonetheless, they have remained active participants in daily family activities.

The 2009 population census in Guinea-Bissau assessed the population with different disabilities, including the so-called 'deaf-mutes' and 'mutes'. These labels were used in an open question to the heads of the families concerning existing disabilities in any of the family members. The interviewees gave out the designations commonly associated with deafness, which refers to the lack of hearing and speech abilities. These were both identified as hearing impairments for the survey's purpose (ibid., 27). Thus, I will henceforth treat them as a single group of deaf people. With this in mind, there were, in that year, 1,702 deaf people in Guinea-Bissau (819 'mutes' and 883 'deaf-mutes'), representing 0.12% of the overall population. Such a percentage is lower than the one estimated for other sub-Saharan countries (e.g., Tingang et al. 2020, who observed a variation between 0.9% and 3.6% in the prevalence of deafness in 17 population-based studies in Cameroon). The 2009 census informs that, in Guinea-Bissau, deafness is mainly acquired at birth (38%) or through a disease (48%) (INE 2009f, 52), primarily malaria and

meningitis, confirming the weakness of the health system. Thus, given the proportional disparity compared to other African countries, I hypothesise that many deaf people were left out of this survey. In fact, during our (Marta Morgado and mine) first field trip to Bissau in 2005, we were told that many deaf people did not have an identity card. One of the hearing teachers working with deaf students since the beginning said to me in 2022 that, in his earliest visits to Gabu, families would hide their deaf relatives since some of them did not even have a name.

#### *2.5.1.7 Deaf population*

Unfortunately, there is no updated survey on the deaf population of Guinea-Bissau. It is, however, clear that, with the establishment of the first specialised schools, deaf people rushed to the urban sites, especially Bissau. Such a tendency echoes in the deaf people concentrated in Bissau, the general pattern of internal migration, and an overall very young age and multiethnic background. What is more, a significant number of deaf students are over 15, tending to work while getting schooled. Figure 14 shows the iconic monument in the city centre celebrating the national heroes and the sign name for 'Bissau' depicting it.



**Figure 14.** National Heroes monument in the city centre of Bissau and the sign for Bissau in LGG

As their academic levels rise, their social autonomy and self-sufficiency increase while, in some cases, living in their family compounds. In Bissau, many deaf men work in groups, especially in fish and cement brick-related activities. The fish-related work is the most appealing to deaf men, as they get paid on the spot. Since the most challenging part of the job is going fishing offshore, they prefer working in the harbour, which involves unloading the boat (Figure 15a), washing it, and selling the fish at the local market (Figure 15b).

Additionally, one deaf man, after learning the trade, created his own business as a brickmaker, hiring only deaf employees (Figure 15c). One

has a kiosk of food and beverage items. Another is a barber walking around with his tools to do men's hair with special prices for the deaf. Recently, one deaf man started working as a security guard for the government, where he is praised for his exceptional eyesight.

Women are more likely to work individually as hawkers within a household working system (Figure 15d). There are, however, exceptions, such as one who bakes cakes (Figure 15e) and another working at a daycare centre, mainly as a cook.



**Figure 15.** Deaf people working in Bissau: deaf men unloading a fishing boat in Bissau's harbour (a), selling the fish at the harbour's market (b), working in brick making (c), a deaf woman selling peanut cakes (d) and carrying cake moulds for baking (e) in 2024

Similar to what occurs in Bissau, deaf people of Ingoré – a city in the north, near the border with Senegal (in Figure 22) – are becoming increasingly self-sufficient. In 2024, Marta was told that there were ten carpenters, eight tailors and four car mechanics among deaf men, and women worked mainly as seamstresses. Here, the majority of deaf people also study and work.

The information described above is based on observations from Marta Morgado's (January 2024) and my latest field trips to Bissau (February 2017, December 2018, and October 2022). It is essential to add to such descriptions the significant improvement that occurred, as a consequence, in the way society looks at deaf people. In 2022, I talked to hearing teachers working with the deaf since the beginning about this mentality change. One confirmed a significant evolution in the attitude towards deaf people because they have been doing everything by themselves without being embarrassed by their deafness. Usually, when deaf people do not know something, they point it out and ask about it. Another teacher believes that they are now looked at as equals. Nonetheless, when I talked to the teacher of a deaf young man studying civil engineering at a university in Bissau, he did not show any faith in his abilities to graduate successfully.

I should also note that, despite the increasing professional autonomy of deaf people, they still live in extreme poverty. Hence, following the idea ingrained in the minds of the general population, many believe they would be better off if they 'flew away to the land of the white'. From the deaf community in Bissau, I am only aware of four deaf men and one woman who emigrated to Portugal, with two returning later.

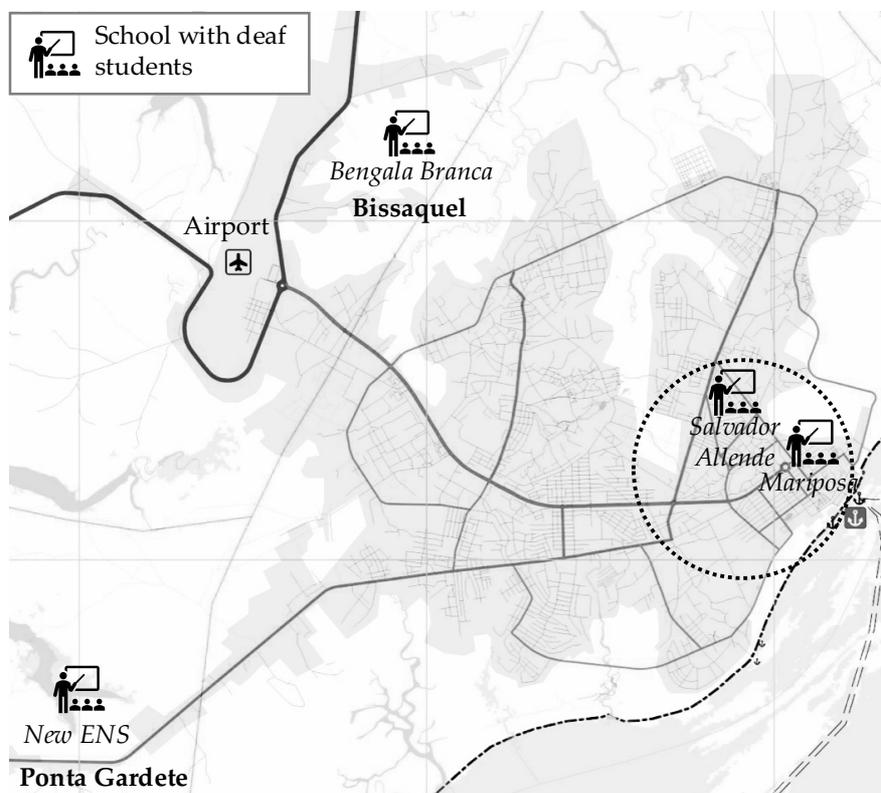
At the moment, the only documentation available to assess a more realistic number of deaf people is the one provided by school enrolments, described further in the following subsection.

### 2.5.2 Deaf school(s) as the privileged sharing space(s)

This subsection thoroughly describes the chronological establishment of different educational spaces as meeting places for a growing deaf community in Bissau. In addition, various educational initiatives are examined throughout the country. Besides the number of deaf enrolments in school, I list teachers' training and approaches to promoting deaf education.

As mentioned in the previous subsection, before there were special schools, the vast majority of deaf people were left without education. For instance, back in 2005, Marta and I met a 16-year-old deaf boy who had never attended school. He communicated with gestures with his father and made a living out of selling his candle holders made of soda cans. This began to change in 2003 when the recently founded school for the blind started receiving deaf children as well. After this first year, the number of enrolments of deaf students continued to increase to such an extent that a deaf-only school was established in Bissau in 2006, the National School for the Deaf (*Escola Nacional de Surdos – ENS*), followed by another one, ten years later, also in Bissau, designated as *Mariposa* (meaning 'Butterfly').

Meanwhile, schools across the country were setting up classes for the deaf. Before going into further detail about each of the schools in Bissau, it is important to visualise how they were first set up in the city centre and then relocated to the outskirts of the city (Figure 16). I note that it all started at the premises of a public school called Salvador Alende in the city centre. This school began by housing the school for the blind, named 'Bengala Branca', then the school for the deaf, the ENS, and remained the primary pick-up point when buses started taking deaf students to the new ENS building at Ponta Gardete. It also remains a meeting place for ENS students on weekends.



**Figure 16.** Map of the current locations of the schools receiving deaf students in Bissau, with the city centre within a circle: public school Salvador Allende, Mariposa school, new location of the ENS in Ponta Gardete, and new location of the school Bengala Branca in Bissaquel (road map in ONU-Habitat 2019, 23)

### 2.5.2.1 School Bengala Branca, a.k.a. BLIND SCHOOL

Before there was a formal meeting place, deaf people were likely to have a few deaf neighbours or even family members. The first place where deaf people were able to gather in more significant numbers happened somewhat by accident. The school for the blind was created by the Guinean Association for the Blind (*Associação Guineense de*

*Reabilitação e Integração dos Cegos – AGRICE*) in 2002. It began by occupying a couple of blocks in a public school in the centre of Bissau, the Salvador Allende, very close to the Ministry of Education. Since the president of AGRICE and headmaster of the school *Bengala Branca* (meaning ‘White Cane’), Manuel Lopes, was a strong advocate for disabled people in general, it was without surprise that, in the following year, families started bringing their deaf children to the school for the blind.<sup>16</sup> I briefly add a side note here that the pairing between the sensory impairments is readily made when information is scarce.<sup>17</sup>

During the second year of the school for the blind *Bengala Branca*, between October 2003 and June 2004, there were almost 20 deaf children. The following year, they had more than doubled to 50, surpassing the blind students, and in 2005/2006, they were already more than 80 (Figure 17a). In 2006, it became too evident that the educational approaches for the two types of students were distinct. For that reason, Manuel Lopes, AGRICE’s president and *Bengala Branca*’s headmaster, had a fallout with José Augusto Lopes, his then secretary, because the former wanted to keep all students at the school, *Bengala Branca*, and the latter wanted to educate the deaf in a separate school. As a result, they parted ways, and José Augusto Lopes created the National School for the Deaf (*Escola Nacional de Surdos – ENS*), keeping the same premises at the public school Salvador Allende, in the city centre (Figure 17b). That same year, the school *Bengala Branca* moved to another

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<sup>16</sup> To exemplify this, the first special schools in Sweden and Portugal also aimed at deaf and blind students. These were the ‘General Institute for the Blind and the Deaf-Mute’, founded in Stockholm in 1809 (Bergman & Engberg-Pedersen 2010, 87), and the ‘Royal Institute of Deaf-Mute and Blind’, established in Lisbon in 1823 (Carvalho & Carmo 2023, 12).

<sup>17</sup> As an anecdote, for working with deaf people, I have sometimes been asked if I use braille, which I know is something that many deaf people have experienced as well.

neighbourhood, taking with it about ten deaf students. In 2007, the permanent building of the school for the blind was set up in Bissaquel, on the outskirts of Bissau.



**Figure 17.** School block with deaf students at the public school Salvador Allende in the centre of Bissau, in 2005 with the logo of AGRICE (a), and in 2008 with the logo of the ENS (b)

Before moving out in 2006, Manuel Lopes built a home to accommodate both blind and deaf students who wished to attend the school Bengala Branca but had no family support in Bissau. It started with eight deaf children, who got fewer every year until there was only one in 2013. This deaf boy, Usna Nhaga, a second-year university student of Civil Engineering, was the only deaf person at the home for the blind during my last field trip in 2022. Since no statistical data was available about the years preceding 2014, he also provided me with information from what he remembered about the number of deaf students at both the school and the home. Thus, between 2003 and 2006, the number of deaf enrolments was kept at the ENS records. From 2007 to 2013, Usna remembers an average of ten deaf students per year, at Bengala Branca, in both the school and the home. This was maintained until 2020. In

the few years that followed, only a few deaf students were left. Between 2010 and 2016, Usna attended a mainstream high school from the sixth to the twelfth grade. One of the deaf students who left in 2010 said that he was leaving because there were few deaf students, and he preferred to be around more deaf people at the ENS.

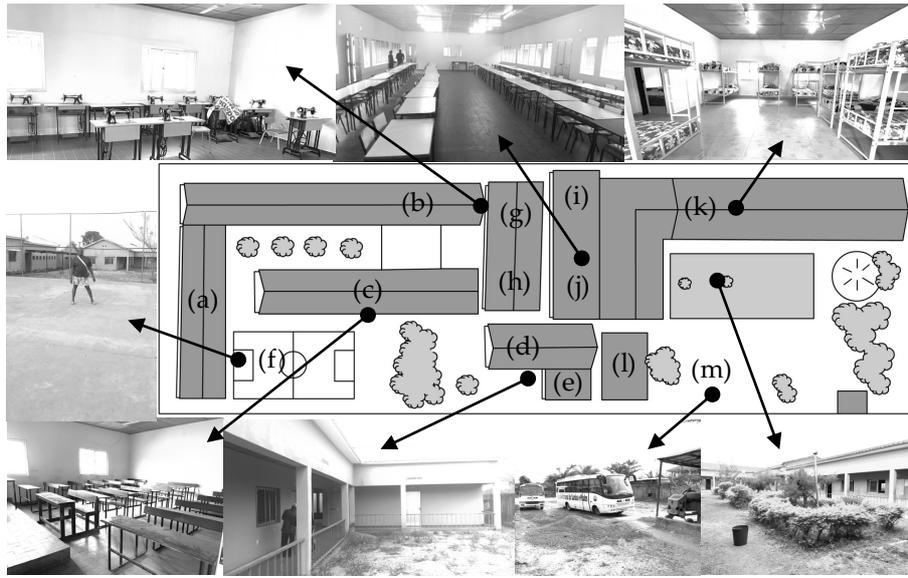
At the school Bengala Branca, classes from the first to the ninth grade included not only the blind and the very few deaf but also students with no disabilities. Despite having access to the LGG dictionary published in 2008, and their deaf students being LGG users, teachers at the Bengala Branca did not use LGG as an educational medium.

#### *2.5.2.2 National School for the Deaf (ENS)*

The ENS started in 2006 with 150 deaf students and grew yearly to around 500 students in 2021. With the rise of enrolments by deaf students, the school got funding from the Portuguese Cooperation (an agency of the Portuguese government) to build a new building in Ponta Gardete, 10 kilometres away from the city centre, where it was relocated in 2015.

Hence, from a previous sign name of SCHOOL BISSAU, it became known as NEW<sup>^</sup>SHOW. These premises, built from scratch, were large enough to accommodate the increasing enrolments with a maximum capacity of 1,600 students and provide housing for 120 children. However, the necessary support to secure student housing has yet to be obtained. Without housing, deaf enrolments were not sufficient to fill the ample space of the new building. Hence, hearing students from the surrounding area have also been admitted since its inception in 2015, reaching around 600 in 2022. Still, the deaf are taught in deaf-only classes from kindergarten to the ninth grade. In high school (tenth and eleventh grades), deaf students are in mainstream classes with the hearing

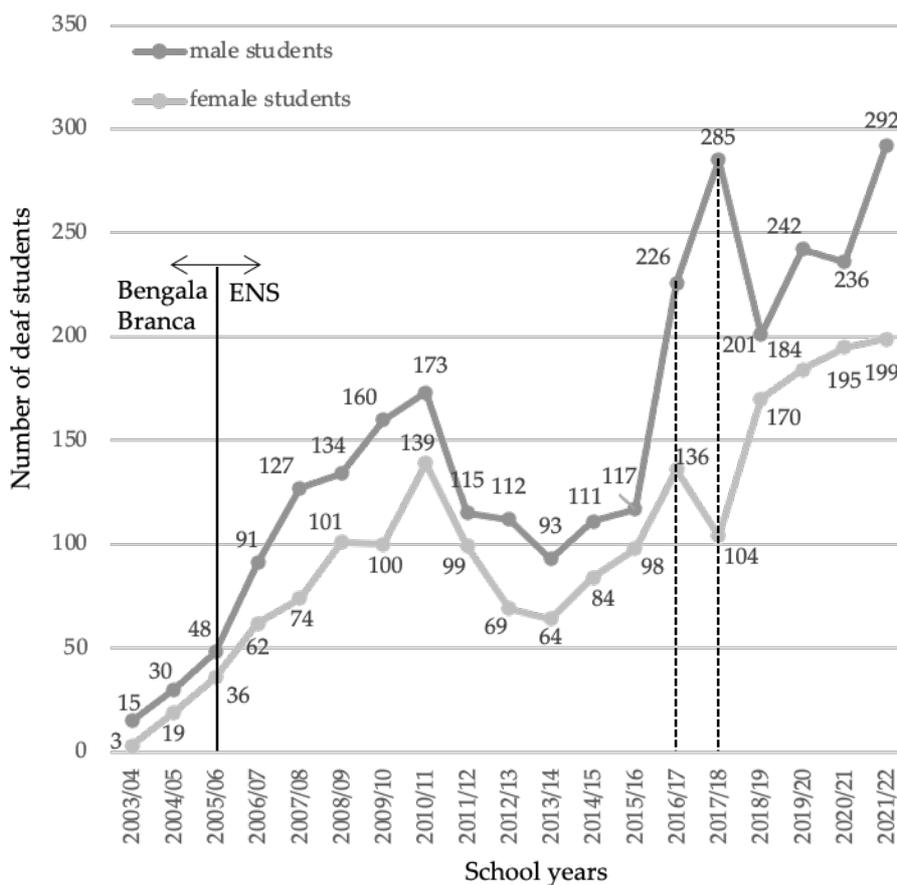
without LGG interpretation. Figure 18 displays the top view of the new ENS building, indicating all rooms and their corresponding functions.



**Figure 18.** Top view of the new ENS building showing the blocks for hearing students' classes (a), high school classes (b), third to ninth-grade classes of deaf students (c), first and second-grade classes of deaf students (d), kindergarten of deaf children (e), sports' field (f), sewing class (g), administration (h), kitchen (i), canteen (j), dormitories (k), storage (l), and open space for brick making and bus parking (m) (picture of the school from satellite map)

Notably, the ENS is a private school, which implies the payment of fees, considered by many to be high. Student transportation became crucial since its new location is far from the city. Two buses, one with 56 seating places and another with 30, were obtained only later, in 2017. I recall that the data on students' enrolment over the years was collected at the archives of the Bengala Branca and the ENS.

In the years when the school was not able to provide transportation for the students, the enrolments showed, all the same, an increase in male students, contrasting with a decrease in female students (probably resulting from the danger of sexual assaults when walking long distances as pointed out in §2.5.1.5). As shown in Figure 19, the statistical data available at the ENS by gender shows that there have always been more male than female students, reflecting the general tendency in the country. One of the hearing teachers at the ENS adds that many girls in Guinea-Bissau still do not attend school or enrol later.



**Figure 19.** Number of enrolments of deaf students at the ENS since 2003/04 per gender, showing a more significant gap during the years the ENS moved to Ponta Gardete but did not have transportation (between pointed lines)

Another decline in deaf students occurred in the old building between 2011 and 2016. This was motivated by a wave of dissatisfaction from a group of older deaf students against the school administration, resulting in the expulsion from the ENS of about a hundred deaf people in 2013, though some returned. Such a distressing event left a profound mark on the history of the local deaf community and will, therefore, be further described in this section. Even so, at the ENS, the first few deaf students finished the twelfth grade in 2018. In 2020, the school began vocational training in sewing and brickmaking in cooperation with mainstream vocational training schools. The sewing instructor was a young deaf woman who had graduated. In 2022, she had about 20 deaf trainees, three of whom were deaf young men. In turn, the brickmaking training ran with around ten deaf male apprentices.

The ENS headmaster, José Augusto Lopes, explained that the school invested in brickmaking materials so that the deaf trainees could turn it into a self-sufficient business from which they could earn a monthly income. As a similar initiative, he invested in a fish-selling cooperative for deaf women.

#### 2.5.2.3 *Mariposa school, a.k.a. BUTTERFLY*

The dissident group of deaf people banned from the ENS in 2013 ended up being left out of school for the following two years. In 2015, they secured a temporary classroom at the school for the blind. One year later, they were given a small building of a former public school in the city centre, which they called *Mariposa*, meaning 'butterfly'. From 2016 to 2019, the school had an average of 50 deaf students per

year, while in the following couple of years, the number of enrolments almost doubled. The school was composed of one decaying block with two classrooms. In the subsequent years, Amaré Soares assumed the leadership of the Mariposa and lobbied for financial support, including among the Portuguese deaf community. As a result, deaf people gradually renovated the building and built a second block with two more classrooms (Figures 20a and 20b), with a capacity for 30 seats each (in two daily shifts). When there was the need to hire professional help, such as brickmakers, painters, or carpenters, deaf workers were always favoured – one of them even came from Ingoré, 80 kilometres from Bissau, to help out.



**Figure 20.** The second block being built from scratch by deaf men (a) in 2022, and the two buildings when ready (b) in 2024

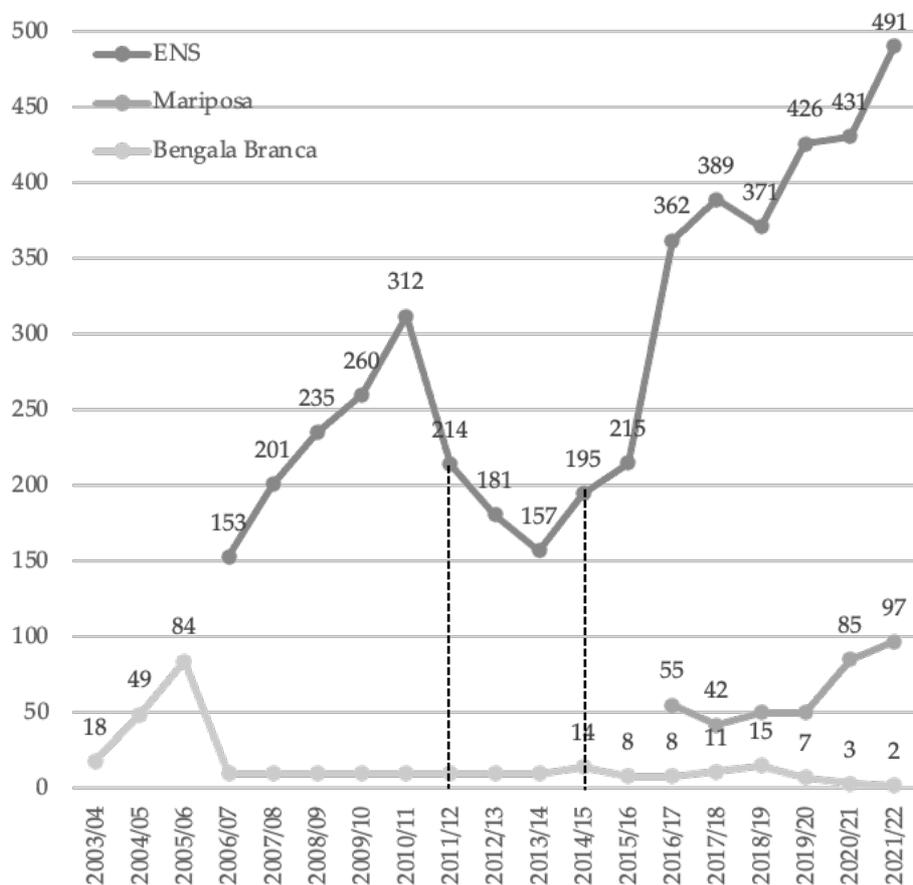
The Mariposa school started in 2016 with two deaf teachers (Amaré Soares and one deaf woman who had been working for many years at the ENS with younger children) and five hearing teachers who were quite fluent in LGG, as stated by the deaf themselves (three often acting as interpreters). In 2022, there were seven hearing teachers and three deaf ones. As was the case in the ENS (including the years before

2006 as school Bengala Branca), the Mariposa school also showed differences in the number of attendances by male and female students. For example, in 2021/22, there were 62 male and 35 female students from first to tenth grade, with an average of six male and four female deaf students per class. It is essential to point out that most students at Mariposa are older students – teenagers and young adults. The gender difference is not a surprise considering the general educational context in Guinea-Bissau.

Amaré, as leader of the Mariposa school, has made a point of maintaining it as public so that the government is obliged to provide the necessary support. Rice and fish from the World Food Programme are also served daily.

Considering the total number of deaf students' enrolment in the different schools for the deaf in Bissau (in Figure 21), it is estimated that there is a minimum number of 590 deaf people constituting a community in the country's capital. I say 'minimum' because it is well-known that there are many deaf people who are part of the community but do not attend school. This is so because they chose to work full-time; or they are girls who got pregnant or were restrained by their families to stay home; or they are older and never actually went to school.

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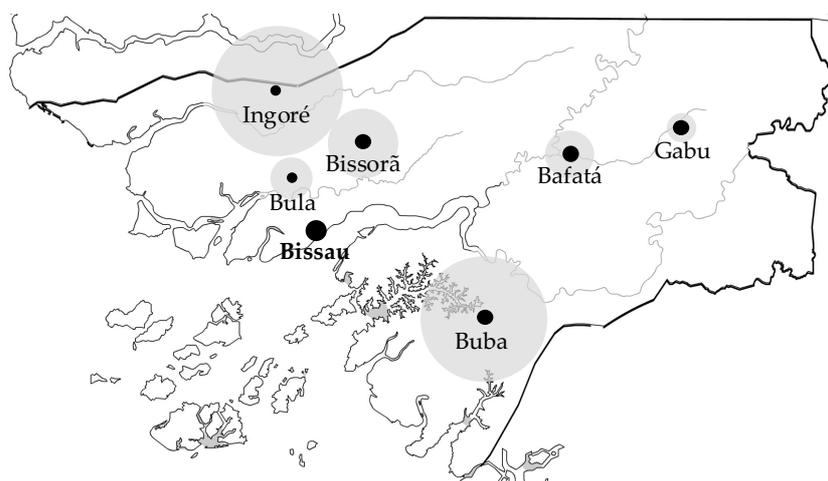


**Figure 21.** Number of enrolments of deaf students in Bissau since 2003/04 per school (dots without number labels correspond to estimated numbers), showing a more significant gap in ENS enrolments during the years a group of deaf people rose against the school administration (between pointed lines)

Besides the three schools receiving deaf students in Bissau, there are others across the country with smaller groups.

#### 2.5.2.4 Other schools in the country

Unfortunately, I could not collect in situ data about the exact number of deaf students attending other schools in the country. Nevertheless, I rely on a report carried out by the ENS in 2017 concerning Gabu and Bafatá; on a survey led by the Centre of Deaf Youth in Ingoré, Bissorã and Bula, in 2022, updated for Ingoré by the local deaf leader in 2024; and on information gathered during teachers' training and students' exchanges across the country carried out by Amaré Soares (deaf LGG teacher responsible for the Mariposa school). This was especially relevant in his visit to Buba in 2014, where he identified around 60 deaf students. Such a number is similar to the 62 identified in Ingoré, where the local deaf leader quickly added that many more deaf people were left out of school. Overall, in addition to the 590 deaf students in Bissau, 212 are put forward in the rest of the country. The six cities across the country and the approximate number of deaf students are shown in Figure 22.



**Figure 22.** Map of other cities of Guinea-Bissau with deaf students identified in approximate numbers: Ingoré (62), Bula (20), Bissorã (33), Bafatá (23), Gabu (14) and Buba (60)

The ENS report on the educational situation in Gabu and Bafatá stated that deaf students were scattered in different public schools. Even so, in both cities, one of the schools had a higher concentration of deaf students. In this way, there were six schools in Bafatá, with at least one deaf child each, except for one school called 'Amizade China' (meaning 'China Friendship'), which accounted for 17 of the total 23 deaf students. Similarly, in Gabu, there were five schools with at least one deaf student, of which only the school called 'Caetano Semedo' had eight deaf children out of 14. Also, in these two cities, the Guinean Association for the Blind, AGRICE, had student homes. In Bafatá in 2020, there were four deaf children in its local home, while in Gabu in 2021, there were two deaf children. All of these were attending schools with higher concentrations of deaf students.

In Ingoré, there was also a home, but it was only for deaf boys (the girls' house had been closed down). Here, the missionary in charge of the deaf school pays for their education until the sixth grade. After that, the deaf are on their own, and most quit school.

#### *2.5.2.5 Teachers' training*

Teachers working with deaf students began with short training courses in bilingual deaf education and deaf studies by Marta Morgado and me in 2005 and 2008, and by a deaf Portuguese Sign Language teacher, Marta's colleague at the Lisbon school for the deaf, Amílcar Morais, in 2016. From the beginning, hearing teachers became aware of the importance of using deaf people's signs in teaching. However, only one has become fluent enough to act as an interpreter when needed. Apart from these awareness-raising short courses, hearing teachers had no other formal training in how to teach deaf children. Nonetheless, two teachers went to Lisbon for a three-month internship at the school for the deaf and at the deaf association in 2008 and 2011.

In addition, the headmaster of the ENS, José Augusto Lopes (former secretary of AGRICE), made a point of having young deaf people as sign language instructors in every classroom. So far, formal training in sign language teaching has only been received by Amaré Soares. Being the only deaf participant present in the 2005 teacher training, he was also the only deaf person identified at that time as having already graduated (he was a second-year university student of Economics that year). Because of that, he was immediately invited to attend the four-year course at the Portuguese Deaf Association.<sup>18</sup> When he returned in 2009, he only trained one other young deaf man as an LGG instructor. Even without any training, in 2017, the ENS employed 12 deaf instructors, and in 2022, there were ten deaf instructors and five deaf assistants. Of the deaf instructors, two completed a regular teacher's course at a higher education institution in Bissau in 2022, one from the ENS and the other from the Mariposa school.

Moreover, José Augusto Lopes promoted the training of hearing teachers working with deaf children in other schools in the country. Amaré Soares led most of this training, which he pursued after leaving the ENS. Besides raising awareness in a couple of high schools, mainstreaming deaf students in Bissau, he provided teachers' training in Buba, Bissorã, Bafatá and Gabu.

Figure 23 summarises the main events outlining the history of education for the deaf in Bissau. The right side refers to the establishment of the three schools for deaf students, and the left side to various training sessions carried out by teachers and deaf students.

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<sup>18</sup> A deaf woman from Cape Verde was also invited to join this class of sign language teaching trainees between 2005 and 2009.

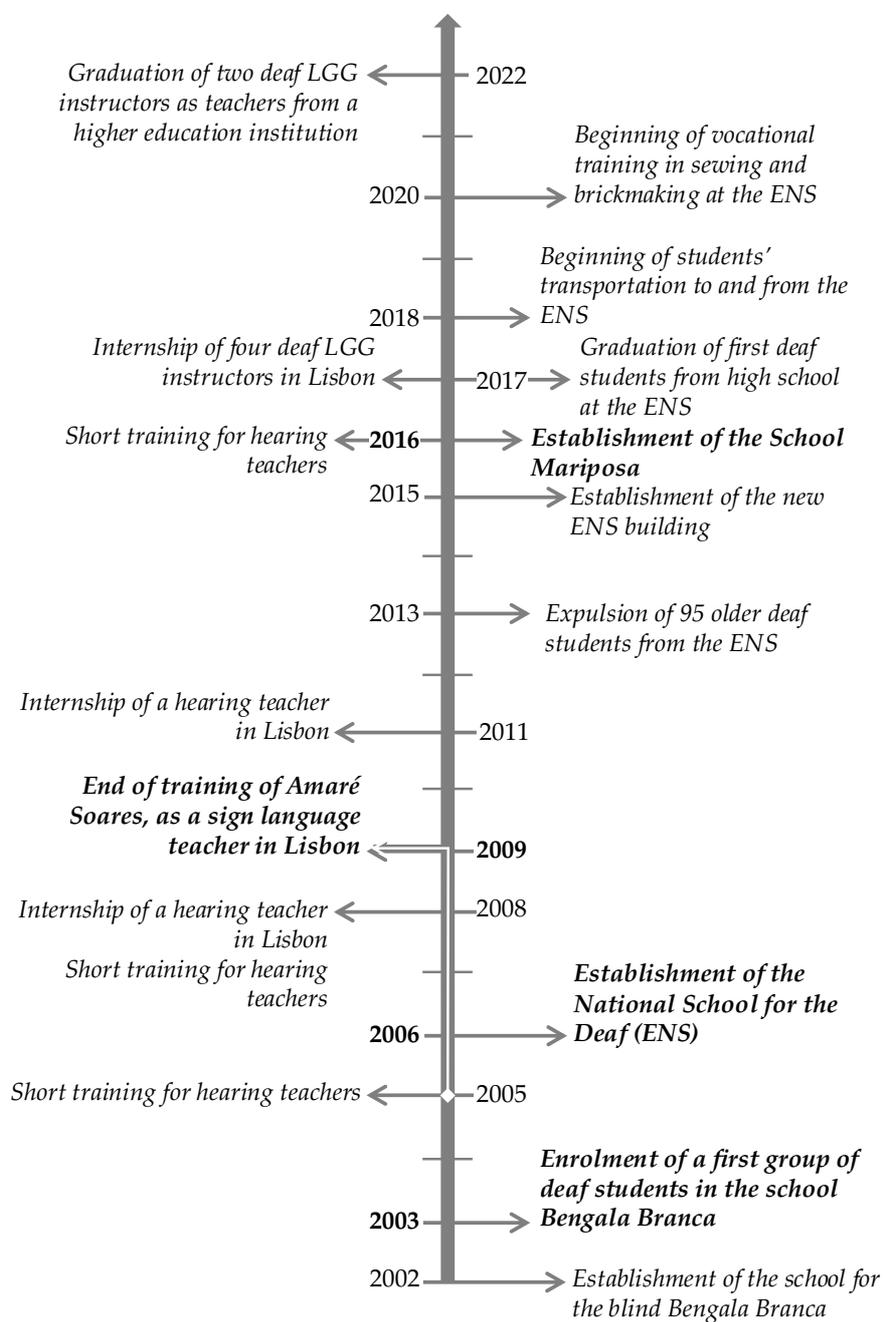


Figure 23. Chronology of relevant events concerning the education of deaf people in Bissau (with most relevant events in bold)

#### 2.5.2.6 *Educational approaches*

Ultimately, attitudes towards deaf people and their sign language in Bissau were crucial to developing a deaf community centred in the school space and stretching to the outside world. In a context where there is no medical rehabilitation for hearing loss, teachers readily use sign language as the easiest way to communicate with the deaf. In classrooms with deaf students, sign language replaced Creole, the most used spoken language, especially in Bissau. Considering that all school materials are in written Portuguese, deaf education became – without being planned – bilingual in both LGG and written Portuguese.

To intentionally develop LGG, the headmaster of the ENS carried out two critical initiatives: promoting social interactions between the different classes of deaf students and investing in deaf instructors. When the ENS was located in the city centre, at the public school Salvador Allende, the rising number of deaf enrolments had to be divided into shifts to fit the available classrooms. For example, in 2012/13, ten classes from kindergarten to the eighth grade were organised in two four-hour shifts, with four groups in the morning, corresponding to the younger children, and six in the afternoon. In such circumstances, between 2005 and 2015, Friday was established as the day for cultural activities, enabling extra-curricular activities for all deaf students.

When Amaré returned from Portugal in 2009 as a fully trained sign language teacher, he began teaching LGG as a formal course to deaf students throughout all school levels at the ENS. He taught three hours per week per class until the fourth grade and two hours per week in older classes until the ninth grade. He worked on LGG with students by developing story retelling, understanding grammatical aspects, and discussing topics from the dictionary published in 2008. On Fridays, he used to play videos, such as Charlie Chaplin, Mr Bean, and Jackie

Chan movies and the 'Switched at Birth' series. However, when running the Mariposa school, there was no electricity to show videos until 2022. Besides showing videos, Amaré also organised field trips to the city's monuments and student exchanges involving sports and games with deaf students in other cities, such as Bula, Bafatá and Gabu.

After he left the ENS in 2014, his trainee, Martinho Monteiro, continued his work. By 2022, Martinho and another deaf male graduate were formally teaching LGG. Apart from these two LGG instructors, the remaining eight deaf graduates taught school content. Figure 24a portrays one of them. Of the eight deaf instructors, three women were responsible for the lower classes. Two were working with a hearing teacher in the two preschool classes. The third one taught all the educational content to a first-grade class. The remaining deaf instructors, up to the fourth grade, were also teaching curriculum content. From the fifth to the ninth grade, deaf instructors worked in pairs with a deaf assistant (who had not graduated yet), teaching specific courses, such as mathematics, natural and social sciences, visual education and Portuguese. Amaré himself, as a teacher at the Mariposa school, stopped teaching LGG and went on to teach Portuguese and English to the deaf students instead, as he felt his skills would be better used there (in Figure 24b).



**Figure 24. Bilingual classes given in LGG by deaf instructors:** a deaf instructor with a deaf assistant giving a class of Mathematics to deaf students at the ENS (a) in 2022, and Amaré giving a class of English to deaf students at the Mariposa school in 2018 (d)

Although it is used as the primary language of instruction, policies or an LGG curriculum have yet to be issued. Thus, the only materials available are two dictionaries and a few informal videos on social media. Nonetheless, this subsection showed how decisive the school setting was in boosting a deaf community in Bissau and a sign language that would spread across the country with teachers' training. It has also been seminal in raising deaf people's academic levels and, consequently, their social autonomy. Yet, in 2022, as much as school played a determining role, it was outside its walls that the community spread its wings, as described in the following subsection.

### 2.5.3 Meeting spaces of a growing deaf community

The consolidation of the deaf community in Bissau undoubtedly stems from the frequency and intensity with which deaf people meet outside the school context, even before there was a school for the deaf. On top of a diversity of regular meetings, the deaf people of Bissau went

through an episode of significant unfairness that they rose against together, and ultimately made them stronger. As it is a sensitive topic involving charges still wrapped up in court as of this printing, I will omit the names of the accused and limit myself to how deaf people felt about it and how they grew from that collective feeling as a group. Descriptions of this event and its consequences are based on informal conversations and several interviews during my field trips in 2017, 2018 and 2022.

#### *2.5.3.1 Deaf meetings before the establishment of the school*

Amaré Soares's role is instrumental in supporting the establishment of a local deaf community. He became deaf at the age of eight as a result of malaria. For that reason, he could speak Creole and read and write in Portuguese (and English). He was also very well aware of his deafness. Thus, when he became acquainted with other deaf people in his neighbourhood, Quelelé, they naturally began to meet regularly at a 'cinema salon' (an informal place where people gather to watch movies). When Marta Morgado and I met Amaré in 2005, we met almost daily with about eight or nine deaf men. Deaf women were also around, but rarely joined the men. This group consisted of a total of about twenty deaf people of different ages, he said. At the time, none of these deaf people were going to school. He explained that even though they sought each other's company, the signs used to communicate and the topics discussed were, at that point, limited to the movie they were watching and sports.

The topic of sports, especially related to football, is a typically male-dominated space, also in Africa (Alegi 2010, 119). In Guinea-Bissau, among the hearing people, it is common to see boys playing football outside and groups of men watching European football at some bar, especially from the Portuguese League. Such interest is often

manifested in heated discussions about football among men (Bitchala & Caetano 2023, 11). The male preference for specific topics is also observed in deaf signers of LaSiMa in the semantic fields of football and vehicles (Nyst 2015, 137).

Amaré also noted that this type of gathering was likely happening in other neighbourhoods. That year, Amaré invited his deaf neighbours to his house so that we could meet them (in Figure 25a). The youngest was a deaf four-year-old boy, and most of them were young adults. Figure 25b portrays the group of deaf people present at that day's gathering.



**Figure 25.** Deaf people meeting in Amaré Soares' house (on the left with white t-shirt), in the neighbourhood of Quelelé in Bissau (a) and outside for a group photo (b) in 2005

Probably because he had concerned parents who fostered his interest in reading, Amaré got into the university to study Economics when most deaf people were still out of school. As the only graduate deaf person during our first visit to Bissau in 2005, he was invited to do the four-year training in sign language teaching at the Portuguese Deaf Association, interrupting his second-year study at the university. It is

important to note that Amaré left for four years at a time when deaf individuals, isolated in their neighbourhoods and villages, came together in large numbers in a school that opened its doors to them. In other words, during Amaré's absence, there was an ongoing community-building centred in the school space.

#### 2.5.3.2 Deaf association (AS-GB)

In 2006, we (Amaré, Marta and I) returned to Bissau to collect signs for the LGG dictionary. This same year, the ENS was created, as well as a deaf association (*Associação de Surdos da Guiné-Bissau* – AS-GB) to which Amaré was elected the president. The deaf association became responsible for the deaf school, working from a small office next to the deaf students' classrooms. While Amaré pursued his teacher training in Lisbon, the school headmaster became a successful lobbyist for the deaf cause, supporting teachers' payment, students' feeding, education materials, infrastructures, transportation, etc.

However, when Amaré returned to Guinea-Bissau in 2009, he became aware of general dissatisfaction because students were fed only once a week, although they were supposed to eat daily at school. Older deaf students knew plenty of food was in the storage because they would usually be asked to unload the sacks of rice from the UN's World Food Programme trucks. They also argued that the amount of food diminished as hearing members of the school administration were seen consuming it.

In addition to the general discontentment, Amaré Soares, president of the AS-GB, identified management irregularities that led him to have disputes with the hearing administrators of the school (which was run by the AS-GB). In 2011, he drew the attention of the funding organisation, the Portuguese Cooperation, to the issue, through the local representative: the Ministry of Women, Family, Social Cohesion and Fight

against Poverty. On this occasion, he asked for the AS-GB to be audited, but with no success. After several failed attempts to take hold of the association's affairs, he filed a complaint against AS-GB at the end of 2013 with the public prosecutor's office. Since then, the conflict between Amaré, supported by a large group of deaf students, and the school administration escalated. This went on to the point when, in 2014, the school headmaster and his followers succeeded in changing the name of the deaf association to replace 'association of the deaf' with 'association for the deaf' and were elected as the new board (in Figure 26a). Of course, this occurred under the protests of several deaf students (in Figure 26b).



**Figure 26.** General assembly of the AS-GB to replace the board where Amaré Soares was president (a), and a protest by deaf students to this event (b) in 2014 (pictures taken by Amaré Soares)

At this point, Amaré left the association and quit teaching at the school. From then on, the AS-GB was no longer controlled by deaf people, which did not mean that deaf people were not eager to take more control and agency over their own lives.

### 2.5.3.3 *Protests*

Primarily motivated by a perceived unfairness about how food was distributed, some of the older deaf students resented that, even on Fridays, food was often insufficient and sometimes spoiled, making children ill. They also complained that, on occasions, pork was served, disregarding the restriction of Muslim students from eating it. In general, they felt that the (hearing) administration of the ENS did not engage with the deaf: they did not use sign language, not even to greet them; they were not willing to listen to their concerns; they did not care when students got sick or even died. On top of this, the older deaf students sensed that the administration was not working as well as they should and that the education was poor. Such dissatisfaction seemed to intensify as they grew older and more aware of the injustice of the situation and, above all, as they recognised that the administration was unwilling to listen and change it.

The movement against the school administration was led mainly by five young deaf men, calling themselves the 'A' list. They had been meeting regularly to plan protest activities since 2010. When interviewed about this in 2022, they insisted they were not influenced by Amaré and reinforced their opinions on the wrong being done against deaf students and their will to fight against it. It is worth noting, though, that in lectures on deaf culture, Amaré had told them about the 'Deaf President Now' event at Gallaudet University in the United States of America, in 1988. The Bissau deaf leaders' initiatives included meetings with deaf students (in Figure 27), parents and teachers to explain their unrest, the distribution of a manifesto, and the organisation of a protest march in March 2013 involving hundreds of deaf students.



**Figure 27.** Meeting with deaf students to prepare the 2013 protest march (picture taken by Amaré Soares)

In retaliation, the school administration posted a list with 95 names of deaf students on the outside wall of the AS-GB at the beginning of the school year in October 2013. Those deaf students had participated in the protest march and were, for that reason and from then on, considered unwelcome at the ENS. After several unsuccessful attempts to solve the problems through dialogue, Amaré Soares finally filed a complaint with the public prosecutor's office against AS-GB in December 2013. Some months later, in May 2014, deaf people became restless due to the delay of the public prosecutor's office in launching the investigation and organised a vigil where they all wore black (in Figure 28a). They wore black again in the last trial session in 2021 to highlight the discrimination they endured (in Figure 28b during the clarification session after the trial).



**Figure 28.** Vigil in front of the Public Prosecutor’s Office in May 2014 (a) and during a clarification session at the Mariposa school after the last trial in 2022 (b)

The fact that the deaf students came together under a common purpose, driven by a will to fight for what they believed, strengthened the community’s sense of unity. They end up construing a narrative around the same concepts, which can be exemplified through some of the common signs used in the interviews collected in 2022: “For wanting to rise against DISCRIMINATION (Figure 29a), CONSTRAINT (Figure 29b), and a SIGN NOTHING attitude (Figure 29c), they matured their own OPINIONS (Figure 29d). Because they felt STRONG (Figure 29e) for being TOGETHER (Figure 29f) as GROUP ONE (Figure 29g), they joined in a memorable protest (Figure 29h) march (Figure 29i). As a result, they sensed that they had become FREE (Figure 29j) and IMPROVED as individuals (Figure 29k).”



**Figure 29.** Key signs in deaf people's discourses about their uprising: DISCRIMINATION (a), CONSTRAIN (b), SIGN NOTHING (c), OPINION (d), STRONG I, TOGETHER (f), GROUP ONE (g), PROTEST (h), MARCH (i), FREE (j), IMPROVE (k)

When the school managers replaced the board of the AS-GB in 2014, Amaré left the association and the school for good, joining the large group of deaf students who had been banned. This resulted in a poignant division between those who left and those who stayed at the ENS.

Nonetheless, first and foremost, they consider all deaf people as brothers and sisters belonging together if they had not been the victims of a bigoted situation led by certain hearing people. These hearing people, they say, go so far as to forbid the members of both groups from being friends with or dating each other. Critically, such division into two groups persists to this day and is fundamental to understanding the community's current dynamics.

#### *2.5.3.4 Meeting spaces*

Having lost their main 'territory', the school, the outcast group started meeting every Sunday and then daily at Amaré's house. At the end of 2014, Amaré suggested that meetings be rotated between deaf people's homes and were held outside so families and neighbours could see them signing. Marta and I experienced such a strong stance – to be seen by everyone – on one occasion in 2018 when we went out in the evening with a group of deaf leaders. Because we were a large group, finding a bar where we could all sit together was problematic. When we finally found one, the owner suggested we sit at the back, but the deaf refused immediately and insisted on sitting in the front, again to be widely visible as deaf signers.

From 2015 to the present day, a different public place in front of a deaf person's house was picked every Sunday afternoon (approximately between 4 and 8 p.m.), following a list with the names of the deaf participants, to make themselves and the sign language more visible to the hearing people in the neighbourhoods (in Figure 30). Because meetings typically end after sundown, most deaf participants are older than 17

years old, which is when they can go home by themselves in the dark. These meetings were organised by the five deaf leaders known as the ‘A’ list, who had headed the movement against the ENS administration. From 2015 onwards, they were further supported by a ‘B’ group of five other deaf people. Their primary motivation was to keep deaf people informed about everyday issues since they no longer had a school to go to.

The meetings, shaped naturally in a big circle, have assigned moderators, spokespeople, and even a sort of ‘audience behaviour controller’. The moderator indicates whose turn it is to come and speak to the audience. Each meeting usually focuses on a specific topic, covering health issues, family matters, politics, women’s rights, proper behaviour, community work, etc. However, those that I witnessed brought about funny stories as well. At the end of the meetings, the women take on the responsibility of serving the participants lemonade. They are open to everyone from both schools, and the attendance depends significantly on the topic. The ones I attended during my field trips had an average of 20 participants per meeting and were gender balanced.



**Figure 30.** Sunday gatherings in rotating deaf people’s houses in Bissau neighbourhoods: Bandim in 2017 (picture taken by Lamarana Baldé) (a), and Mindará in 2022 (b)

The traditions of these meetings are gently instilled in the younger generation. For example, in 2022, I witnessed a meeting in front of the house of a deaf girl, Clarice, and her older deaf sister. At some point, she was called to take the floor and sign to everyone there. However, she was so nervous that one of the deaf male leaders promptly went to her side and explained what she had to say: to greet everyone, thank the house's owner, and welcome me – the outsider. Warmly, when another young girl took the floor, Clarice readily stood up to help her out.

Concurrently, from 2015 onwards, deaf people began meeting in their neighbourhoods in the evenings (approximately between 7 p.m. and midnight), regardless of school. These smaller groups of friends living near each other meet daily after work in a more relaxed mood, telling stories and jokes and sharing different information. All groups have different sign names given by the local deaf neighbours, and, usually, they are established in lighted places. The first one to be created and, so far, the largest is located at the Bandim market next to a bread stand (Figure 31a), thus designated as BREAD. Here, they have lively conversations late into every night (in Figure 31b).

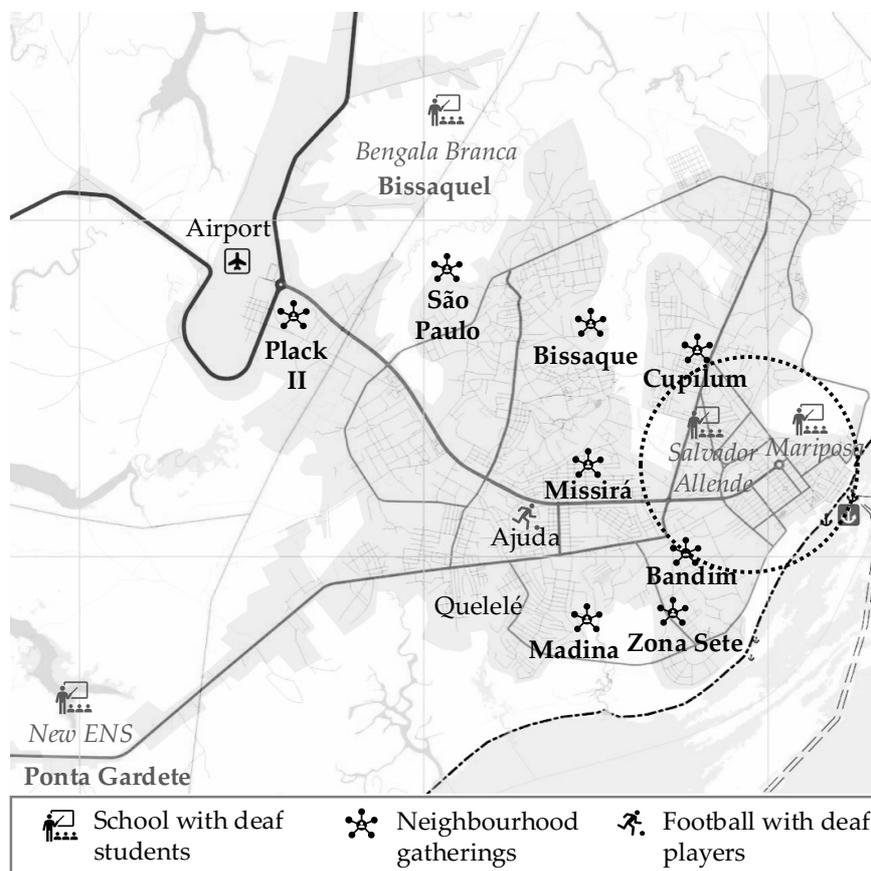


**Figure 31.** Night gatherings at the Bandim market near the bread stand (a) of a group of deaf people living in the neighbourhood, the BREAD group (b) in 2024

After the BREAD group, in the Bandim neighbourhood, other gatherings popped up all over the city: in Zona Sete (CHAPA<sup>19</sup>), Madina (CEMENT-BRICK), Missirá (LIGHT), Cupilum (TALKING-HAND), Bissaque (the only one that does not have a specific sign name), São Paulo (MECHANIC), and Plack II (AIRPORT), as shown in Figure 32. These groups take in deaf people from both schools and are overwhelmingly male-dominated. The few women attending the night gatherings are someone's girlfriend or the rare ones leading more independent lives. In general, families do not let young women go out at night because of the risk of sexual abuse.

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<sup>19</sup> The meeting place takes place in front of a metal workshop called 'chapa' (meaning 'metal' in Portuguese). Therefore, deaf people labelled it CHAPA, including when referring to it in writing. However, the sign they use corresponds to the sign name of a deaf man living in the area and not to 'metal'.



**Figure 32.** Map of the locations of the night meeting places in Bissau with the city centre within a circle: Bandim (BREAD), Zona Sete (CHAPA), Madina (CEMENT-BRICK), Missirá (LIGHT), Cupilum (TALKING-HAND), Bissaque, São Paulo (MECHANIC), Plack II (AIRPORT) (road map in ONU-Habitat 2019, 23)

As the gatherings on Sundays and evenings gained more space in the social lives of deaf people in Bissau, deaf women began to claim a place of their own. With that in mind, in 2016, a small group of deaf women, led by Mariama Faty and four others, started meeting on Saturday afternoons. While following the same system as the Sunday meetings,

such as rotating houses and gathering outside to be seen (in Figures 33a and 33b), they plan their gatherings with a specific agenda covering topics that affect them. They are primarily concerned with providing women with a safe space. Besides sharing relevant information, deaf women gather to carry out different activities of interest together, such as making clothes.



**Figure 33.** Women's gatherings on Saturday afternoons in rotating houses in Bissau's neighbourhoods: Bissaque in 2022 (a) and Bairro Militar in 2024 (b)

When the women's group was first created, it included deaf women from both schools. However, due to quarrels, some women, mainly from the ENS, left the group meetings and the group on WhatsApp and started gathering more informally elsewhere (Figure 34a).

Deaf people from the Mariposa school meet daily during school periods or the holidays. Typically, some of the women prepare a daily meal for everybody. They do the groceries, cook, serve the food to the men around 4 p.m., and then do the dishes. Lastly, they eat separately. During this whole time, men chat with each other.

Meanwhile, when the four deaf instructors from the ENS returned from their internship in Lisbon in July 2017, they started organising meetings twice a week while on school breaks, on Wednesdays and Saturdays,<sup>20</sup> from 3 p.m. on, at the school's former premises. This corresponds to one of the blocks of the Salvador Allende public school in the city centre, which remained available for ENS use. During school periods, they meet on Saturdays alone. Here, they have four organisers: two deaf young men and two deaf young women. Of these, two are instructors, one is an assistant, and one girl is a student. They say they 'teach' the deaf participants. For instance, when witnessing one of their gatherings in 2022, they explained what yellow fever was since a deaf student had recently died of it (Figure 34b).



**Figure 34.** Saturday afternoon gatherings of the ENS deaf people in an informal women's gathering (picture taken by Lamarana Baldé) (a), and at the public school Salvador Allende (b), in 2022

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<sup>20</sup> They claim to have been inspired by the meetings organised by the Portuguese Deaf Association, aiming at older deaf people on Wednesdays and for everybody on Saturdays.

Because the ENS offers rice to the participants at the gatherings, the deaf people from the Mariposa school do not want to join in. Also, similar to what the deaf do at the Mariposa school, the deaf from the ENS make an individual monetary contribution to the food (usually fish and some seasoning). It is worth noting that contributing small amounts of money for a shared purpose is not limited to food. In fact, following a practice usually carried out by Muslims, as explained by Amaré, the deaf people at the Mariposa also began to contribute to a 'solidarity box'. Here, the aim is mainly to help a deaf person who gets sick and does not have a supportive family.

Every year, special dates are habitually celebrated as a group, such as holidays (e.g., New Year, Carnival...) and community celebrations (e.g., International Week of the Deaf, the anniversary of the association and of the school). While the Mariposa/Deaf Youth Centre (*Centro de Jovens Surdos, CJS*) tend to plan more party-like gatherings and awareness sessions for deaf people, the ENS/AS-GB typically organise events where the deaf children perform for mixed audiences of deaf and hearing people. In such contexts, the ENS students often present theatre plays and have participated in the city's school parade during the Carnival since 2016 (Figure 35a). Deaf women of both groups also enjoy catwalking in the clothes they make themselves on those special occasions (Figure 35b).



**Figure 35. Gatherings on special occasions:** ENS students at the city's school parade during Carnival in 2017 (a) (picture taken by Amílcar Furtado), and deaf women from the CJS catwalking for the HANDS! Festival<sup>21</sup> in 2021 (b)

Apart from these regular meetings, deaf people get together whenever possible for special occasions, such as birthdays and funerals. For instance, on her most recent field trip in January 2024, Marta arrived when Altair 'Daio' Gomes da Silva died. This young deaf man had spent three months in Portugal in 2008 as a young boy to take pictures for the first LGG dictionary. As a very popular deaf person, his three-day funeral drew in many deaf people (Marta estimated between 100 and 200 people). Jointly, they raised money at the harbour, where Daio worked, to buy food for the family to give at the three-day memorial gathering. At that ceremony, local cultural norms dictate that deaf men (in Figure 36a) and women (in Figure 36b) gather in separate groups.

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<sup>21</sup> Online festival of deaf African artists organised by Leiden University in 2021, available on YouTube <https://www.youtube.com/watch?v=F-iR1gLgHfw> (accessed 03-04-2024).



**Figure 36.** Funeral of a well-known deaf man, Altair Gomes da Silva, where deaf men (a) and deaf women (b) gather separately in 2024

Additionally, deaf people participate in political activities, such as campaigning for the major party, the PAIGC (African Party for the Independence of Guinea and Cape Verde). In 2019, deaf people from both schools did it together, but when they got paid, they disagreed on what to do with the money, which further set the groups apart.

In sum, outside the school context, and irrespective of school affiliations, deaf people meet in the evenings in their neighbourhoods and on the weekends under various pretexts. Other than these, working deaf people, especially men, tend to work together in fish-related activities or construction.

#### 2.5.3.5 Football

In Bissau, football has been the most successful of all sports in bringing deaf people together. They have played regularly since the beginning, first on Fridays, the free-activity day at the ENS, and later on Saturday afternoons, in both the field and indoors. During the 2018 field trip, the team from the Mariposa school was using the football field 'Lino

Correia' in the city centre (Figures 37a, 37b, 37c). They later began training at the College of Physical Education and Sport in the neighbourhood of Ajuda, where the ENS had been for a long time. Here, the ENS practices indoors (see Figure 37d) and the Mariposa in the field outside, under different schedules (the first begins at noon and the second at 4 p.m.), preventing running into each other, though sometimes they do and greet each other. Also, in 2018, the Mariposa group had a female team (Figure 37c), which unfortunately did not last.



**Figure 37.** Deaf people playing football, in a field, where some chat on the benches (b), and where there is a male (c) and a female team (d), in 2018, and indoors (a)

When talking to some of the older deaf instructors from the ENS who also play football, they argue that football was another reason for disagreement between the two groups. They recall that when they were still playing together, they had a dispute about who their trainer should be, and, as they could not reach an understanding, they also split up in the football activity in 2016. In a meeting between leaders of both schools, which I witnessed in 2022, they argued that the most significant point of contention was precisely football. Nonetheless, at least on that occasion, they wished to set up a match between both teams.

Currently, the team from the Mariposa school is open to members of the ENS, unlike the ENS team. The Mariposa deaf feel that the ENS administrators have implicitly prohibited them from organising matches between both teams. Also, the Mariposa team, called 'Deaf Football Club', is fully deaf-led, while the ENS group is managed by a hearing administrator and trained by hearing teachers of physical education. The ENS football players are divided into four indoor football teams of five players ('ENS', 'AS-GB', 'Deaf Futsal' and 'Deaf Youth') who sometimes play against each other.

Another distinction concerns the context in which they play with other teams. The ENS plays under the Federation of Sports for the Disabled (*Federação de Desporto para Deficientes*). This has made their participation at the annual sub-regional beach football competition in Ziguinchor, Senegal, near the border possible. Thus, since 2014 (except during the COVID lockdown in 2019 and 2020), they have played with the deaf football teams of Senegal and The Gambia. In contrast, the Mariposa team plays within the city competition against hearing teams from different neighbourhoods. Very seldom do ENS football players join the city competition.

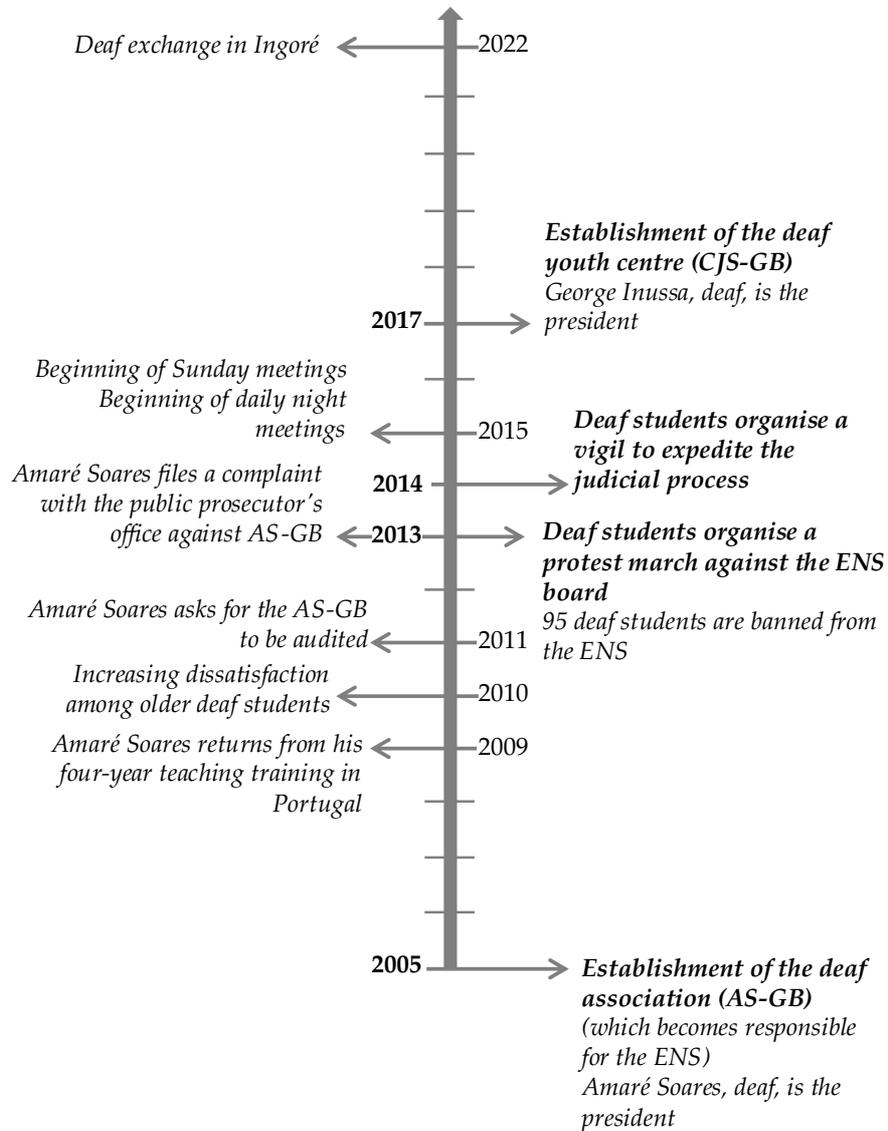
### 2.5.3.6 Deaf Youth Centre (CJS)

As the deaf movement grew more robust and more organised, the 'A' list, active since 2010, and the 'B' list, since 2015, set out to create a new association of the deaf in 2017 focused on the youth, which was designated as *Centro de Jovens Surdos*, CJS (meaning 'Deaf Youth Centre'). These two lists became, respectively, the formal executive and meeting boards of the CJS. Later, they created a regional secretariat responsible for activity dissemination. Officially located at the Mariposa building, where the board and the different groups meet on weekends, the CJS took over the organisation of the Sunday meetings, the women's group (currently with nine deaf women in charge), and the football team.

A major initiative by the CJS was to reach out to deaf people in other parts of the country. In this context, they created regional circles like the one covering Bissorã, Bula, and Ingoré. Right before my 2022 field trip, they had just organised a one-week exchange in Ingoré between deaf people from Bissau, Bula and Ingoré, where the CJS board gave informative lectures about deaf people in the world, the political situation in Guinea-Bissau and the CJS mission. Besides these sessions, there was a modelling show and football games.

The Ingoré exchange was the main topic at the women's and the Sunday meetings that occurred afterwards. They talked about how good it was to be together, how they needed their help to stop being abused by their families and gain more autonomy, and how important it is to keep connecting with deaf people from other parts of the country.

To provide an overview of key events that changed the social dynamics in the deaf community, Figure 38 summarises the development of the internal organisation of the deaf movement in Bissau.



**Figure 38. Chronology of relevant events concerning the deaf community's organisation in Bissau (with most relevant initiatives in bold)**

### 2.5.3.7 *Social media networks*

An increasing number of deaf people have smartphones, which they often use to look at short videos on Facebook, Instagram, and TikTok. They also have different groups on WhatsApp. For instance, one about the Sunday meetings, fishing, for women, per class, school, and the football team. When I asked about this in 2022, I was told that the largest WhatsApp group, called 'deaf family of Guinea-Bissau', had 67 members. In 2025, I joined another group called 'families are deaf' with 106 members.

Messages consist mainly of LGG videos and various GIF animations. The few written texts are primarily in Portuguese, but also Creole. Importantly, deaf people with smartphones often look for places with free wi-fi to hang out. This is very evident around the administration office at the new ENS. The ENS deaf – mostly the instructors – are frequently criticised by the Mariposa group for being all the time with their heads on the phone. Despite such regular use of social networks, a handful of deaf people still do not have mobile phones.

### 2.5.3.8 *Deaf families*

In Bissau, there are very few cases of deaf families; that is, families with multiple deaf members. On our second field trip in 2006, we met a deaf young man who told us he had a deaf mother and siblings. Sadly, he died in the meantime, but his sister had a deaf child with her deaf boyfriend while studying at the ENS back in 2017. Since then, I have only identified a handful of deaf siblings. For instance, one of the deaf instructors at the ENS, originally from the Bijagos islands, has two deaf siblings, one of them much older. In Bissau, I met two deaf brothers, two deaf sisters, a deaf brother and sister and three deaf brothers. In Ingoré, I was told in 2022 that there were also three deaf brothers. All of these were still very young.

### 2.5.3.9 *Deaf outsiders*

Apart from deaf people meeting each other at school at some point in their lives, other deaf people never went to school but run into one another in the city. In other words, deaf individuals who have not entered the community via school end up being identified by chance by other deaf people in the city's frenzy. Once identified, signed contacts between them are likely to occur repeatedly. Thus, even if they do not participate actively in the regular meetings and spaces of the community, they eventually make themselves known. Importantly, communication is expected to flow, and a strong sense of likelihood brings them together. For instance, there is one older deaf man, around 60 years old, who works as a security guard at a vocational school on one of the major avenues in Bissau. Whenever deaf young people pass by, he comes out and chats with them (as I witnessed in 2022) using LGG signs – which also exist as gestures – or he joins them briefly at the BREAD night gatherings (as Marta Morgado witnessed in 2024).

All in all, deaf people in Bissau have set up different meeting spaces, allowing them to choose the type of people, topics and meeting style they identify with most. In this way, they have built a network among deaf people, where, in case of need, especially in sickness, they can promptly step in and offer the necessary support to one another. However, deaf people of different cities hardly meet with each other, except on the odd occasions when a deaf sign language instructor visits for short training courses targeted at hearing teachers and, more recently, in CJS initiatives. Hence, it is challenging to acknowledge LGG as a national language.

### 2.5.4 Contact languages

I focus next on language contacts shaping the emergence of LGG. These naturally occur with surrounding languages or culturally

ingrained ways of communication. It can also be the case when deaf people from the Guinean community interact with varying levels of intensity with foreign sign languages.

When deaf people come together, conditions are created for a sign language to emerge. Of course, all contexts have their particularities. Crucially, the acceptance of communicating manually determines the kind of basis that is available to deaf people. Also, how language contacts occur may influence how a new language is shaped. Notably, the mindset with which people take in – or not – external influences matters most. In this subsection, I refer to examples of gesture use by hearing people – as I witnessed them – and of sign loans in LGG – as acknowledged by deaf signers.

Before explaining the aspects that give us a rough idea of what LGG consists of, I have to go back to Amaré Soares as a key figure in the maturation of the local deaf community and its sign language. As an influential figure in Bissau, did his own language experience in Portugal affect LGG? Before leaving for his four-year training in Portugal, he was already part of a small group of deaf people meeting daily in his neighbourhood using still rudimentary communication based on gestures. He was also a multilingual, deaf young man fluent in Creole, Portuguese, English, and the local sign language. Hence, he had no trouble picking up Portuguese Sign Language (LGP). At the sign language teacher's training run by the Portuguese Deaf Association, he learned how to teach sign language, as well as sign linguistics and deaf culture, among other subjects. While his Cape Verdean colleague used LGP in her homeland<sup>22</sup> and was thus taught in the same way as the Portuguese deaf students, Amaré's case was dealt with more caution.

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<sup>22</sup> The sign language used in Cape Verde is historically rooted in LGP since deaf people were gathered in an educational setting in Santiago Island for the first time in 1997.

The deaf instructors at the Portuguese Deaf Association course were sensitive in guiding Amaré in the necessary adaptations of his academic learning to his cultural reality and, crucially, his sign language.

Although Amaré was always careful about keeping LGP from interfering with LGG, it is undeniable that he had acquired a whole lot of knowledge about sign linguistics and the deaf world. Since his return in 2009, he applied what he knew to the emerging LGG. When signs had to be created now and then in the new language, he avoided introducing LGP signs. While lexical loans can be relatively easy to identify, the underlying grammatical structure is not as easy to judge as being borrowed or not. Therefore, and at least in this thesis, I cannot assess the extent – if any – of Amaré’s influence on LGG grammar. What I can say is that, as a deaf leader, he has had an undeniable impact on the community and the language.

#### 2.5.4.1 *Gesture use*

The story of deaf people in Guinea-Bissau is intrinsically linked to communication with gestures. As suggested by a hearing teacher in 2022, hearing people all over Guinea-Bissau, from all ethnic groups, seem to naturally rely on gestures to communicate with the deaf (and probably among themselves as well). Deaf people promptly let the hearing know that they HEAR NO, to which the hearing adapt without hesitation, either by gesturing or by switching into a visual mode. Marta also observed in 2024, however, that while deaf men efficiently use gestures with the hearing, women tend to use speech instead. In addition, as a deaf person, her experience was that hearing people seemed to use more gestures during her earlier visits to Bissau than they do now, and they do more in Ingoré than in Bissau.

In 2022, I witnessed some interactions between hearing and deaf people that occurred naturally, even if at a basic level. When visiting deaf

fishermen at the harbour, I observed that the communication between deaf and hearing co-workers went smoothly, as well as during the selling of the fish. Also, on the *toca-toca* (local minibus) journey to the harbour, a hearing woman started chatting with the deaf man beside me since she was acquainted with him. She asked him about me and seemed to understand his signed explanations. They then talked about an accident that had occurred a few days earlier involving the collapse of a tower in the fish market. It looked like an easy and ordinary conversation carried out solely through gestures.

To give another example of such interactions between hearing and deaf people, one day at the Mariposa school, a hearing man holding a scale approached a group of deaf young people chatting outside. He asked them if they wanted to be weighed by resorting to pointing and facial clues. The deaf person asked for the price, and he replied with the gesture for 'little', which corresponds to the sign 25-FCFA. After a couple of them used the scale, they teased that the biggest one of the deaf would also get weighed. At this point, the hearing man responded with REFUSE by beating the elbow against the side of his body with his arm bent (in Figure 77).

Of course, deaf people experience hearing people talking to them in very different ways, depending on several factors, including whether they are outgoing and chatty or more reserved. When walking around with one of the deaf girls while she was hawking, I was impressed with the number of people talking to her along the way. Many hearing people called out her name, greeted her, asked about her family and what she was selling, always playfully. People talked while gesturing, to which she responded in the same way. Notably, she established cheerful and circumstantial conversations with multiple people uninhibitedly.

I experienced such gestural communication in 2022 while walking side by side with a hearing lady who started chatting with me in Creole. Since I could only reply in Portuguese, which she did not understand, she readily switched to gestures to tell me that her MAN SICK HOSPITAL DAYS, that her HOME FAR and her CHILDREN stayed THERE. All of these gestures I recognised as equivalent to LGG signs.

Knowing that West Africa, in particular, seems to be a gesture-prone region (Nyst 2010a; Nyst et al. 2012), one might expect that scattered deaf people communicate with the hearing people based on local gestures. In addition, it is possible to assume that this communication varies geographically depending on the intensity with which deaf people communicate with each other, as is the case in the capital's neighbourhoods and villages.

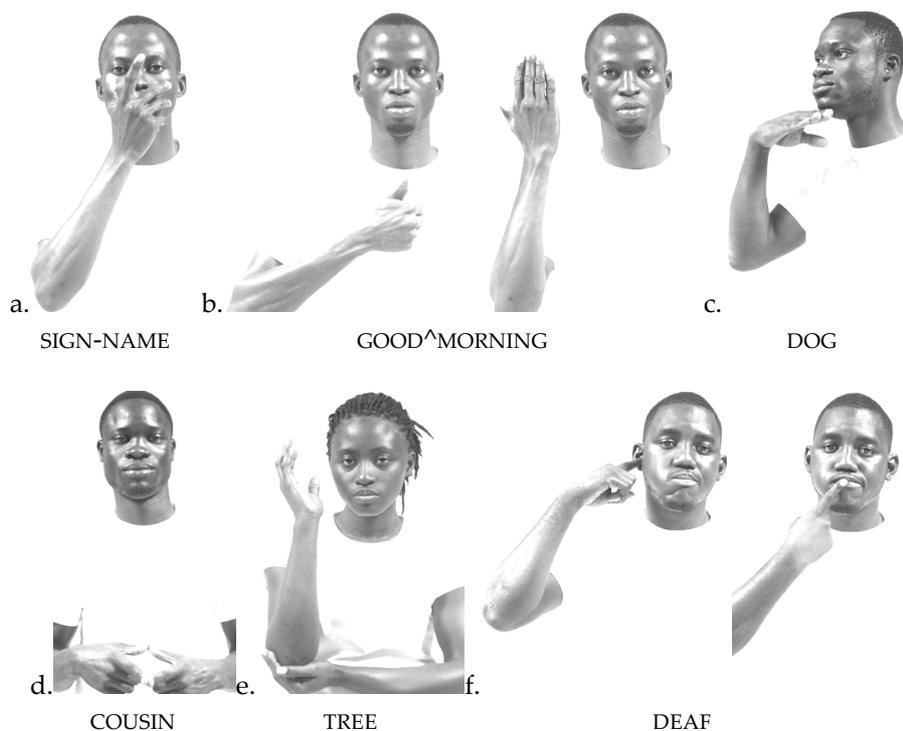
#### 2.5.4.2 *Contact with LGP*

At the beginning of 2005, the school director and president of the association of blind people, Manuel Lopes, accompanied by his then secretary, José Augusto Lopes, visited the Portuguese Deaf Association. At that meeting, they asked for support for the education of deaf children, reaching out to the school for the blind. On that occasion, they returned to Bissau with a poster with the Portuguese Sign Language (*Língua Gestual Portuguesa* – LGP) alphabet and an LGP dictionary. With these materials in hand, the school started using the Portuguese manual alphabet, and the teachers tried to introduce some of the LGP signs from the printed dictionary. However, at the first teacher's training in July 2005, teachers were advised to rely on the signs that deaf people were already using instead of on LGP. At the time, Marta and I explained to them that the deaf created signs according to their cultural circumstances. Glaring examples were signs for the weekdays and months in LGP that, based respectively on boarding school habits and climate

properties, made no sense in Guinea-Bissau. Thus, signs would be more natural to the deaf if of local origin. Such an argument quickly convinced the teachers in a land where cultural diversity is deeply valued. Nevertheless, other public schools in the country receiving deaf students were drawn to LGP. To avoid this, the National School for the Deaf in Bissau invested in a sign language dictionary.

Besides the manual alphabet brought from Portugal, we inadvertently introduced SIGN-NAME (Figure 39a) from LGP at the first teacher's training in 2005. We saw that deaf people, in their informal interactions, used sign names for individuals but not a specific sign to designate the concept of sign name per se. So, to show the teachers the students' creative potential, we referred precisely to their sign names, SIGN-NAME, which is based in LGP on the sign for 'face' and pointing. Also, after the teachers attempted to apply the LGP dictionary, the only sign that stuck into deaf people's daily use was GOOD^MORNING (Figure 39b). In addition, one of the deaf instructors of the ENS who had done a short internship in Portugal suggested that there were a few other LGP loans, namely DOG (Figure 39c), COUSIN (Figure 39d), TREE (Figure 39e), DEAF (Figure 39f), and HAVE1. The borrowing of TREE and DEAF could be questioned since they are also found in other sign languages, like ASL.

Similarly, HAVE1 has been argued as being derived from the act of pointing. Thus, aside from the first two, whose influence I witnessed, the remaining are debatable. In any case, these six signs are the only potential LGP loans identified so far.



**Figure 39.** LGG signs that are likely loans from LGP: SIGN-NAME (a), GOOD^MORNING (b), DOG (c), COUSIN (d), TREE (e) and DEAF (f)

Other schools in Guinea-Bissau were not as aware of avoiding LGP and making the most out of the autochthonous signs used by deaf children. Despite several awareness sessions and handing over of the 2008 and 2017 dictionaries, a Dutch Christian missionary believed that LGP would be a more pragmatic option. Holding on to such an idea, he has been applying it from an LGP dictionary in the schools he has been passing by. He was first in Bula, followed by Bissorã and finally Ingoré from 2016 on. The local deaf leader and regional representative of the CJS clarified to Marta in 2024 that before the missionary arrived, the deaf were using local signs, at least since the school first started in Ingoré in 2011. The Dutch missionary justified his decision to Amaré

by saying that LGP should be used because Portuguese was the country's official language. In contrast, LGG would correspond to Creole spoken on the streets.

During her visit to Ingoré in 2024, Marta observed that deaf students were using a 'broken' LGP, i.e., unsmooth signs copied from static picture frames mixed with local gestures. In truth, they communicated mainly in LGG, saying that it felt better since it was similar to what they used at home with their family and neighbours. Currently, since the CJS established regular contact with deaf people from Ingoré, LGG has been successfully promoted among the deaf in that region.

Considering the several contacts that deaf people from Bissau had with LGP, the number of loans is relatively small. First, Marta and I visited early on. Second, Amaré became fluent in LGP during his four years of training at the Portuguese Deaf Association between 2005 and 2009. After that extended period, he visited Portugal in 2012, 2015 and 2017. In addition, five deaf people moved to Portugal (as far as I am aware), maintaining regular contact with the local deaf community, and two eventually returned. Six other deaf people stayed in Portugal for a few months and came back. There is also a deaf Guinean who grew up in Portugal and moved to Bissau as a teenager. With all these deaf people, proud users of unmodified LGG, it is still possible to have a perfectly normal conversation in LGP. In other words, they have become proficient in the two sign languages.

In addition to Guinean people having contact with LGP, there have been deaf Portuguese visiting Bissau. When I went with Marta Morgado, Abubacar Turé (a Guinean child who grew up in Portugal) or Amílcar Furtado, we naturally used LGP between us. Because Amílcar has family in Bissau and has developed a deep connection with the local deaf community, he has returned for holidays a few times a year since 2017 (after we went together to work on the dictionary). On-site,

he only uses LGG, including in the training sessions he has been delivering about general issues, such as the rights of deaf people and women. He also took a Portuguese deaf friend with him a couple of times. Before that, another deaf Portuguese person had done a short training for the ENS teachers in 2016.

#### *2.5.4.3 Contact with foreign sign languages*

Deaf people in Bissau feel very strongly about their sign language and make a point of maintaining its originality. This attitude becomes evident when they take in deaf immigrants, as is the case with two Gambian men. One of them (whom I met in 2022) moved to Bissau as a teenager and quickly picked up LGG to integrate into the local deaf community. Also, in 2024, Marta encountered a deaf woman who had immigrated recently from Mali. She was making a considerable effort to use LGG and was praised for it at one of the women's gatherings. To illustrate deaf people's dismissive attitude toward foreign signs, I refer to one occasion when Marta was talking to a recently-immigrated deaf woman in her ASL-based sign language, and some of the deaf interrupted them after a while to ask them to switch to LGG. Before such pride in LGG took root in the community, Marta and I noticed, in 2008, that some of the deaf were using the ASL signs: FATHER, MOTHER, BOY, and GIRL. When asked about it, they told us that a deaf woman had moved to Bissau from Senegal and was imposing her signs on them, saying they were 'better'. This topic came up in a classroom after receiving the new LGG dictionary. The teacher responded by explaining that those signs were American and that LGG had their own signs for those concepts (in Figure 40a). The students reacted with relief and reclaimed the signs that were theirs (in Figure 40b). Thus, even though deaf people are familiar with other sign languages, at present they consciously choose not to adopt foreign signs.



**Figure 40.** Hearing teacher at the ENS explaining that the ASL signs for FATHER, MOTHER, BOY and GIRL did not need to be used (a), and a student reacting by saying that the LGG sign MAN was better (b) in 2008

Of all the deaf in Bissau, Amaré was the most experienced in international contacts. Apart from his immersion in LGP, he went to Rio de Janeiro, Brazil, twice in 2013, where he was exposed to Libras (Brazilian Sign Language), first at an international conference organised by the National Institute of Deaf Education (INES), where he had LGP interpretation, and then at a meeting led by the students' group (GINES), where he relied on fingerspelling. Nonetheless, he was able to grasp a bit of Libras.

In the African context, he went to Senegal twice in 2016: to Ziguinchor (near the border with Guinea-Bissau) with a deaf friend and to Dakar, where he met local deaf people. A crucial international experience for him occurred later, in 2019, when he participated in the African School of Deaf Studies, a joint organisation of the Universities of Leiden, the Netherlands, and Legon, Ghana. The latter hosted representatives of eleven African countries. Besides Ghana and Guinea-Bissau, represented by Amaré, there were deaf academics from Mali, Ivory Coast,

Burkina Faso, Nigeria, Chad, Ethiopia, Kenya, Burundi, and South Africa. A conference was organised during this event, and about 30 deaf people from the village of Adamorobe in Ghana were invited to come (Morgado 2024, 62). On that occasion, Amaré told Marta Morgado, who was teaching at the School for African Deaf Academics, that from the different deaf people he encountered, he felt it was easiest to communicate with those from Adamorobe. The difference to him was that the agreed (international) communication between the deaf academics was much based on American Sign Language, with which he was unfamiliar. In contrast, he said, the deaf from Adamorobe were using signs that he found very similar to LGG, probably because they were based on a shared gestural substrate.

At the ENS, only one deaf instructor had the opportunity to attend an international meeting in Conakry about sexually transmitted diseases and sexual abuse. He struggled to understand the deaf from 14 other African countries since most sign languages were ASL-based, and felt more at ease with the interpreter from Cape Verde using LGP. Even though Guinea-Bissau and Cape Verde have a close historical and cultural relationship, deaf people of both countries (Figure 41) established online contact on only one occasion: the World Congress of African Linguistics, organised by Leiden University in 2021.



**Figure 41.** Zoom meeting between deaf people from Bissau (a) and Santiago Island, Cape Verde (b), during WOCAL in 2021

Still at the ENS, recall that the football team has been participating since 2014 in an annual beach football competition with Senegal (in Figure 42a) and The Gambia teams. Also, in 2024, Marta witnessed the first visit of deaf students from The Gambia to Bissau (in Figure 42b).



**Figure 42.** Match between the ENS and the Senegal team at the beach football competition in Ziguinchor in 2022 (a), and visit from the deaf school from the Gambia to the ENS in 2024 (b)

Deaf people have had several football competitions with neighbouring countries, namely Senegal and The Gambia. In addition, they are sometimes visited by deaf people, especially from Senegal, Mali and Guinea-Conakry. This makes them aware of the surrounding sign languages, which are highly influenced by ASL and thus very different from LGG. They recognise this and are curious about it, but have not shown an interest (or need) in adopting foreign signs.

Moreover, most deaf people have cellular phones with internet and are regular users of social networks, like Facebook, which increases their exposure to other sign languages. This is not only the case in Bissau (in

Figure 43a), but also in Ingoré (in Figure 43b). However, all of these contacts have not influenced (yet) the autochthonous sign language of Bissau (Morgado 2024, 94).



**Figure 43.** Deaf people using mobile phones at the Mariposa school (a) and in Ingoré, where a hearing woman, on the left, is also on the phone (b) in 2024

#### 2.5.4.4 *Contact with spoken languages*

Before exploring the influences of spoken languages in LGG, it is essential to understand what languages are used locally around deaf people.

Most people from all ethnic groups in Guinea-Bissau consider their ethnic language their primary language (INE 2009a, 32). Along with such multilingualism, the majority of the population (90%) is fluent in Creole (INE 2009a, 36). This widespread use justifies its use in mass media (Embaló 2008, 104–105). Although Portuguese is the official language in official documents and education, less than a third (27%) of the population speaks it. Under this scenario, people use Portuguese-

based Creole in classrooms and public administration (Kohl 2018, 163–167).

That said, deaf people have access to written Portuguese mainly through education and to spoken Creole in their social interactions with hearing people. They are also likely to be exposed to other spoken ethnic languages, especially in their homes. Importantly, a number of deaf people have some hearing or became deaf after acquiring speech.

Thus, influences of spoken languages in LGG, even if minimal, should also be considered. Out of the 1100 signs identified in 2017, there are only 13 signs that include a fingerspelled letter of the corresponding word in written language. Such an initialisation reflecting the influence of Portuguese, the school language, manifests in four school-related signs (TIME<sup>H</sup> ‘schedule’ [*h*>*orário*]; T<sup>ROUND</sup> ‘class’ [*t*>*urma*]; F ‘absent’ [*f*>*alta*]; and P ‘<P>ortuguese (language)’), and four designations for more distant relatives (MAN / WOMAN<sup>T</sup>ADULT ‘uncle / aunt’ [*t*>*io/a*]; and MAN / WOMAN<sup>S</sup>CHILD ‘nephew / niece’ [*s*>*obrinho/a*]). Other words with fingerspelling initialisation are used equally in Portuguese and Creole, namely in four locations (B<sup>VALLEY</sup> ‘<B>andim’; C-M ‘<C>untum-<M>adina’; B-M ‘<B>airro-<M>ilitar’; and I ‘<I>ngoré’) and for the local currency (MONEY<sup>F</sup> ‘<F>ranc cfa’). Although there is no auditory or speech rehabilitation available in the national health system, some deaf individuals use speech. Overall, they present different hearing impairment levels. The onset of deafness for most people usually occurs in late childhood, i.e., after acquiring speech. In addition, they are generally experienced in everyday communication with hearing people. From my observations, over the years, they show a few mouthings from Creole, usually coupled with signs that are also used by the hearing as gestures, such as YOU+<abo> (the emphatic form of the second person singular), WOMAN+<mama> and MAN+<matchu>. Marta also observed in 2024 that, in general, deaf women use more mouthings than men.

Besides initialised signs and a few cases of mouthing, I have not observed any other influences. However, the data analysed here – mostly based on individual signs recorded on printed dictionaries – does not enable a further exploration of the potential influence of spoken languages on various other grammatical aspects of LGG.

LGG is surrounded by several spoken languages, including at least two written ones, Creole and Portuguese. Although Creole is the most used language in all social domains, families are likely to adopt one of the native languages within the household spoken interactions. The deaf, besides becoming naturally fluent in LGG, are formally taught to write only in Portuguese, which is spoken by less than a third of the population. This results in the lack of a common language between deaf and hearing people, which does not seem to represent an obstacle to their interactions, likely based on gestures.

#### 2.5.5 Contexts of sign language use

After illustrating different contexts of language contact, especially in Bissau, and before a more detailed look at the emerging lexicon of LGG in Chapters 3 and 4, I focus next on the nature and context of sign language use that emerged from the regular meetings between deaf people.

In particular, I focus on the varieties that are emerging from different contexts of communication. I emphasise how information is shared, assuming this has a fundamental role in pushing a language forward. Then, I identify literary uses of LGG, how deaf (and hearing) people have benefited (or not) from its interpretation, and the process that led to its naming as LGG.

#### 2.5.5.1 *Variation*

In terms of dialectal variation, the version that has developed within the larger deaf community of Bissau is the one with the most users. Here, linguistic variants correspond to circles around the two leading schools for the deaf in the city. Apart from the dialectal variation that results from the lack of contact between deaf people of different regions, there seems to be some gender-based variation based on cultural restrictions to socialisation imposed on women.

Language variation based on such gender-based power relations has been demonstrated in LGG, in what concerns the different storytelling abilities of deaf men and women by Morgado (2024). Also, some distinctions may likely develop between the groups of the two leading schools in Bissau since they have different meeting styles. In other words, they have come to use the language differently.

Various factors determine language variation, which is very much dependent on communication contexts and opportunities. Considering the previous description of social gender roles in Guinea-Bissau (in §2.5.1.4), it is essential to take into account how power differences may influence language variation (Eckert 1989). A clear example of such a phenomenon has been observed in a Nigerian village, where men and women have developed distinct lexical repertoires (Betiang 2023; but see the Ubang gender diglossia on Elar<sup>23</sup>)

In sign languages, lexical variation between deaf men and women has been observed as a consequence of gender-segregated education (e.g., LeMaster 1990, in Irish SL; Adam 2017, 87, in Australian Irish SL). Moreover, gendered variation may affect linguistic aspects other than the lexicon. This has been shown for simultaneous constructions and

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<sup>23</sup> <https://www.elararchive.org/dk0492/>

topic constructions in Irish SL by Leeson (2005, 260–261), and the syntactic order of predicates with negative particles in the sign language of Indonesia (*Bahasa Isyarat Indonesia*, BISINDO) by Palfreyman (2019, 238–240).

In a different way, lexical variation between deaf men and women occurs in West African sign languages because of gender-segregated social dynamics, as seen in the description of locally-based sign languages in West Africa (§2.2.1.3). Such communication opportunities favouring deaf men, i.e., rarely attended by their female peers, have been observed in informal afternoon gatherings in Bamako, the capital of Mali (Pinsonneault 1999, 6; Nyst 2008), in Hausaland, in Nigeria (Schmaling 2000, 50), and deaf spaces within Benin’s urban centres (Mildner 2021, 68).

In Bissau, Morgado (2024) identified language variation between genders in the way they structure their narratives. Thus, the fact that deaf women do not participate as much as men in social interactions seems to make them less skilled in storytelling (*ibid.*, 415–416).

Similarly, the social interactions of deaf children and teenagers in LGG are very much limited to the school settings (Figure 44a), showing, in their signing, a high influence of gestures used by the hearing (*ibid.*, 414–415). The large number of deaf children at the ENS benefit from the additional time on the bus ride to and from school to socialise (Figure 44b).



**Figure 44.** Social interaction moments for deaf children at the ENS: during extra-curricular activities on Fridays (a) in 2008, and during bus travelling to and from school (b) in 2018

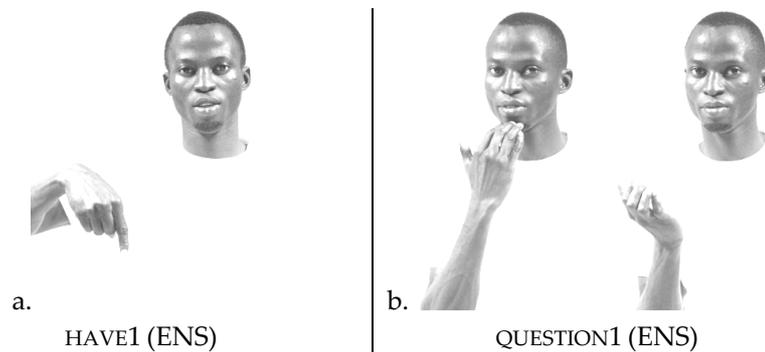
As mentioned previously, women and children in Guinea-Bissau are more restricted to their homes due to the risk of sexual assault. In fact, from our observations, deaf boys and girls of a young age seldom attend the weekend meetings unless they are hosting or live nearby. This is also true for women at night gatherings.

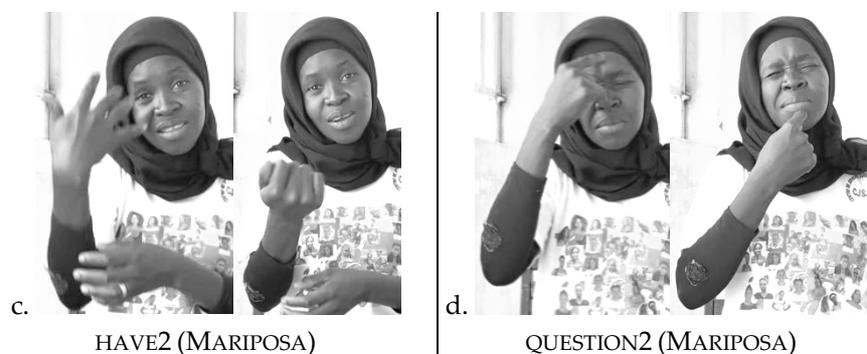
Based on the historical events that set apart two school-based groups in Bissau, one might expect some variation between them, though the predictive conditions are not completely clear. On one hand, grass-roots contacts have been maintained despite the group division; for instance, during Sunday and nighttime gatherings. On the other hand, even if deaf people from the two groups get together now and then outside their schools, the daily contact within groups has run a different course. Deaf people from the Mariposa school meet much more often and in a far more organised manner, likely impacting their LGG. In the present study, I have not been able to assess this.

Sticking to the lexicon, it is possible to identify from our observations, and as documented in the 2017 LGG dictionary, which had the

participation of elements of both groups, lexical variants only for 'have' (Figures 45a, 45b), and 'question' (Figures 45c, 45d). As already mentioned, HAVE1, used at the ENS, is suggested to be an LGP loan, though it could derive from pointing. A very different form is used by the Mariposa deaf, HAVE2, which is similar to the sign from International Sign and British Sign Language. Nonetheless, the deaf there deny it as a borrowing and justify it as being motivated by the act of grabbing something. The sign QUESTION1, used at the ENS, bears some similarities with the LGP sign (in LGG it involves the whole hand, while in LGP it is articulated with the index finger alone), which may raise some doubts about its origin. For that reason, discussions about it remain speculative. At the Mariposa, deaf people created QUESTION2 by tracing the question mark on half of the face.

These two pairs of signs are the examples that the deaf typically give when talking about language variation between the ENS and the Mariposa groups. They turn their respective variants into distinctive identity markers by considering them as the better choice. Of course, there may be additional lexical variants that I overlooked. Moreover, language variation between the two groups may extend to grammatical aspects other than lexical items, which I am not covering here.





**Figure 45.** Lexical variants in different school groups: HAVE1 (a) and QUESTION1 (b) from the ENS, and HAVE2 (c) and QUESTION2 (d) from the Mariposa school

Looking at Guinea-Bissau as a whole, Bissau remains by far the stage for the largest and most vibrant deaf community in the country. The fact that deaf students from other schools in the country seldom meet with the deaf community of Bissau results in regional variants. Amaré told Marta in 2024 that during his successive LGG training courses across the country and over the years, he saw ‘weaker’ variants of local sign languages. Assuming that there is a gestural substrate (as suggested by Nyst 2013a; Nyst & Martins 2022, in West Africa), these regional variants may correspond to less conventionalised degrees in language emergence used by smaller groups of deaf people (Wray & Grace 2007).

#### 2.5.5.2 *Information sharing*

How information is transmitted is very likely decisive for the development of LGG. Not only are the networks built across the different meeting places essential, but Amaré’s role has also been crucial in transmitting knowledge. Even if much of their conversations are playful, telling funny stories and teasing each other, they are moved by the need to

‘teach’ each other, as they say, to take them out of any isolation, to help each other, to make sure they are on the right track.

Amaré explains that he gathers information from multiple (hearing) sources and interprets them to LGG to keep everybody well informed, whether in person or through WhatsApp. This is especially so in the face of distressing events, such as political unrest, where they seek to protect one another. They gather at Amaré’s house and follow the updated news on such occasions. In this way, Amaré represents the primary information provider to the Mariposa deaf, whose example has been followed by a few others. Amaré added that, in every neighbourhood, there is at least one hearing person who befriends the deaf and passes on relevant information. Such information mainly concerns national politics and health issues, but covers many other topics. In the informal conversations that I witnessed at the Mariposa, involving mostly deaf men, they talked, for instance, about the implications of the war in Ukraine on world food distribution and the repercussions of the pandemic.

#### *2.5.5.3 Literary signed forms*

Since Fridays were instituted as the free-activity day at the ENS, theatre plays performed by the students (in Figure 46a) and storytelling became regular expressions in sign language. While the organisation of theatre plays decreased over the years, storytelling became the preferred LGG expression across contexts. On top of this, it is worth noting that, since the beginning, deaf people enjoy signing while marking rhythm, as if dancing and singing in LGG (in Figure 46b). They do it spontaneously for fun between them to this day, as I observed in the Mariposa school (in Figure 46c).



**Figure 46.** Theatre play (a) and singing in LGG (b) by deaf students at the ENS playground in 2008, and singing in LGG by deaf people at the Mariposa school in 2024 (c)

#### 2.5.5.4 Interpretation

There is no professional training for LGG interpreters. Without such formal training, only a few hearing teachers have developed the necessary fluency in the deaf people's language to undertake such a role. In truth, no more than two are considered sufficiently skilled to interpret between deaf and hearing people. These two hearing teachers have been teaching the deaf since 2003. One, Carlos 'Midana' Cabral, moved to the Mariposa school after the fallout, and the other, Osvaldo Indi, remained at the ENS. Although two other male teachers at the ENS have basic skills in LGG, Osvaldo is the only one who is

constantly requested to interpret. This includes formal sessions that are often broadcast on public television.

Besides teaching mathematics and drawing at the Mariposa, Osvaldo interprets when necessary. For instance, he helped the deaf student who had grown up with the blind, Usna, in his vocational training in construction design. In the two years Usna was in mainstream classes, Midana interpreted for him regularly. I should note that, afterwards, Usna got admitted to a university course in civil engineering, where, in the second year, in 2022, he struggled without any support in LGG. The other three deaf men who have taken higher education courses, two in Basic Education and Amaré in Law (instead of Economics this time), did so without LGG interpretation. Mainly, Midana accompanies Amaré in his lobbying meetings. He also mentions that he rarely interprets for a deaf person in a medical context. Amaré adds that two other teachers at the Mariposa school are also minimally competent in LGG to interpret. Even so, he often relies on a cousin when in need.

More 'formal' interpreters have been acting in churches. Amaré has trained around 30 of them only in Bissau since 2014. Consequently, many Protestant masses have been interpreted in LGG (Figure 47). Curiously, in an evangelical mass attended by Marta Morgado in 2024, one of the three interpreters working that day had white gloves (in Figure 47b) to cover her painted nails. Deaf people told Marta they had asked interpreters to do so for their visual comfort.



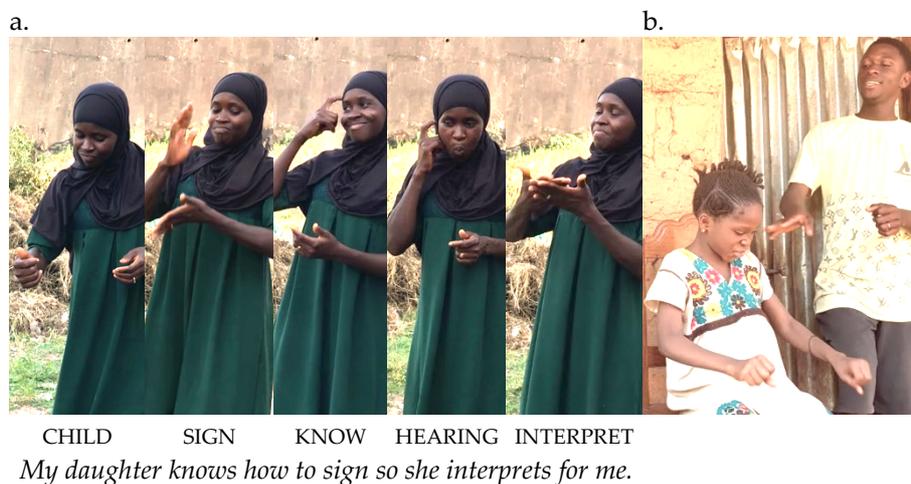
**Figure 47.** LGG interpreters in an evangelical mass attended by deaf believers (a, b), where one of them is wearing white gloves to cover her painted nails (b) in 2024

Informally, deaf people who can hear enough to perceive speech and/or speak themselves volunteer with confidence to interpret LGG in Creole and vice versa. Amaré has been doing it habitually, but there are others. On one Sunday in 2022, I witnessed a deaf man (who has a deaf sister and claims to hear well enough) interpreting the entire meeting to the hearing father of the deaf girl hosting the meeting that day. Similarly, in 2024, at the deaf man's funeral, Marta Morgado recorded another deaf man (who claimed to be able to hear reasonably) interpreting speeches by deaf people in LGG to Creole (in Figure 48a) and hearing people's speeches in Creole to LGG (in Figure 48b).



**Figure 48.** Deaf man (on the right) interpreting Amaré's speech in LGG into Creole (a) and a hearing man's speech in Creole into LGG (b) in 2024

Sometimes, deaf people resort to the hearing children of the family to help interpret some more challenging interactions with hearing people. These children of deaf parents are typically fluent in LGG. The deaf woman leading the women's group of the CJS told me in 2022 that her young daughter would sometimes interpret for her (Figure 49a). Also, in 2024, Marta witnessed a situation where the deaf women went to a deaf girl's house to talk to her father, who was supposedly mistreating her. Because they could not establish clear communication with him, they called a young girl with deaf parents and a deaf uncle (Figure 49b) to help out.



**Figure 49.** Deaf woman telling about her daughter interpreting for her (a) in 2022, and a hearing girl signing to her deaf uncle (b) in 2024

All in all, there are no professional LGG interpreters. Nonetheless, some hearing teachers have developed signing skills in both Bissau schools due to their regular contact with the deaf community to act as interpreters. To be more exact, one in each school in Bissau is recurrently taking on that role when needed. Hearing people interpreting religious masses do not seem to interpret in contexts outside the church. Other than these, a few hearing people within a deaf person's inner circle, such as kin or friends, also learn sign language and interpret in more informal contexts. However, these are still exceptions and are rarely heard of. Surprisingly, most experienced 'interpreters' are a few deaf people who have some hearing or lipreading and speech abilities and often volunteer to do so.

#### 2.5.5.5 *Language naming*

It is essential to understand that, in Portuguese, two terms coexist to designate 'sign'. In European Portuguese (spoken in Portugal), it is expressed by *gesto*, while in Brazilian Portuguese it is *sinal*. Therefore, the national sign languages of Portugal and Brazil are named differently as *Língua Gestual Portuguesa* (LGP) and *Língua Brasileira de Sinais* (Libras).

In the five Portuguese-speaking African countries, different influences come to light. Portuguese people – deaf in the case of Cape Verde and São Tomé and Príncipe, and hearing in Angola – may have been responsible for assigning a name to the local sign languages. As a consequence, their designation opted for the term *gesto*, as in *Língua Gestual Cabo-verdiana* (LGCV) (e.g., Pavão et al. 2018), *Língua Gestual de São Tomé e Príncipe* (LGSTP) (e.g., Carmo et al. 2014), and *Língua Gestual Angolana* (LGA) (e.g., Valdez & Manuel 2008). In contrast, in Mozambique, the name of its sign language was assigned in the presence of members of the Finnish Deaf Association within a project to empower the local deaf community (Martins & Morgado 2016, 137). Without the involvement of Portuguese and Brazilian deaf communities, the choice was for *sinal* to name the *Língua de Sinais de Moçambique* (LSM) (e.g., Ngunga et al. 2013).

Only in 2005, when Marta Morgado and I first visited Bissau, awareness rose about the autochthonous sign language. At that point, hearing teachers believed deaf education should be based on LGP. They were probably oblivious that deaf students were already creating their own language. Furthermore, they may have considered applying LGP in deaf education as corresponding to the Portuguese language in use in the general education in Guinea-Bissau. Marta and Amaré often communicated in written Portuguese during that first teachers'

training. In one of these exchanges, he told her he did not see their signing as a language but as a basic array of traditional Guinean gestures.

With the primary purpose of distinguishing the sign language emerging in Guinea-Bissau from LGP, we felt it was essential to rush a name for it. I heard people saying *gestu* in Creole, though I would not know if LGP's name did not somehow influence them. We were very much biased ourselves by the name of our own sign language. I also admit that the haste in naming the new sign language during that first short visit did not give room to involve more community members. Hence, that sign language was named *Língua Gestual Guineense* (LGG) with the agreement of the three deaf adults present there, including Amaré Soares, when we informally printed the first collection of 220 signs.

When I returned in 2022, more aware of the importance of involving the community in the process of naming their sign language (c.f., Andersson 2001, 225; Guity 2022, 30), I sought to understand if the name had been adequately put. Deaf people said that, to them, it was SIGN GUINEA-BISSAU and, sometimes, LGG. Designating the language simply as SIGN<sup>24</sup> generally coincides with how deaf people call their sign languages worldwide (c.f., Woll et al. 2001, 16; Andersson 2001, 226).

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<sup>24</sup> When glossing the term that deaf people use to designate their sign language, one has to consider the distinction between 'gesture' and 'sign' if such a distinction exists in the corresponding spoken language. Then, on one side, there are the written/spoken terms that both signers and speakers use, and on the other side, there are those that scholars believe to be more effective in marking the linguistic status of the sign language. For instance, in twentieth-century France, deaf people would refer to their sign language as 'gestures' before it was officially named *Langue des Signes Française* in 1979 by two hearing scholars (Cantin et al. 2019, 150). Similarly, deaf Catalans would designate it as 'mime' before being named *Llengua de Signes Catalana* in the early 1990s (Jarque et al. 2019, 271).

Although Andersson (2001) criticises the use of abbreviations to designate sign languages, arguing that spoken languages do not use them, some deaf communities have become accustomed to using them, as is the case in Portugal.

Typically, sign languages are originally named by educators or scholars. Still, unless deaf people feel that the name is inappropriate and urge to change it, as were the cases in Iran (Guity 2022, 25–33) and Belgium (De Meulder & Haessene 2019), the ownership becomes too deep-seated to accept renaming it differently (e.g., Johnston 2003, 66, for British Sign Language [BSL], Australian Sign Language [Auslan] and New Zealand Sign Language [NZSL]).

Taking into account the dialectal variants *gesto* and *sinal* in Portuguese, I also wanted to confirm among hearing people what their preference was. I observed that *gestu* and *sinal* were used interchangeably in Creole. Of course, Guinean people, in general, as well as those related to the deaf, have frequent contact with the Portuguese language in the European and Brazilian variants.

Hearing teachers of the deaf presented me with different explanations. Some said that, in Creole, people say mostly *sinal*, clarifying that schooled people are likely to say *gestu* instead as an influence from European Portuguese. Others suggested that *sinal* would refer to the manual forms used by the hearing and *gestu* to those used by the deaf (which is how the difference would be interpreted in European Portuguese). According to Osvaldo Indi, the teacher–interpreter at the ENS, most hearing people say in Creole that deaf *papia gestu* (*papia* meaning ‘speak’) and that the LGG designation is already fully internalised by the deaf.

## 2.6 Portraying LGG

This final section of Chapter 2 summarises the main characteristics of LGG, the object of the linguistic analyses of Chapters 3 and 4. First, I present LGG's 'identity card' in Table 2, including the basic information about the language to join the other languages of the world.

The 'identity card', in Table 2, indicates LGG's designations (in signs, glosses, Portuguese and English translations), language codes (ISO code and glottocode), and geographic locations (regions and coordinates). It also refers to the fact that LGG is a language isolate, although it uses the LGP manual alphabet. The vitality scoring for LGG is further developed in Appendix 2.

**Table 2.** LGG's 'identity card' (c.f., Webster & Safar 2019)

Sign	 
Name	SIGN GUINEA-BISSAU Língua Gestual Guineense – LGG (Guinea-Bissau Sign Language)
ISO code	ISO 639-3 lgs (since 23-01-2023)
Glottocode	guin1260
Language family	Isolate (manual alphabet from Portuguese Sign language)
Country	Guinea-Bissau
Regions	Bissau (larger deaf community), Ingoré, Buba (smaller deaf groups)
Geographic coordinates	11.7723463 -15.16962

The sign language in Guinea-Bissau likely took off when deaf children and youngsters started to come together in increasing numbers in a school setting. Therefore, it is a school-based sign language, born in the school for the blind in Bissau in late 2003. Since then, most signers have orbited around the two leading deaf schools in Bissau as their privileged meeting spaces. However, a signed communication was probably used by deaf people already before that, as seen elsewhere (Nyst 2010a, 2013, 2015, in West Africa, in general; Orie 2012, 81; 2013, 244, in the city of Akure, in Nigeria; Lutalo-Kiingi & de Clerck 2015, 48, 51; Sorin-Barreateau 1996, 207, 212, in the Extreme North Cameroon). Because deaf people with diverse backgrounds – not only in Bissau but also in the rest of the country – were using similar signs, it seems safe to assume that the emerging sign language is locally based. Moreover, it could be the case that this locally-based sign language represents the primary source for the one boosted up by the school.

Even if deaf people have been exposed to other languages, both signed and spoken, LGG has been emerging without any significant outside influences. Therefore, at first sight, it remains very much autochthonous, or “indigenous”, as suggested by Woodward (2003), apparently by either recruiting gestures from the hearing community or creating new signs based on a robust culture-based iconicity. In this way, LGG conforms with one of the criteria for being assigned the status of sign language emergence proposed by Meir and colleagues (2010, 2), which is the inexistence of prior exposure to other sign languages.

Counting the number of signers is a task made easier by adding up school enrolments. Thus, looking at LGG as school-based, we get a figure of around 590 deaf students enrolled in Bissau in 2021/2022 (491 at the ENS, 97 at the Mariposa and two at Bengala Branca) and an approximate number of 212 identified over different years in six cities across the country: Ingoré, Bula, Bissorã, Buba, Bafatá, and Gabu. Of these, Ingoré and Buba seem to have the largest groups of deaf

students, with 60 each. Of course, of the 800 deaf people enrolled in schools, there should be many more who are no longer attending school or never did. Other than the number of sign language users based on school attendance records, statistical data from 2009 is provided for 1,702 deaf people in Guinea-Bissau (INE 2009f, 27). This may be less than the actual figure since it is far from the expected prevalence of deafness in West Africa, as exemplified by Tingang and colleagues for Cameroon (2020).

Albeit used by a vibrant deaf community, LGG remains circumscribed to the urban area of Bissau and far from the usual large numbers of macro-communities emerging from schools. Nonetheless, according to Dunbar's (1993) size patterns, the 500 threshold is the minimum for a group to be considered large, which in turn leads to long-term stability. Regarding the context of emergence concerning community growth and the lack of outside influences, the Nicaraguan case (e.g., Senghas & Coppola 2001) would undoubtedly be the most similar to LGG.

Children who started attending school in late 2003 are now in their thirties. Given that this young community usually gathers in large groups outside school, it tends to take in transversally those deaf youngsters with more independence to move around the city by themselves. Consequently, regular meetings include deaf people as young as late teenagers, precisely the age at which language change stabilises (Sankoff & Blondeau 2007). Based on the intensive and widespread use of sign language in such a macro-community, it may have become more established. Since the age group now mastering the sign language and leading the community meetings corresponds to the first generation of signers, research on LGG can be undertaken in real time to show how established it has become.

### 3 ROUTES OF GESTURE INTEGRATION INTO LGG

*[...] gestures are not hearing people's gestures,  
they belong to deaf people too.*

(Janzen 2012, 836)

#### 3.1 Introduction

Sign languages are known to incorporate gestures into their lexicons (e.g., Janzen 2012; Wilcox 2014, for overviews). However, how this integration process of gestures as lexemes unfolds has been scarcely described, especially in terms of the meanings ascribed to gestures and how those meanings persist or change when entering the signed lexicon used in deaf-deaf communication. While a few case studies have cracked open a window on this process in different contexts (Washaugh, 1986, Morgan 2016, Coppola 2020, Le Guen et al. 2020), this current study makes a new contribution to our knowledge of language (re)creation by looking systematically at the changes that gestures undergo when becoming part of an emerging signed lexicon – something that the unique situation in Bissau makes possible. Besides showing for the first time how this process occurs in real time, this study relies on new ways of collecting data on gesture use. In particular, the methodology used here prioritises deaf people's observations of multimodal interactions among their hearing peers.

Gestures are highly ingrained in local communication habits, even if they are typically supported by speech. Deaf people are exceptionally skilled at adapting to gestural interactions, capturing the most out of every gesture clue while making themselves perceived by hearing non-signers (Kusters 2017, on deaf-hearing interactions in the street markets of Mumbai, India). While capturing these gestures, deaf

signers benefit from a ready-to-use lexical stock that they must only adapt to a fully visual-manual system.

This chapter sets out to understand the unique transition from gesture to sign as form-meaning pairs. I first focus on identifying a set of gestures used in Bissau by hearing people, and then investigate their subsequent integration into the emerging LGG lexicon. I start by eliciting gestures from a set of 41 concepts, and then investigate their signed counterparts in LGG. By the end, I find that while some of these gestures are directly incorporated into the LGG lexicon with essentially identical form and meaning, others undergo semantic adjustments that involve a few variants or larger networks of forms and meanings.

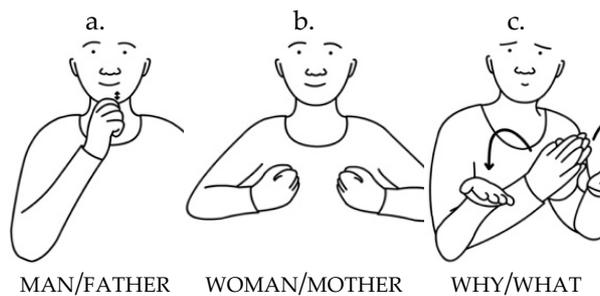
### **3.2 Background**

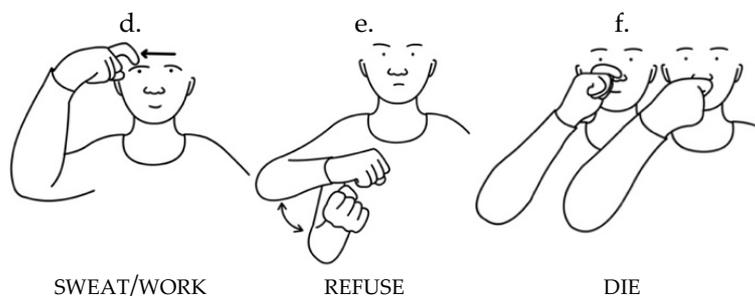
It has been hypothesised that conventionalised gestures “serve as the raw material for deaf language creation” (Washabaugh 1986, 185). Thus, looking at the gestural substrate as a primary lexical stock for sign language to emerge, young sign languages, such as LGG, present the perfect opportunity to witness the lexical integration process in real time (Coppola 2020, 349, 372). Identifying sign origins in gesture further enables the observation of intermediate stages of lexical refinement in both form and meaning when incorporated into a signed lexicon (ibid., 361). Does Guinea-Bissau also have these gesture/sign counterparts, and, if so, how are they integrated into LGG? What other gestures have been incorporated into LGG? When getting integrated as signs, do gestures have their form adjusted to the new linguistic system? Do they specialise in their meaning?

Previous studies have shown that the repeated use of certain gestures leads to their conventionalisation, i.e., to stable forms around related

meanings (Wundt 1974 [1921]; Hanna 1996; Kendon 2004). Gestures of frequent use tend to be more reduced in space and more stylised in their shape (Kendon 1981, 152). Stylisation implies that they are no longer recognised by their iconic motivation but instead as a conventionalised expression (Eco 1976, 238). At the same time, semantically, one gesture may encompass multiple meanings, and different gestures may express the same meaning. Signers promptly adopt these stable forms, expressing a more or less closed range of meanings.

A reasonable expectation is that the more conventionalised gestures are within a community, the more likely they will be integrated into a signed system, thus presenting a consistent form to express a widely recognisable meaning (Le Guen et al. 2020, 339). For example, in West Africa, Nyst describes a set of gestures and their signed counterparts widely-used by both hearing and deaf people (2010a, 39; 2013b; 2015, 135): MAN/FATHER (Figure 50a), WOMAN/MOTHER (Figure 50b), WHY/WHAT (Figure 50c), SWEAT/WORK (Figure 50d), REFUSE (Figure 50e), and DIE (Figure 50f).





**Figure 50.** Shared manual forms in gestures and signs across West Africa: MAN / FATHER (a), WOMAN / MOTHER (b), WHY / WHAT (c), SWEAT / WORK (d), REFUSE (e), and DIE (f)

Conventionalised gestures with a more economical form and a less ambiguous meaning are the best candidates for becoming proto-signs (Arbib 2010, 155; Le Guen et al. 2020, 301). Since gestures easily gain linguistic properties when used without speech (Goldin-Meadow et al. 1996, 34, 47-48), they have been found to lexicalise in the emergence of a new sign language (Delaporte & Shaw 2009, 55). In this way, emerging sign languages enable the observation in real time of the incorporation of gestural sources, especially the most conventionalised ones, into the signed lexicon (e.g., Coppola 2020, for Nicaraguan Sign Language).

To understand what can be expected to occur in the emerging LGG, the present review turns first to the process of conventionalising gestures. Such gestures could then be considered primary candidates for sign language integration.

### 3.2.1 Gesture conventionalisation

Scholars have referred to conventional gestures differently depending on how they view them. They can be seen as *semiotic* (Barakat 1973,

767), i.e., with a shared meaning within a cultural group, becoming *symbolic* (Wundt 1974 [1921], 87-101; Efron 1972 [1941], 96) and growing *autonomous* from speech (Kendon 1983, 40; Payrató 1993, 195-196). They can conventionalise to the point where they are easily assigned to spoken equivalents (Kendon 2004, 177-190), and become standalone lexical items (like words or expressions), i.e., *quotable* (Kendon 1992; Brookes 2005). When used intentionally within a group (Ekman & Friesen 1969, 64), they can represent a complete speech act (Müller 2018, 2). Moreover, their shared meaning tends to be more general and abstract (Kendon 2008, 136), symbolically encoded (and taught as such) by a cultural community. Such highly conventionalised gestures are commonly labelled *emblematic* or *emblems* (Efron 1972 [1941], 96; Ekman & Friesen 1969, 63; Morris et al. 1979, xvii).

The term *emblem* tends to refer to less transparent gestures, i.e., not pictorial. They possibly derive from recurrent gestures or culture-specific inventions whose origins are not always traceable (Morris et al. 1979, 266-267; Teßendorf 2014, 92) due to processes of reduction and stylisation (Kendon 1981, 152) and semantic change. Because the scope of the term ‘emblem’ still lacks an accurate delimitation, I am using here the broader designation of ‘conventional gesture’, as did Coppola in her gesture-to-sign study (2020, 352).

### 3.2.1.1 *The conventionalisation of different types of gestures*

Different types of gestures may conventionalise and thus become emblematic. It is essential to keep in mind that gestures are created according to various semiotic motivations, around Peirce’s categories (1940). They can be indexical (involving pointing in space or to the body), iconic (representing an enactment or an object), interactive (implying the reference to the interlocutor) or metaphoric (standing for a concept more abstractly). Abner, Cooperrider, and Goldin-Meadow

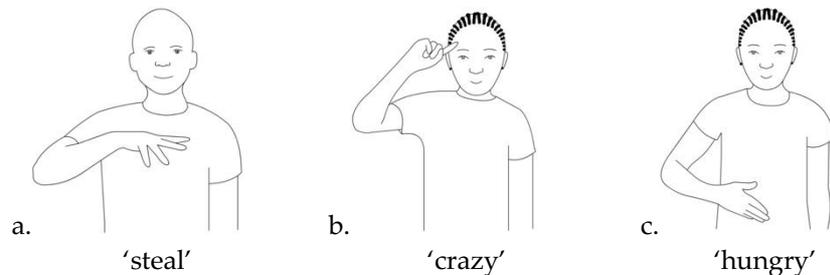
suggest classifying gestures according to their function in communication. When they add meaning to the message, they are re-presentational, as are indexical references and iconic depictions (2015, 438). When they focus on the exchange itself, they are, instead, interactive, i.e., expected to influence the interlocutor's behaviour (Ekman & Friesen 1969, 56).

The conventionalisation of gestures in general presupposes a developmental trajectory (Hanna 1996, 289), i.e., a 'refinement' (ibid., 333) in form and meaning (Wundt 1974 [1921], 72). Changes in form lead to a gradual reduction and stylisation of gestures. While a reduction may consist, for instance, of depicting a motorcycle by slightly twisting the fist (e.g., Kendon 2004, 308), stylisation implies modifying the form in a way that it loses the original iconic motivation (Ekman & Friesen 1969, 65; Kendon 1981, 152).

Following Eco, stylisation is when the iconic representation of a particular expression becomes conventionalised to a point where its symbolism replaces its original motivation (1976, 238). Hanna further suggests that "the stylization process involves remodelling of the original gesture according to an established system of articulation and oppositions" (1996, 349), i.e., in relation to other gestures. Conventional gestures are then reshaped as components within a linguistic system. Good examples of such stylisation are the drinking gesture with the thumb directed to the mouth (Efron 1972 [1941], 181, cited in Hanna 1996, 335) and the recurrent action of taking something away from someone by flexing the fingers inwards one after the other to mean 'steal', in Figure 51a (de Jorio 2000 [1832], 258).

On top of formational refinement and stylisation, conventionalising gestures tends to imply a semantic abstraction at a local level (Morris et al. 1979, xvii). Of course, for conventionalisation to occur, gestures must be used repeatedly over time. Therefore, co-speech gestures used

frequently in daily communication, such as the ones involving evaluative comments about others (e.g., ‘crazy’, in Figure 51b), about oneself (e.g., ‘hungry’, in Figure 51c), and interpersonal control (e.g., threats and requests), seem to conventionalise more easily than iconic representations of objects and actions (c.f., Kendon 1981, 141, comparing several repertoires of emblematic gestures; and Washabaugh 1986, 185-188, studying the integration of emblematic gestures into the sign language of the Providence Island).



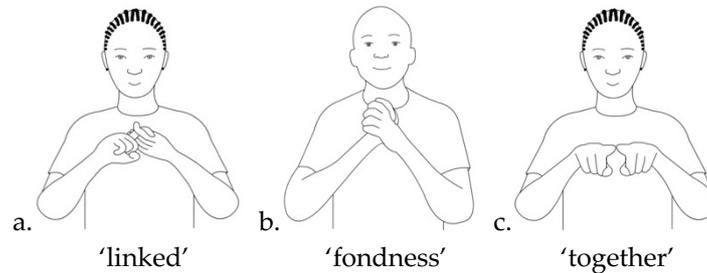
**Figure 51.** Examples of conventional gestures used elsewhere for ‘steal’, showing form stylisation (a), ‘crazy’, expressing an evaluative comment about others (b), and ‘hungry’, expressing an evaluative comment about oneself (c)

Some symbolic gestures tend to be very conservative in form and meaning (Morris et al. 1979, 268), like the thumb up for ‘good’. Others encompass different – though related – meanings; that is, they are polysemous. For instance, the enactment of cutting one’s throat with the hand or the index finger can refer to both the act of killing and the resulting death (Calbris 2003, 22–25, for a French gesture; Brookes 2004, 222, for a South African gesture). As summarised next, such a polysemy can extend to other form variants and related meanings in larger gesture clusters.

### 3.2.1.2 *Gesture clusters of related forms and meanings*

When gestures' variation in form and meaning is acceptable around shared main parameters, they constitute gesture families (Kendon 2004, 227) or gestural *gestalts* (Hirsch 1993; Müller 2017). Such gestures undergoing metaphorical processes around a core meaning are based on a schematic domain of images or actions (Ladewig 2011, 3; Müller 2017, 290-291).

Conventional gestures based on metaphoric associations will likely cluster around similar forms and related meanings, especially if used recurrently. A good example of such structural and semantic islands involves *joining two fingers* (usually the index fingers of both hands or the same hand's index and middle fingers), tapping, rubbing or interlocking each other to indicate a schema of togetherness or linkage (Will 2021, 109), in Figure 52a. This may also correspond to the primary metaphor 'emotional intimacy is proximity' (Grady 1997, 293), where the iconic closeness of the articulators maps metaphorically the (emotional) connection between two entities (Taub 2001, 119). In its embodied sense, *squeezing hands* or hugging expresses love or fondness through touch (de Jorio 2000 [1832], 80), in Figure 52b. Forms with two index fingers or the index and middle fingers of one hand brought together have been attested in Naples to mean 'close friendship', 'matrimony', 'couple', 'similar', or 'equal' (de Jorio 2000 [1832], 90), and are also common in sign languages (e.g., Taub 2001, 119, for ASL), in Figure 52c.



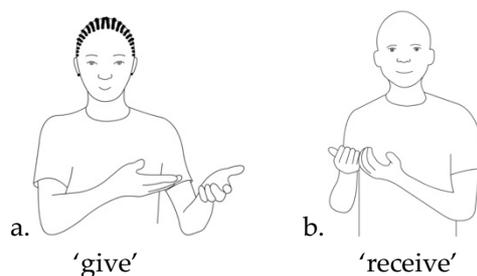
**Figure 52.** Joined-finger gestures for 'linked' (a), 'fondness' (b), and 'together' (c)

Some gestures expressing metaphors are so ingrained in daily communicative acts that they become highly conventionalised in representing abstract concepts (McNeill 1992, 14). Such abstractions will likely encompass related meanings around a semantic core. For instance, meaningful body locations host abstract concepts through metaphors, as in 'physical and emotional states are entities within a person' (Lakoff & Johnson 1980, 50). Ideas can also be seen as growing living entities, as in 'ideas are food or plants' (*ibid.*, 46), corresponding to the primary metaphor 'knowledge is physical contents of the head' (Grady 1997, 298), which is very productive in ASL as 'the mind is a container' metaphor (Wilcox 2000, 107).

There are also metaphors cognitively rooted in everyday proprioceptive experiences (Ladewig 2011, 15), such as giving (Harrison & Ladewig 2021, 156). Bavelas and colleagues categorise these gestures overtly addressed to the interlocutor as interactive (1992, 473). Thus, after getting the interlocutor's attention, these 'spatially anchored gestures', like begging, expect a (physical) response from the addressee (Cooperrider 2020, 5-6, *emphasis in the original*).

These interactive gestures involving a containment transfer are widely expressed by forms with the *palm(s) up* (also known as Palm Up Open

Hand – PUOH, since Müller 2004). These are probably rooted in the act of giving, in Figure 53a, and receiving, in Figure 53b. De Jorio points out that giving something to someone is one of the simplest and most natural human acts, whose handshape is easily adapted to the affordances of the object given (2000 [1832], 306-307). It can also be shaped by cultural rules. For instance, Hausa speakers avoid using their left hand and hand something to someone with the right one or both of them instead (Will 2021, 117). Accordingly, the open palm-up directed to someone else is expected to occur everywhere as a natural way of preparing to receive what has been asked for (be it a piece of bread or help), which can be intensified by extending the two hands (de Jorio 2000 [1832], 128, for classical antiquity).

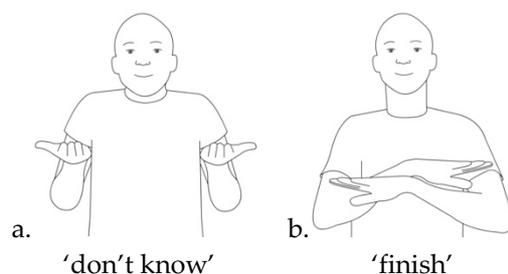


**Figure 53.** Palm-up gestures for 'give' (a), and 'receive' (b)

While the *palm-up* described so far is tendentially directed to the interlocutor and consistently appears to be presenting (or expected to be presented with) something (Cooperrider et al. 2018, 3-4), a concurrent semantic cluster is motivated instead by its empty-handedness (Chu et al. 2014, 700). Cooperrider, Abner and Goldin-Meadow designate it as the “palm up epistemic” (2018, 4), seemingly involving the rotation of the hand combined (sometimes interchangeably) with the shoulders shrug (Johnson et al. 1975, 342, in the USA; Streeck 2009, 189, in the

USA and the Philippines; Chu et al. 2014, 700, in the UK; Gawne 2018, 25, among Syuba speakers in Nepal; and Givens 2016 for a review). The palm up is likely to stand for a reduction of the whole bodily shrug (Cooperrider et al. 2018, 13) and revolve around a core meaning of ‘absence of knowledge’, widely attested crosslinguistically, in Figure 54a. This can intuitively expand to uncertainty or interrogative uses (Cooperrider et al. 2018, 10). It is so conventionalised and easily glossed that it is incorporated in many sign languages, especially as WH signs (Givens 1986, 160; Cooperrider et al. 2018, 7). Significantly, its semantic nucleus expands into different functions and meanings in sign languages (Loon et al. 2014, 2139, for ASL, NZSL and NGT).

When turning the *palm(s) down* (with a more absolute meaning when produced with the two hands) with an energetic outward motion, it can either be based on cutting through or sweeping away any unwanted traces from a surface (Kendon 2004, 263) to mean ‘finish(ed)’, in Figure 54b, or ‘through’ (ibid., 250; Brookes 2004, 221). Calbris designates it as ‘the total cut’ to abstractly signify the result of cutting everything everywhere and remaining with nothing else (2003, 35-36). It can also mean interrupting an evolutive process within the growth axis (ibid., 37-38). Within the ‘sweeping away’ schema, Bressemer and Müller consider it part of a gesture cluster known as the ‘away’ family, possibly grounded on the intuitive act of keeping unwanted objects away from the body (2014, 1596-1597). The fact that this metaphor is iconically decipherable by the human mind makes it a good candidate for being widely adopted as a sign by deaf people around that same semantic core (e.g., Mesh & Hou 2018, 355–356).



**Figure 54.** Palm-up and palm-down gestures, respectively for 'don't know' (a) and 'finish' (b)

Polysemous gestures have been suggested to be generally more frequent than gestures with single meanings (de Jorio 2000 [1832], 33). In a different way, some meanings spread over distinct kinesic forms as gesture synonyms (Payrató 2014, 1476; Poggi 2014, 1492) or variants (Calbris 2011, 127). As an example, a 'mug' or the act of 'drinking' (Ortega & Özyürek 2016, 1182) can be depicted by holding its handle or with a C handshape (Ortega & Özyürek 2020a, 68) or by having the whole hand with the thumb pointed at the mouth (Matsumoto & Hwang 2013, 25). Therefore, there are monosemous forms, i.e., with one meaning; polysemous forms, with more than one meaning; and synonymous or variant forms, when one sense is expressed by more than one form.

Semantically, some conventional gestures are more restricted, while others, especially if metaphoric, tend to be polysemous. Alternatively, some meanings are associated with more than one form; that is, there are "synonymous" gestures for specific meanings. In the end, conventional gestures of the emblem variety have clear, recognisable forms, which makes them stand out as candidates to become meaning-bearing lexical items. At the same time, as seen, for instance, in Figure 52 for gestures expressing 'togetherness', even emblematic gestures can have some fluidity in their contexts of use, i.e., in their potential

semantic meaning when paired with speech. Thus, we might predict that signs derived from gestures will need to go through some disambiguation processes to specify their meaning and create the conventional form-meaning mappings required of lexical items. This is a key step in the transition from gesture to sign.

### 3.2.2 Gesture-to-sign incorporation

Given that the present study focuses on incorporating conventional gestures into the signed lexicon, this subsection reviews previous studies on the adjustments in form and meaning occurring during that process. Research suggests that more conventionalised gestures are directly incorporated into sign language (c.f., Le Guen et al., 2020, 333). Otherwise, less conventionalised gestures can be integrated even if they show variability (Coppola 2020, 370).

The incorporation of gestures into sign language implies a change in the type of linguistic system, from a multimodal combination of gestures with speech to a fully visual-manual language. Although co-speech gestures do not possess the properties of a stand-alone language, deaf people are easily driven to adopt gestures as signs since, unlike their hearing peers, they are pressured to rely primarily on visual cues. Thus, gestures conventionalised within a community are readily available as a linguistic input to deaf people.

Le Guen and colleagues account for a substrate of conventional gestures transferred to Yucatec Mayan Sign Language, like GO, COME (2020, 305), FINISH (ibid., 307). They also observe that gestures specifying height are paradigmatically distinct for humans and four-legged animals (ibid., 314–315). The authors suggest that such gestures seem already sign-like, making it easier for deaf people to appropriate their linguistic features when integrating them into a signed lexicon (ibid.,

331). As such, their form and meaning are maintained during the transfer between communication systems (*ibid.*, 333).

Similarly, Morgan (2016) identified many matching forms when comparing conventional gestures collected by Creider (1977) in Western Kenya and contemporary Kenyan Sign Language (KSL). Of these, two-thirds of the gestures had only one sign counterpart in KSL, and one-third had two or more signs related to the gestures. The latter included lexical clusters of polysemous and morphologically and semantically related forms.

It is also important to acknowledge that the direct incorporation of gestures as signs – in both form and meaning – is assessed more accurately in their respective discursive contexts. Based on spontaneous discourse, Safar (2020b) observed subtle differences between gestures and signs specifying height, such as additional functions in signs (but see Chapter 4 for details on such an expansion in LGG). Mesh and Hou (2018) make a similar point for negation in Chatino gestures and signs.

As with any other communicative instance, the exchange of concepts via the visual-manual modality is ruled by two major linguistic principles: economy and efficiency. Economy is understood here as the “law of the least effort” in producing linguistic items (*c.f.*, Martinet 1955, 43). This results in a tendency to reduce the articulatory effort of manual forms during the conventionalisation process (Coppola 2020, 372). On the other hand, efficiency aims to convey concepts as clearly as possible so they are accurately understood. Gestures are then expected to be specified in meaning when entering the signed lexicon (*ibid.*, 366). Given their importance to language emerging out of communication, both these principles, articulatory economy and semantic efficiency, or the optimisation of production and perception, influence the process of gestures being integrated as signs.

### 3.2.2.1 *Adjustments of form in the conventionalisation of manual items*

Considering that there has been little research on the process of gestures becoming signs in a natural context like the one in Bissau, it is not surprising that there is even less research investigating the changes in form from gestures to signs. Therefore, I broaden the review to the conventionalisation of form occurring both in gestures and signs. In general, formational adjustments during the conventionalisation of a manual item, whether a gesture or a sign, are regulated by the principle of articulatory economy, i.e., manual forms will tend to be produced most easily, with the least effort. For the present study, I will focus on the more relevant modifications of the manual form.

Most studies on formational adjustments of manual items have focused on diachronic changes within sign languages. Of these, only a few are concerned with the historical connection to their source, as has been done between ASL and *Langue des Signes Française*, LSF (e.g., Supalla & Clark 2015). Frishberg (1975) identified systematic changes occurring in ASL over time by comparing signs with their historical origin in old LSF. She observed that the articulation of action embodiments became increasingly limited to the hands, spatially reducing the lexical content in what she calls “true signs” (ibid., 711). Notably, the formational reduction during the conventionalisation of a sign is likely to occur in more frequent forms (Fenlon et al. 2019, 18, comparing pointing in gesture and BSL).

Historical linguistic research has shown that a more economical (and relaxed) articulation of signs leads to the mobilisation of the hand instead of the arm, i.e., a distalisation (Delaporte & Shaw 2009, 55), and that the diachronic reduction of the articulatory effort in signs includes simplification of movement (Kendon 2004, 308; Haviland 2015, 88). A long movement tends to become shorter, reduplicated or less ample if involving both hands (Delaporte 2005, 7–8). Also, two-handed signs

will likely become one-handed if articulated on the head (Frishberg 1975, 703). In addition, the second hand may be dropped in the signing space if it does not add meaning to the sign (Delaporte 2005, 6).

Diachronic processes in signs may show similarities with the conventionalisation patterns in gestures and their transition into signs (Müller 2017, 278, comparing a large set of studies on recurrent gestures, including the palm-up family of gestures). For instance, salient features of elaborate pantomimes tend to be selected and increasingly simplified in the emergence of signs, such as choosing the act of breaking the neck of a chicken to refer to the chicken (Haviland 2013, in a first-generation family homesign system in Zinacantán, Mexico). Such a formational reduction has been noticed as far back as the earlier descriptions of the transition of gestures to ASL signs (c.f., Peet 1868, 173).

In line with the articulatory adjustments described previously, Coppola observes that, in the incorporation of conventional gestures into LSN, “[s]ome gesturers produced the form much higher, much lower, or even farther away from the body, out to the side, than in the citation form in LSN, which is produced in a centralized vertical location” (2020, 363). She concludes that, when contrasted to the gestural form, the sign tends to be shorter, more constrained to the hand and centralised in the signing space, potentially losing its semiotic information. In addition, two-handed forms may drop the second hand as signs (ibid., 364).

Overall, the general tendency is to articulate manual items, whether gestures or signs, more easily and quickly, reducing muscular effort (Delaporte 2005, 15). This includes shorter movements and, occasionally, the loss of the second hand. More frequent forms, gestures or signs, will likely conventionalise faster and eventually stylise into less iconic forms. This is to say that conventional gestures that have already

undergone a form reduction may not leave much more to reduce when being adopted as signs.

### 3.2.2.2 *Semantic change over time*

Since the literature on the diachronic semantics of gestures and signs is even more scarce than the literature on changes to form, the present review focuses primarily on semantic change in spoken languages. Over time, the meanings of words seem to head towards semantic disambiguation or the avoidance of “some difficulty of expression” (Bréal 1964 [1900], 60). Otherwise, meanings can also generalise, or desemanticise to encompass more abstract concepts (Bloomfield 1933, 426-427).

Since ambiguities are often found in polysemous forms expressing different meanings and in similar meanings spanning across synonymous forms, semantic change will deal with these phenomena “to secure greater clearness” in communication (Bréal 1964 [1900], 65). In both cases, the semantic clarification takes time. The meanings of synonymous words are likely to gradually differ from each other (*ibid.*, 27; Kutuzov et al. 2018, 2). As for polysemy, when the sense of a form changes from A to B, the two senses will probably coexist in an intermediary stage (Sweetser 1990, 9), “typically for a long time” (Traugott 2006, 126).

Besides the semantic array of a polysemous form, other phenomena are found in semantic change over time. For instance, different lexemes may be replaced by frequently cooccurring words expressing the same concept (Kutuzov 2020, 36–37). Cultural shifts may also affect some concepts that may be addressed differently due to social norms, such as taboos or acquired knowledge (Bower 2019, 52). In addition, external factors, such as technological or cultural modifications, usually lead to semantic change by resorting to polysemous senses or synonymous terms (Bréal 1964 [1900], 104).

Sweetser states that metaphor – the analogy between different concepts – is both the “source” connecting polysemic meanings (1990, 18) and the “structuring force” driving semantic change (ibid., 10). She believes metaphoric links trace historical paths in semantic change (ibid., 45). Bréal further suggests that metaphor reflects a “universal intelligence” in establishing a relationship between two ideas. For being similar in many languages, metaphoric associations may be the most prevalent process of semantic change (Bréal 1964 [1900], 122-123).

In addition to the metaphor(isation), metonymy(sation) – an analogous relationship with parts of an entity – is another mechanism of semantic change (Traugott 2009, 27). Semantic shifts involving metonymy occur in “a concrete-to-abstract direction” (Sweetser 1990, 27). Through the repeated application of a word in distinct communicative contexts, its original semantic content is likely to be reanalysed by the language users for a less literal meaning (Traugott 2006, 130).

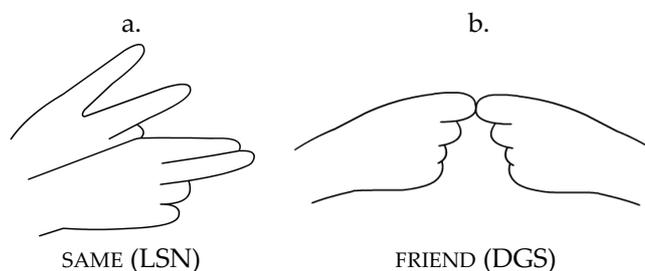
Bloomfield sets up paired classes of semantic change, such as the narrowing (restricting) and widening (expanding, generalising, broadening) of meaning (1933, 426-427). In general, language change is triggered by an innovation within a community and spreads over time through its social networks (Bowerman 2019, 49). Semantic change – or shift – of an original meaning to a subsequent one, implying the acquisition or the loss (or both) of a sense in a word, may be tracked through dictionary entries over time (Kutuzov 2020, 32).

Laws of diachronic semantic change have been proposed based on their recurrence across languages. For instance, Hamilton and colleagues (2016) put forward the law of conformity (in which less frequent words change more quickly because they are more prone to re-interpretation) and the *law of innovation* (in which polysemous words – being quite frequent – change faster due to a higher need for disambiguation). In this line of thought, more frequent, monosemous words

would change more slowly. These laws were challenged by Dubossarsky and his team, who also proposed the law of prototypicality, in which more prototypical meanings, i.e., more representative of their categories, would change more slowly (2015, 2017).

Morford and colleagues have observed that, at least within the classifier system in emerging signed systems, synonymous and polysemous forms tend to decrease over time (1995, 329). For instance, in Nicaragua, a gesture expressed by tracing a vein on the arm encompasses a range of (polysemous) meanings of genetic relatedness, including 'sibling'. At the same time, the meaning 'sibling' can also be expressed by the one-handed gesture with two joined fingers – the index and the middle finger. Yet, when transitioning into a sign used by deaf signers, the meaning of the first form is narrowed to 'sibling', while the sense of the two joined fingers is subsequently widened in LSN to mean 'similar', in Figure 55a (Coppola 2020, 365). Coppola also suggests that semantic generalisations may trigger the need to create new lexical items (ibid., 370). In other words, two synonymous gestures cooccurring for 'sibling' were integrated in LSN. However, only one adopted that meaning, specifying semantically, pushing the other to generalise instead. In another example, a polysemous gesture in Nicaragua meaning 'kill' and 'dead' has its meanings distinguished by being adopted as two different signs in LSN (Coppola 2020, 360).

Nonetheless, some manual forms keep some polysemy, such as the two joined knuckles of the fingers, which in *Deutsche Gebärdensprache* (DGS) refer to 'friend', 'contact' and 'bond', in Figure 55b (Lazarus et al. 2022).



**Figure 55.** Sign involving two joined fingers used in LSN in SAME (a) and DGS in FRIEND (b)

Distinct manual forms with equivalent meanings, i.e., synonymous forms, may result from signers choosing different aspects of a concept to represent it. While signers decide which salient feature will be selected to represent a particular concept, variability is expected, and, as a consequence, conventionalisation has yet to be reached (Morgan 2015, 12–16).

To sum up, in a situation in which gestures are used to expand a growing sign language lexicon, the same form is likely to be used to convey more than one meaning. However, effective communication relies on semantic clarity, which presumably leads to formational distinctions between polysemous words. Over time, some meanings will change and adjust to new contexts of use and cultural transformations. Eventually, they may also be replaced by new lexemes, whether they are synonymous or cooccurring words.

### 3.3 Methodology

This research follows the steps of only a few studies comparing a larger set of conventional gestures and their signed counterparts, such as

Washabaugh (1986) with Providence Island SL, Morgan (2016) with KSL, Coppola (2020) with LSN, and Le Guen (2020) with YMSLs. I foremost aim to see the extent to which LGG signers have recruited conventional gestures. In addition, assuming that conventional gestures already have a well-defined form and meaning, I seek to check what kind of adjustments occur, if any, when gestures are integrated into the LGG lexicon.

Benefitting from the fact that the emerging lexicon of LGG has been recorded during its first two decades of emergence, it is possible to witness in real time if and how those gestures are adopted as signs. Gestures used in Bissau were collected based on 41 concepts with hearing and deaf participants. Those gestures were then compared with LGG signs that were equivalent in form and meaning. Such signs were collected over three different periods after deaf people first gathered in 2003 in a school setting in Bissau. The LGG data is supported by three dictionaries: two were collected in the first couple of years of its emergence (2005 and 2006), and the third was collected a decade later (2017).

Ultimately, the data set comprised the gestures elicited by the concepts and their sign counterparts. The analysis revealed that form modifications were insignificant during the recruitment of gestures as signs. In contrast, the semantic integration was not always direct, i.e., signers seemed to make the most out of gesture variants and synonyms to enlarge the lexicon.

### 3.3.1 Research questions

Considering previous studies on the incorporation of gestures into signed lexicons, conventional gestures will likely constitute the initial lexical stock of an emerging sign language like LGG. What gestures have then been conventionalised in Bissau? Have signers adopted

them? If so, have they modified them when recruiting them as signs? I posit that a set of conventional gestures is used in Bissau as hinted by Nyst in her *gesturebund* hypothesis for West Africa, where Guinea-Bissau is included. Also, as put forward by previous studies, signers will likely adopt conventional gestures used in their surrounding community as signs.

The comparison between emerging LGG signs recorded during the first decade and a half and their corresponding gestural sources enables tracking any adjustments occurring during the adoption process. This study will then aim to answer the following questions:

- What are the routes incorporating conventional gestures into LGG?

In particular,

- What exactly occurs in the form and meaning of gestures, ready to be picked up by signers, when integrated into an emerging sign language?

To answer such questions, I use data elicited for gestures in Bissau from hearing and deaf informants and signs in the three available LGG dictionaries collected over three time periods (2005, 2006 and 2017). As Coppola (2020, 350, 353) and Morgan (2016) have done, I compare the two datasets – of both gestures and signs – to check for modifications occurring in the transition from one to the other.

### 3.3.2 Collection of gestures in Bissau

During the 2018 field trip (see §2.3 for details on the field trips), I collected data on gesture use in Bissau, where LGG has developed for the past twenty years, to discover which gestures may have preceded LGG signs. Data was collected from 20 hearing participants at the National School for the Deaf (ENS), and 38 deaf participants at the ENS and the

Mariposa school. The collection was carried out in groups of four, who were supposed to encode a list of concepts as gestures.

I did the gesture collection without any assistance. To the hearing participants, I asked in Portuguese if they would generally use gestures with other hearing people for each of the concepts in the elicitation list. To the deaf participants, I asked in LGG if they would see hearing people normally using gestures among themselves for each of the sign counterparts on the elicitation list.

All responses for gesture equivalents were filmed on video. I used one camera and recorded the videos on SanDisk cards. The raw videos were then saved on a computer, a memory disk and the cloud. They were assigned with easily identifiable filenames, mentioning whether participants were hearing or deaf and their code numbers. Later, videos were compressed to MP4 through Adobe Media Encoder and backed up in those same locations.

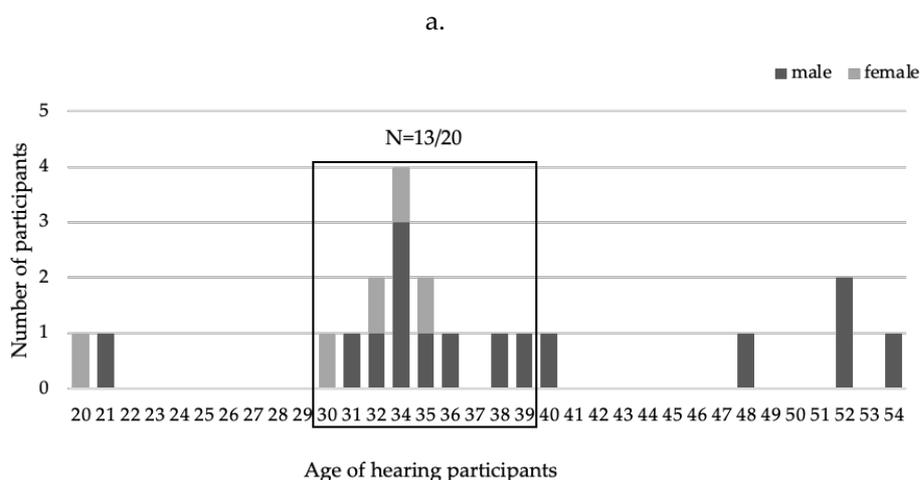
#### *3.3.2.1 Participants*

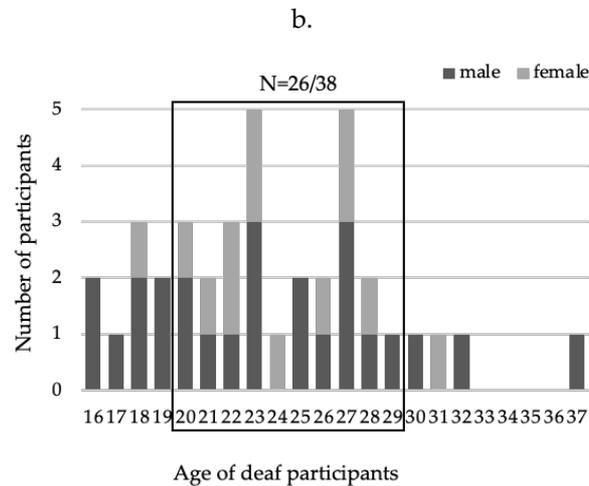
I used a questionnaire in Portuguese to collect information about the participants, namely gender, age, place of birth, ethnicity, languages spoken, schooling, and professional experience. To understand the extent of contact with LGG, I asked hearing participants – all teachers at the ENS – how often they interacted with the deaf. I translated the questionnaire into LGG for the deaf participants. I asked them if they had a deaf partner and for how long, if they had any deaf family members, how many years they had attended a deaf school, and how often they attended deaf groups. Such metadata was then processed in Excel.

Importantly, I recall that gesture elicitation was not initially planned in a way that made me look for sign-naïve hearing people (see §1.2).

The ENS was the location I was most familiar with in Bissau that assembled a significant number of hearing people – many without immediate contact with the deaf. In 2022, about 600 hearing students shared the premises with almost 500 deaf students (see §2.5.2.2). This implied a meaningful amount of hearing teachers, many of them working only with hearing students. For that reason, I sent out a request to the hearing teachers who were willing to participate.

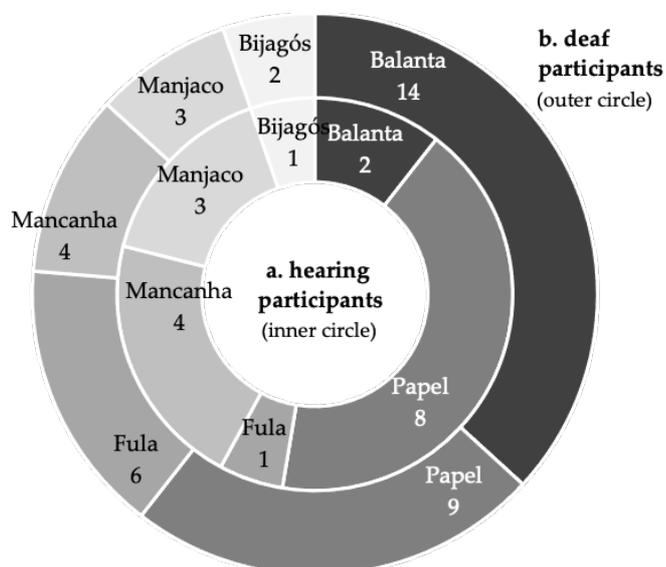
In terms of age, the hearing teachers were older than the deaf participants, representing a still very young community. Hence, teachers were between 20 and 54, most in their thirties (13 of 20), as shown in Figure 56a. In contrast, deaf people were between 16 and 37 years of age, with a more considerable concentration in those still in their twenties (26 of 38), in Figure 56b. Unfortunately, it was challenging to have more gender-balanced groups of participants since both target populations are male-dominated (see §2.5 for a description of the social organisation of the deaf community in Bissau). Thus, there were 25 deaf male participants and 13 deaf women, and only five female teachers and fifteen male teachers.





**Figure 56.** Age and gender of participants, hearing (a) and deaf (b), and, within the squares, the ages where there is a higher number of participants

For ethnic diversity, it was at first assumed that the participants would reflect the nationwide ethnic diversity since the capital city is the primary destination of internal migration for all ethnic groups (see §2.5.1.7). However, that was not the case, as both groups differed in ethnic backgrounds. The hearing teachers are mostly Papel (eight of 20), Mancanha (four of 20) and Manjaco (three of 20), in Figure 57a, while among the deaf participants, the prevailing ethnicities are Balanta (14 of 38), Papel (nine of 38), and Fula (six of 38), in Figure 57b. Except for the Fula people, these ethnic groups are originally from the Bissau region.



**Figure 57.** Ethnic groups of participants, hearing (a) and deaf (b)

Importantly, of the 20 hearing teachers working at the ENS, seven rarely interact with deaf people, be they students or fellow teachers. Of the remaining, those who reported more frequent contact with the deaf, only four were said by the deaf participants to use LGG effectively.

### 3.3.2.2 Elicitation lists

The list of concepts for gesture elicitation was based on Nyst’s ongoing study on the West African *gesturebund* hypothesis (e.g., Nyst & Martins 2022). I selected 20 items from the Nyst list, and added 21 more items based on observations of local communicative interactions in Bissau. This resulted in an elicitation list of 41 concepts, as shown in Table 3.

**Table 3.** List of 41 concepts presented to the hearing in Portuguese to elicit gesture use in Bissau based on Nyst's list (a) and local observations (b)

<b>a. From Nyst's list</b>	
Big ( <i>Grande</i> )	Work ( <i>Trabalho</i> )
Much ( <i>Muito</i> )	Finish ( <i>Acabar</i> )
Animals' height ( <i>Altura animais</i> )	Sorry ( <i>Desculpa</i> )
People's height ( <i>Altura pessoas</i> )	Beg ( <i>Pedir</i> )
Child ( <i>Criança</i> )	Why? ( <i>Porquê?</i> )
Man ( <i>Homem</i> )	Hit ( <i>Bater</i> )
Woman ( <i>Mulher</i> )	Escape ( <i>Fugir</i> )
Witchcraft ( <i>Feitiçaria</i> )	Lie ( <i>Mentir</i> )
Steal ( <i>Roubar</i> )	Die ( <i>Morrer</i> )
	Refuse ( <i>Negar</i> )
	All good? ( <i>Tudo bem?</i> )

<b>b. From observations in Bissau</b>	
Far ( <i>Longe</i> )	Crook ( <i>Bandido</i> )
Six ( <i>Seis</i> )	Sick ( <i>Doente</i> )
Ten ( <i>Dez</i> )	Kill ( <i>Matar</i> )
Boy/girlfriend ( <i>Namorado/a</i> )	Heat ( <i>Calor</i> )
Married ( <i>Casado/a</i> )	Hungry ( <i>Fome</i> )
Old person ( <i>Idoso</i> )	Thirsty ( <i>Sede</i> )
Friend ( <i>Amigo</i> )	Talk ( <i>Falar</i> )
Together ( <i>Junto</i> )	Thank you ( <i>Obrigado</i> )
Same ( <i>Mesmo</i> )	Please ( <i>Por favor</i> )
Chief ( <i>Chefe</i> )	White ( <i>Branco</i> )
	Black ( <i>Preto</i> )

Based on the gestures produced by the hearing participants for those concepts, I reorganised the elicitation list to be presented to the deaf participants for confirmation of gesture use in Bissau. Since I communicated with the deaf participants in LGG to ask them about the

concepts, I used sign equivalents in the encoding list expressed in glosses in Table 4.

Some gesture responses given by the hearing for certain concepts were assigned in the analysis to semantically-related concepts because they were produced in the same way by the hearing gesturers. These were the cases of 'child' (produced for 'child' and within the height specifier for people), 'kill' (asked together with 'die'), 'heat' (same as 'work'), 'please' (same as 'beg'), and 'black' (same as 'white'). Unfortunately, I left a few others out of this second list, namely 'big', 'animal's height', 'sorry', 'all good?', 'together', and 'same'. They were overlooked due to the dynamics in the gesture elicitation with deaf participants (very different from the hearing one), which entailed many side comments diverting me from the original list. For these reasons, the elicitation list of gestures in Table 4 is eleven items shorter, thus comprising 30 items in total.

**Table 4.** List of 30 gestures presented to the deaf in LGG to confirm their use in Bissau, excluding those that were left out of the original list

big	finish	far	sick
much	sorry	six	kill
animal's-height	beg	ten	heat
person-height	why	boy/girlfriend	hungry
child	hit	married	thirsty
man	escape	old person	talk
woman	lie	friend	thank-you
witchcraft	die	together	please
steal	refuse	same	white
work	all good?	chief	black
		crook	

### 3.3.2.3 *Encoding method*

For the elicitation procedure, I followed the encoding method (although I did not include the decoding stage, see Payrató & Clemente 2020, 81, for a review of the encoding part of this method in gesture studies). In *encoding*, participants are supposed to convert concepts into gestures of everyday use. In this task, hearing participants are expected to represent the gesturers themselves. At the same time, I considered deaf participants to be experts for being especially aware of gestural production by hearing people.

Like Coppola (2020, 354), I used an elicited production paradigm, asking participants in spoken Portuguese if they knew gestures associated with those concepts and if they used them in their daily activities. In this way, I expected them to encode each concept as a corresponding gesture. I first presented the 41 concepts – one at a time – to the 20 hearing participants by asking them in spoken Portuguese if they expressed them with gestures or saw them being expressed by others as gestures. In this way, they would produce (“encode”) gestures corresponding to those concepts, as they would typically do (or see done by others) in the regular course of daily life.

The list of concepts was then rearranged to be presented to the 38 deaf participants in LGG, resulting in 30 concepts glossed with the sign equivalents. Again, one at a time, I asked them if they would see hearing people use gestures for those concepts with each other. As such, they would confirm which gestures were typically used by hearing people for those meanings. Deaf people have the advantage of being the primary beneficiaries of gestures. Thus, they are especially aware of the variants employed and their contextual meanings. Deaf participants could answer not only as observers of spontaneous gestures in communication between hearing people but also as experiencers of the efforts of hearing people in communicating with them. For that reason,

they naturally commented on gesture use, such as frequency, typical users, and provided examples of its usage in conversations. Sometimes, they also made suggestions about the kind of actions that are at the origin of specific gestures and observations about articulation differences between gestures and signs.

#### 3.3.2.4 *Elicitation sessions*

In gesture studies, observations of real-life situations have been typically complemented by interviews (Meyer 2013, 228). Here, the diversity of communicative contexts is likely to trigger more form variants and semantic nuances in gestures. However, since observing the natural use of gestures can be extremely time-consuming, questionnaires have become a practical alternative to surveying gesture use. Such a technique can serve to encode messages into gestural forms while gathering additional information about the elicited gestures (Payrató & Clemente 2020, 94–95). Nonetheless, it is essential to keep in mind that eliciting conscious observations of language use does not always align with its actual use.

Although they have not been explored in gesture studies, focus groups are a quick way of collecting qualitative data (Ogunbameru 2003, 2). Participants are led to act in response to each other. Thus, four focus groups, especially if homogeneous, seem to be enough to collect the necessary information to understand a particular subject (Hennink et al. 2009). Moreover, smaller groups of four participants encourage all members to share their experiences, especially if the group is homogeneous (Acocella 2011, 1127).

Both hearing and deaf participants responded in small groups. The concepts were first presented verbally in Portuguese to the five groups of four hearing teachers each (i.e., a total of 20 people). After eliciting user knowledge from hearing gesturers, I asked (in LGG) deaf

participants, in eight groups of four people and two of three people each (in total 38 people), to confirm the uses of gestures for those concepts by presenting them with the corresponding LGG signs.

The fact that participants were brought together in small groups revealed aspects such as response time and the level of general agreement within a group, as shown in Figure 58a. This was crucial to provide clues into the degree of conventionalisation of gestures concerning their forms and associated concepts, as in the variety of gestures produced for the concept of ‘witchcraft’, in Figure 58b.



**Figure 58.** Examples of gesture elicitation in groups of four participants with equal responses to ‘sick’ (a) and differing responses to ‘witchcraft’, namely to mean ‘claws’, ‘crazy’, ‘tail,’ and ‘big eyes’ (b)

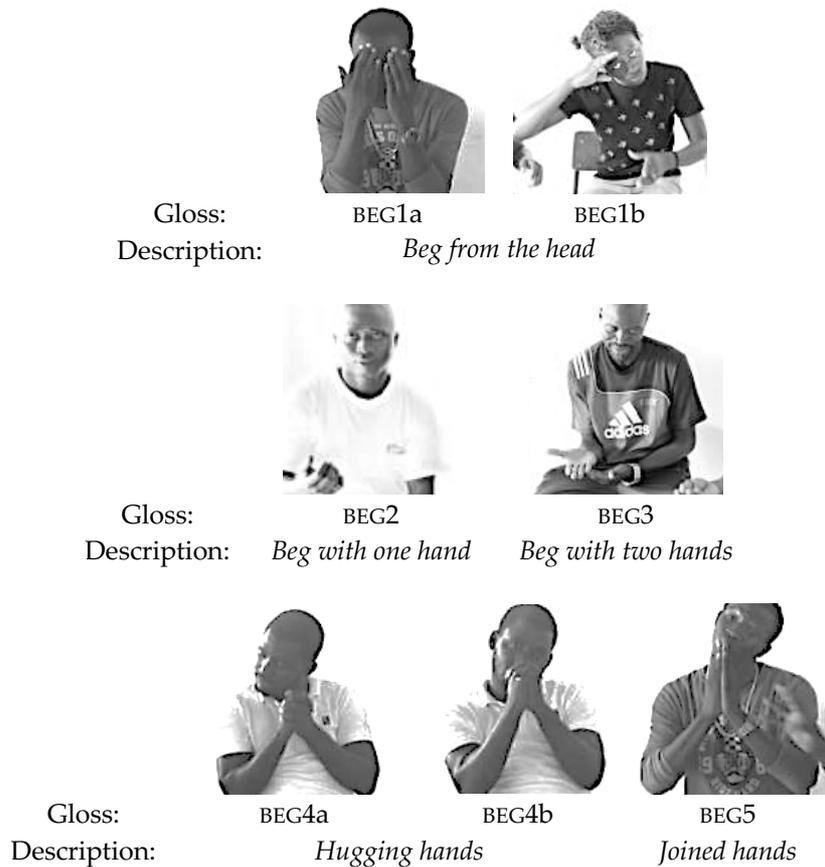
The downside of focus groups is that data can be biased since participants may influence each other (Acocella 2011, 1134). A previous study of a description task shows that in a two-participant context, one of them tends to imitate the other’s gestures (Kimbara 2008).

The sessions with the hearing participants were organised at the ENS for practical purposes since there was a high concentration of hearing and deaf people in one place. Deaf participants were filmed at both the ENS and the Mariposa school. Deaf and most hearing participants were familiar with the emerging sign language. Thus, signs derived from local gestures could trigger biased responses. While the participants' knowledge of LGG may have influenced their gesture production, I argue that precisely because of their knowledge of sign language, these participants and deaf people in particular were more aware of gesture use outside the deaf community.

### 3.3.3 Data analyses

For the analysis, data was transcribed in ELAN, a standard program used in sign language linguistics (Crasborn & Sloetjes 2008). Responses about gesture correspondences were glossed, and additional comments and explanations about gestures were translated into English. Both glosses and translations were then exported to Microsoft Excel, respectively, for frequency of occurrences and content analysis.

Transcriptions included glosses for each gestural form, which assigned different numbers and letter codes for variants. For instance, the concept of 'beg' prompted several gesture variants, glossed as in Figure 59. Importantly, these glosses indicate how many variants there are for each concept and of which kind. The type of variant can imply a different motivation, coded with numbers, or a slight variation in form, coded in letters. Figure 59 shows five different motivations. Here, BEG1 and BEG4 present each two slightly different form variants that are glossed with the letters a and b. Furthermore, to make the manual forms easier to understand for the reader, I assign each numbered variant a simple description.



**Figure 59.** Glosses and form descriptions for the gestures elicited by the concept of 'beg', including gesture variants in form (expressed in letters) and gestures with different motivations (expressed in numbers)

### 3.3.3.1 *Gesture responses*

The elicitation based on the concept and gesture lists with 20 hearing and 38 deaf participants resulted in 2209 tokens (782 produced by hearing participants and 1427 by deaf ones). If the 58 participants, hearing and deaf, had produced one response for each of the 41 concepts, there would have been 2378 tokens. They typically produced gestural

equivalents for each prompt (concept or gesture). However, they did not always respond and sometimes gave different responses to a single prompt. Thus, some of them were expressed by more than one gesture, either with variation in form or with different semiotic motivations, i.e., as totally different items. Remember that the elicitation list presented to deaf participants was eleven items shorter.

When grouping repeated tokens, the analysis of the incorporation process of gestures-to-signs relied on 69 variant types in form and 100 variant types in motivation. Form variants include gestures produced with different handshapes concerning only the gestural form that was adopted as a sign (e.g., 'kill' with the palm or the index finger running across the throat) or one or two hands (e.g., 'woman' with both fists on the breasts simultaneously versus one fist that touched one breast and then the other). Examples of two variants in motivation are representing an older person by either touching the hair or enacting holding a cane. All concepts presented to both hearing and deaf participants are expressed by conventional gestures, which in turn have sign counterparts. Since some gesture variants in form and gestures with different motivations expressing the same concepts are adopted as signs, there are 52 sign counterparts, i.e., equal in form and meaning to specific conventional gestures.

Table 5 shows the number of responses involving gestures with variants in form (e.g., 'woman', 'refuse', 'lie') and different gestures for the same concept (e.g., 'steal', 'thank you', 'married'). The fact that gestures, with variants in form and different motivations, were incorporated along more or less linear pathways determined how the results of gesture integration in LGG are presented in the description of the results. In this way, I split the data into three main groups. The first set of thirteen concepts involves the direct integration, in form and meaning, of conventional gestures into the LGG lexicon, such as the one for 'finish', in Table 5a. The second group of twelve concepts includes

gestures incorporated with variants, whether different variants for a single concept, like for ‘talk’ with one or two hands, or overlapping variants for two related concepts, such as rubbing the skin for both ‘white’ and ‘black’, in Table 5b. Lastly, the third set of 16 concepts concerns the integration of gestures that overlap in form and meaning within three different clusters, in Table 5c. Of course, determining the linearity of gesture-to-sign incorporation is not always straightforward. Therefore, in Tables 5a, 5b and 5c, I add footnotes (a to h) showing that such arrangements are not always without glitches.

I point out that gesture variants in form and motivation correspond largely to phonological and lexical variants in signs. I opt for this distinction to maintain a clearer difference between the systems in which gestures and signs are included. Also, when referring to the motivation of gestures, I simply acknowledge them, instead of describing them.

**Table 5.** Number of elicited gesture responses per concept, group of participants (hearing and deaf), variation type (form and motivation), and sign counterparts, concerning the direct integration of gestures as signs (a), the integration of gesture variants as signs (b), and the integration of gesture networks as signs (c)

a. Concepts (N=13)	Number of responses			Variant types		Sign counter- parts (N=13)
	Total (N=556)	by hearing (N=232)	by deaf (N=324)	Form (N=20)	Motivation (N=19)	
animals’ height	19	19	-	1	1	1
person’s height	42	18	24	2	1	1
child	18	18	-	1	1	1
finish	49	19	30	1	1	1
sick	83	19	64	1	5	1(+4 <sup>a</sup> )
old person	24	14	10	1	3	1

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woman	52	21	31	2	1	1
man	38	17	21	1	1	1
refuse	69	20	49	2	1	1(+1 <sup>b</sup> )
ten	41	24	17	2	1	1(+1 <sup>b</sup> )
six	25	8	17	2	1	1
hungry	58	21	37	2	1	1
thirsty	38	14	24	2	1	1

<sup>a</sup> gestures with different motivations adopted as signs for other concepts

<sup>b</sup> gesture variants in form adopted as interchangeable signs for the same concept

b. Concepts (N=12)	Number of responses			Variant types		Sign counter- parts (N=19)
	Total (N=601)	by hearing (N=193)	by deaf (N=408)	Form (N=24)	Motivation (N=15)	
hit	61	16	45	2	1	2
talk	58	19	39	2	1	2
chief	65	13	52	4	1	3
lie	80	13	67	2	1	2
far	64	21	43	2	2	2
why	73	20	53	3	1	2
big	7	7	-	1 <sup>c</sup>	1	1
much	55	21	34	2 <sup>d</sup>	1	1
work	59	21	38	2 <sup>c</sup>	2	1(+1 <sup>e</sup> )
heat	26	26	-	2	3 <sup>d</sup>	1(+2 <sup>d</sup> )
white	53	16	37	2	1	1
black <sup>f</sup>		(=)	-	(=)	(=)	1

<sup>c</sup> gestural forms overlapping with the concept listed below

<sup>d</sup> gestural forms overlapping with the concept listed above

<sup>e</sup> gestures with different motivations adopted as members of signed compounds

<sup>f</sup> concept said to be expressed by the same gestural forms as the one listed above

c. Concepts (N=16)	Number of responses			Variant types		Sign counter- parts (N=20)
	Total (N=1052)	by hearing (N=357)	by deaf (N=695)	Form (N=25)	Motivation (N=66)	
beg	100	38	62	3	4	1(+4 <sup>§</sup> )
please	15	15	-	3	3	1 <sup>§</sup> (+3 <sup>§</sup> )
thank you	85	29	56	2	6	1(+4 <sup>§</sup> )
sorry	25	16	9	2	5	2(+3 <sup>§</sup> )
all good?	17	17	-	2	1	1 <sup>§</sup>
married	151	37	114	1	5	1(+4 <sup>§</sup> )
boy/girl- friend	85	15	70	1	5	1(+4 <sup>§</sup> )
friend	104	22	82	1	4	2(+3 <sup>§</sup> )
together	21	21	-	2	2	1(+1 <sup>§</sup> )
same	19	19	-	1	1	1
die	88	25	63	1	6	2 <sup>§</sup> (+1 <sup>§</sup> +2 <sup>h</sup> )
kill	11	11	-	1	1	1 <sup>§</sup>
witchcraft	87	30	57	1	9	1(+2 <sup>§</sup> +3 <sup>h</sup> )
crook	96	15	81	1	8	2(+3 <sup>§</sup> )
steal	67	18	49	2	2	1 <sup>§</sup> (+1 <sup>§</sup> +1 <sup>h</sup> )
escape	81	29	52	1	4	1(+1 <sup>§</sup> +2 <sup>h</sup> )

<sup>§</sup> manual forms overlapping within the same cluster (within row lines)

<sup>h</sup> non-overlapping gestures with different motivations adopted as signs for other concepts

When describing the results, I use glosses in small caps when referring to manual items and single quotes to express their meanings. It is also the case, especially in the description of gesture networks (in §3.5.3), where I use italics to describe the form of gesture variants for the same concept. I have, however, to acknowledge how challenging it is to rely on glosses in a spoken language to describe how form and meaning get aligned and specified from gesture to sign.

3.3.3.2 *Observations by deaf participants*

Discussions by deaf participants were fruitful in elucidating aspects of gestures in use, including their frequency, gender preferences, and conversational contexts. These are addressed whenever relevant during the description of the results. In terms of the gestures' form, deaf people alone made observations about which actions might have been the origin of those gestures. They commented on differences in articulation between gestures and their sign counterparts.

These additional comments that did not assign concept equivalents were translated into English in Elan and assigned to different content categories, as in Table 6, again for 'beg'. This particular example shows comments on gesture use, gender preferences and frequency of use.

**Table 6.** Translation of comments by deaf participants and corresponding content categories for the concept of 'beg', concerning gesture use, gender preferences and frequency of use

<b>Gesture</b>	<b>Comments by deaf participants</b>	<b>Content category</b>
 BEG1	<i>hearing kneel</i> <i>some hearing kneel</i>  <i>old women exaggerate and kneel used by women</i> <i>hearing women do this</i> <i>hearing old women do this</i>	Gesture use  Gender preferences
 BEG4	<i>used by men</i>  <i>only some hearing people use this</i>	Gender preferences  Frequency of use

Besides observations by deaf participants, I carried out a comparison between gesture and sign data.

### 3.3.3.3 *Gesture-sign comparison*

In an approach similar to Coppola (2020, 354), I first elicited gestures from hearing participants. Then, I had them checked by deaf observers. Finally, I compared the elicited gestures with lexical items in dictionaries. These LGG signs had been documented in the three available LGG dictionaries collected in 2005, 2006 and 2017 (see §4.3.2.1 for details on the sign collection). Such time-locked records of LGG signs provide a set of lexical items used in the first couple of years of language emergence and then a decade later. In this way, it was possible to identify sign counterparts for the gestures collected in Bissau at an early phase and, for some of the counterparts, their course over the years could be tracked, whether involving modifications of form, modifications of semantic meaning, or neither (i.e., conserving both the form and meaning of the gesture).

The procedure for analysing gesture-to-sign integration began by establishing correspondences between the gestures elicited in Bissau and their formational and semantic counterparts in LGG. The form analysis involves instead deaf observations on form distinctions between gestures and signs, and actual distinctions captured during the analysis. The latter are limited to notable differences in only two phonological parameters: handedness and handshape. The semantic analysis compares the concepts from the elicitation list with the sign translations recorded in the dictionaries.

#### 3.3.3.4 *Form analysis*

In analysing the form of the elicited gestures, I consider, first, empirical explanations given by deaf participants about the original motivations of gestures. Because these are not supported by substantial evidence, I describe them in the analysis of the gestures' form merely as possible origins. In addition, the analysis includes deaf observations of the articulatory distinctions between gestures and signs that were not confirmed in the productions of hearing gesturers collected in Bissau.

When comparing the form of gestures and signs recorded in the dictionaries, I identified only two types of modifications: one in handedness, involving modifications from two-handed to one-handed forms, and in handshape, from the whole hand to the index finger. Though both variants in handedness (two and one-handed forms) and in handshape (whole-handed and index-finger forms) were already occurring as gestures, I considered them formational modifications since the final form was determined only as a sign.

As a result, I determine form adjustments from deaf perceptions on the original motivations of gestures and differences between gestures and signs. In addition, I describe actual modifications observed in gesture-sign equivalents, namely in handedness and handshape.

#### 3.3.3.5 *Semantic analysis*

In the semantic integration of gestures into LGG, I observed three integration processes: one-to-one, few-to-few, and many-to-many. The one-to-one relationship between the gestures and the signs implied a direct correspondence between the elicited concept and the translation in the dictionary of equivalent manual forms. When there was instead a relationship between a few gestures and signs, I considered such a process as the integration of gesture variants into LGG.

Finally, some gestures overlapped in form and meaning with each other within specific semantic clusters. In these entangled networks leading to the integration of many gestures as many signs, I considered the correspondences between equivalent manual forms with different meanings as polysemous. At the same time, I considered the correspondences between elicited concepts for gesture equivalents and sign translations in the dictionaries to be synonyms, expressed by different manual forms.

### **3.4 Bissau gestures to LGG signs: form adjustments**

The formational adjustments occurring during the process of gestures becoming signs were identified through two different lenses. From the reports of deaf participants regarding the elicitation list (§3.4.1), it was possible to retrieve possible original motivations for three gestures (§3.4.1.1) and differences between gestures and signs for three other items (§3.4.1.2). From the data collected from the sessions in Bissau, based on a formal comparison of the data recorded, there is evidence of formational modifications in handedness in six forms and handshape in four other items (§3.4.2).

Although referred to in the literature, movement reductions were not observed when contrasting collected gestures and their sign counterparts. However, they were described by deaf participants and, for that reason, were included in the analysis of their perceptions of the differences between gestures and signs. Like Coppola (2020, 356), I considered in the formal comparison the number of hands (one or two) and changes in handshape (yes or no). Whenever there were changes in handshape, they were described further in terms of the selected fingers.

### 3.4.1 Observations about gesture use by deaf observers

Besides providing gesture equivalents to the elicited concepts, deaf participants often added side comments on gesture use. These included their sense of how frequent or infrequent certain gestures were used in Bissau, who would typically produce them, if men or women, and how different they seemed to them when compared to their sign counterparts. Finally, deaf observers of gesture use also hypothesised the actions behind specific gestures. In terms of the gestures' form, this subsection focuses on the observations made by deaf people about the original motivation of gestures (§3.4.1.1) and how hearing people articulate certain gestures (§3.4.1.2). In both types of observations, the gestures given as examples by deaf participants are contrasted with their sign counterparts to deduce from there possible adjustments in form when being adopted as signs.

#### 3.4.1.1 *Observations about the original motivation of gestures*

Deaf participants made several comments on different aspects of gestures. As far as form is concerned, they suggested the original motivation in three cases: REFUSE, HIT and BEG. Interestingly, they added information on the people who usually perform such actions (children in the first one and women in the latter), the context (in the first), and the way these behaviours are performed initially. I present here such observations for each of the three gestures.

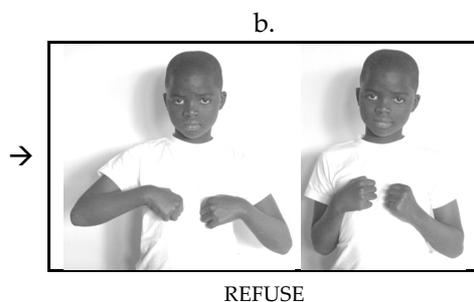
One of the deaf participants suggested that the conventionalised form in REFUSE derived from the action typical in children of pressing the elbows tightly against the sides of the body and rotating the whole torso repeatedly to embody an act of refusal (in Figure 60a). As a gesture, it is reduced in bodily movement to two interchangeable forms: one with each elbow striking against the sides of the torso and another with only one elbow (in Figure 77). Although the latter was produced

more often, one deaf observer commented that the two forms were equivalent among the hearing. Occasionally, the hearing participants accompanied the gesture (irrespective of the variant) by the word in Creole <nega>, meaning 'to deny doing something'. Such a denial, as exemplified by one of the deaf participants, may refer simply to declining food when one is satisfied.

When contrasting the original action and the conventionalised gesture, it becomes evident that the latter is produced with much less effort than the former, as can be seen in Figure 60b. That is, there is a difference in the overall amount of torso rotation, where the original action goes in two clear directions (counterclockwise, then clockwise) versus the single movement of the arms downward in REFUSE. There is also a highly expressive facial expression in the behaviour of the gesturer that is quite neutralised in the sign.



*Act of refusing by children*



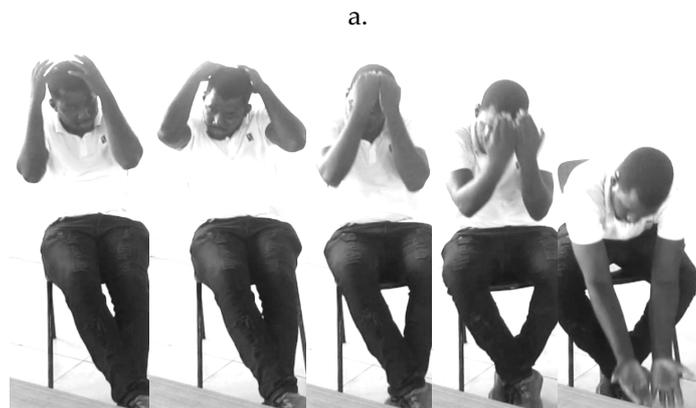
**Figure 60.** **Original act of refusing**, typically produced by children by pressing the elbows against the sides of the chest and bouncing them, as explained by deaf participants (a), and its sign counterpart REFUSE constrained to the movements of the elbows against the sides of the chest (b)

In what concerns the following concept, 'hit', deaf people suggest that the original action consists of grabbing someone with one hand while hitting her with a stick with the other hand. This gestural form is expressed frequently only by deaf observers (in Figure 61). Hearing gesturers produced consistently a one-handed variant. Local hearing people further explained that such a frequent form often cooccurs with the expression in Creole <na sutai>, meaning '(someone) hits (somebody else)', which can be uttered as a threat.



**Figure 61.** **Original act of hitting** by grabbing someone and hitting them with something, usually a stick, as explained by deaf participants

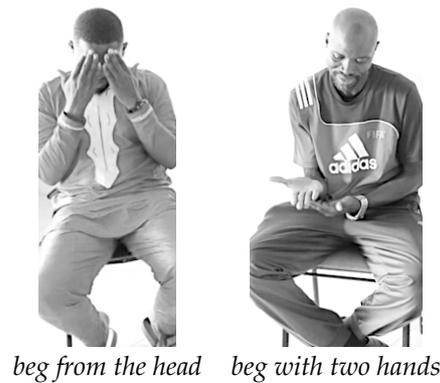
Deaf participants explained that the gesture for 'begging', with the hands moving from the forehead to the palm of the other hand (in Figure 62a), derives from an action typically produced by women when they take off their headscarf and prostrate themselves on the ground. In Bissau, such an action seems to have reduced versions, including the starting point at the forehead (in Figure 62b) or being limited to the open palms (in Figure 62c). That same deaf informant clarified that men articulate two hugging hands instead of the 'begging' act shown below.



*Act of begging by women*

b.

c.



**Figure 62.** **Original act of begging**, typically produced by women by taking off their headscarf and putting it on the ground, as explained by deaf participants (a), and the corresponding conventional gesture, sometimes split into two parts, one with the hands touching the forehead (b) and the other with one hand over the other (c)

Two of the three cases suggest an original motivation for the gestures that shows an evident formational reduction. Thus, from their supposed origin to the conventionalised gesture, the signs REFUSE and BEG are produced with less effort. This means that the arms articulate a shorter movement, the torso and the head adopt a neutral position and facial expression. Also, as a gesture, the snapping fingers in HIT replace the reference to a stick beating someone up, and HIT may lose the handling handshape in the non-dominant hand.

#### *3.4.1.2 Observations about gesture-sign differences in form*

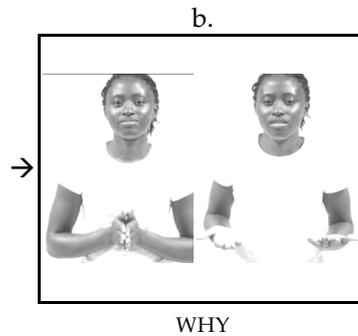
Besides commenting on the original motivation of three gestures, deaf observers commented on articulatory differences between gestures produced by hearing people and their sign counterparts in LGG. In particular, they observed that, in three cases, gestures were more ample than signs. This is to say that deaf people perceived some of the

gestures produced by the hearing as different from the forms used by signers. Therefore, in WHY, WORK, and STEAL, deaf participants remarked jokingly how gesturers would articulate such forms more expressively and widely than signers. I recall that deaf people did not respond to HEAT since its form was very similar to WORK.

For instance, for the concept of 'why', a deaf participant noted that hearing gesturers would extend their arms largely while shrugging their shoulders with the whole chest (in Figure 63a). As a sign, such a form is reduced to the movement of the forearms, and the shoulders' shrug is articulated instead as a turning of the hands (in Figure 63b).

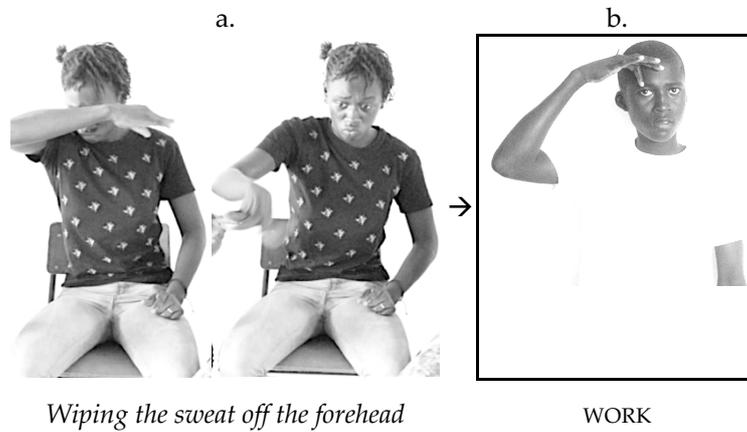


*Asking the reason for something*



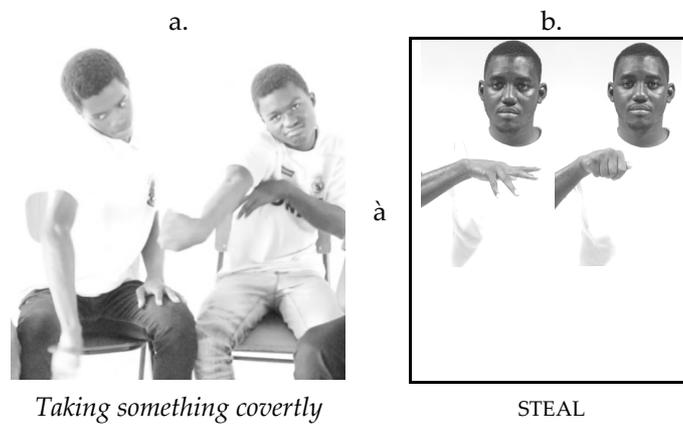
**Figure 63.** Articulation of the gesture for ‘why’ with a broad movement of turning the arms outwards after clapping the hands, as demonstrated by deaf participants (a), and its sign counterpart WHY constrained to the movement of the turning of the hand after clapping the hands (b)

Another such case where the articulation by hearing people is said to be much larger is the representation of ‘work’. Here, some deaf observers commented that wiping the sweat from the forehead was typically produced with more amplitude, including passing the forearm over the forehead. Sometimes, such an action ended with flicking fingers as if shaking the sweat off (in Figure 64a). In contrast, the sign is constrained to a short movement with the side of the hand on the forehead (in Figure 64b).



**Figure 64.** Articulation of the gesture for ‘work’ with a broad movement of wiping the sweat off the forehead and shaking the sweat off the hand, as demonstrated by deaf participants (a), and its sign counterpart WORK constrained to the movement of the hand passing across the forehead (b)

Finally, when comparing the way certain manual items were produced by hearing gesturers and by deaf signers, some of the deaf participants pointed out that the emblematic gesture for ‘steal’ is articulated as larger compared to its signed counterpart. In such a larger utterance, hearing people would extend their arm and turn it as if taking something covertly (in Figure 65a). In a more constrained way, the articulation of the sign is limited to the sequential bending of the fingers, from the little one to the index (in Figure 65b).



**Figure 65.** Articulation of the gesture for 'steal' with a broad movement of turning the arm outwards, as demonstrated by deaf participants (a), and its sign counterpart STEAL constrained to the movement of the fingers bending one at a time (b)

To sum up, deaf observers perceived notable differences in three cases: WHY, WORK and STEAL. They argue that hearing gesturers produce them with more spatial amplitude when compared to their signed counterparts. Even if the hearing participants did not produce these particular gestures in such a manner during the elicitation sessions, deaf people's observations can be considered as indicators of alternative production ways. Their perceptions likely point to a more amplified articulation by hearing gesturers in general in informal communicative contexts. Besides such perceptions, other articulatory reductions were observed in the collected data.

### 3.4.2 A few notes on gesture-sign differences from formal data comparison

The formal data comparison encompassed the 41 gesture equivalents elicited from the list of concepts. When contrasting gestures elicited

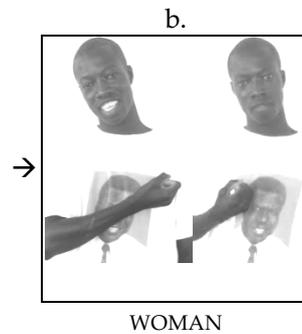
during the data collection and their signed counterparts as reported in the three dictionaries (compiled in 2005, 2006 and 2017), I observed modifications in the form of ten items. As shown in Table 7, such modifications concerned two-handed to one-handed forms in six items and from whole-hand to index-finger handshapes in four other items. The remaining pairs of gestures and signs were identical in form.

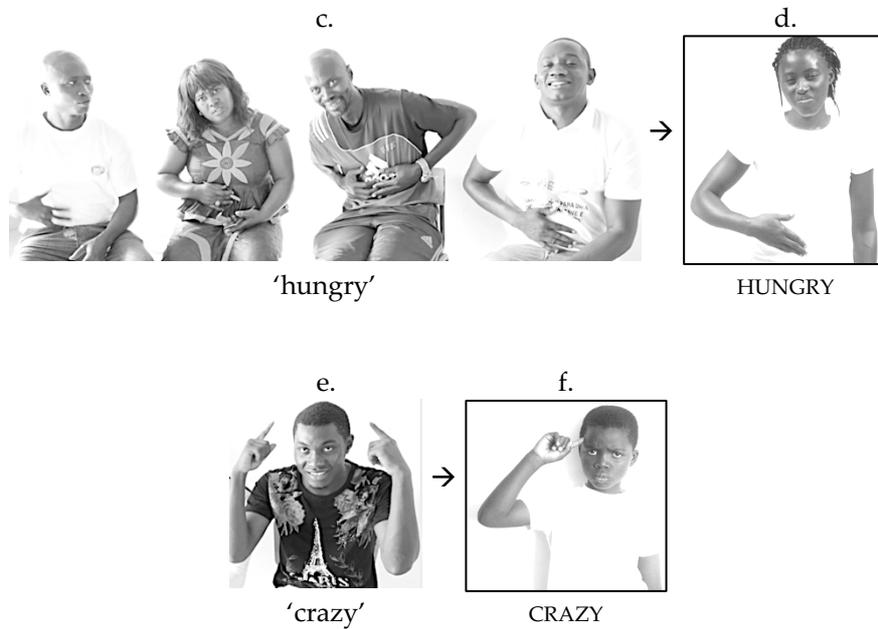
**Table 7. Gesture variants in handedness and handshape**, produced by deaf and hearing participants with either one or two hands (a), or with either the whole hand or the index finger (b), and highlighted for the most frequent variants

a.	One-handed	Two-handed	b.		
woman	34	18	work / heat	44	21
hungry	46	12	white / black	29	24
crazy	6	3	thirsty	21	17
hit	43	18	die / kill	5	51
chief	41	24			
talk	44	14			

In all ten gestures adjusted in form as signs, the articulatory modifications occurred already as gestures. This means that form variants (two and one-handed, and whole hand and index finger) were produced as interchangeable forms by gesturers and were selected only later in LGG. Thus, conventional gestures presenting slight variations in form are integrated as invariable forms into LGG. As exemplified in Figures 66a, 66c, 66e, the gestures of WOMAN, HUNGRY, and CRAZY are primarily produced with one hand (respectively in 65%, 79% and 75% of the occurrences), but, on some occasions, they also occur with two symmetrical hands. As signs, however, these forms are articulated from the beginning with only one hand, in Figures 66b, 66d, 66f.

I add that the gesture for 'hungry' typically involves a bodily contraction mimicking the painful feeling of hunger (in Figure 66c), which is reduced to an iconic facial expression in the corresponding sign (in Figure 66d). Also, as the two variants of the gesture HUNGRY are produced in the same location, so is the one-handed form of WOMAN articulated across the two breasts (in Figure 66b). Additionally, by dropping one of the hands, the sign CRAZY is produced in only one of the temples (in Figure 66f).



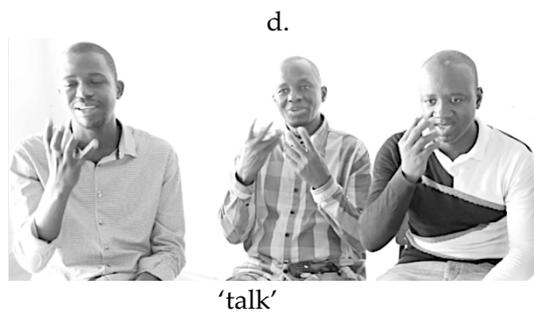
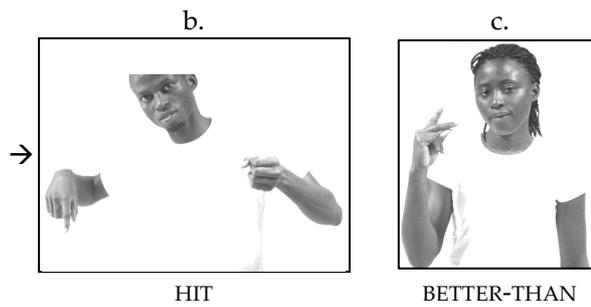


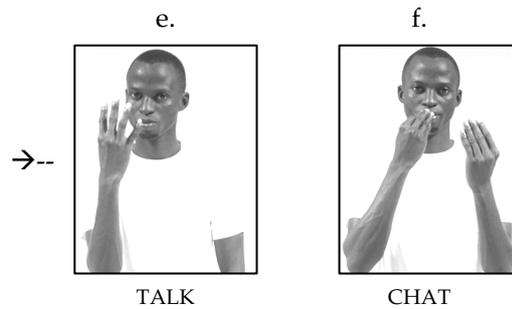
**Figure 66.** Selection of one form variant in handedness, from gestural forms produced with one and two hands for 'woman' (a), 'hungry' (c), and 'crazy' (e) to the adopted one-handed signs WOMAN from 2005 (b), HUNGRY (d) and CRAZY (f) from 2006

If a gesture used in Bissau has two clear form variants by handedness – i.e., a one-handed and a two-handed variant – LGG signers prefer to adopt the one-handed variant as a sign for the same meaning. However, in two other cases, both variants are preserved (with some modification) in LGG, but are recruited for different meanings. That is, gestures for the same concept occur interchangeably with one and two hands, but both variants are incorporated into the LGG lexicon.

In the case of 'hit' (in Figure 67a), the sign HIT articulated with a base hand represents that primary sense in LGG (in Figure 67b). In contrast, the one-handed sign adopts grammatical functions such as a comparative (in Figure 67c). In the case of 'talk' (in Figure 67d), the one-

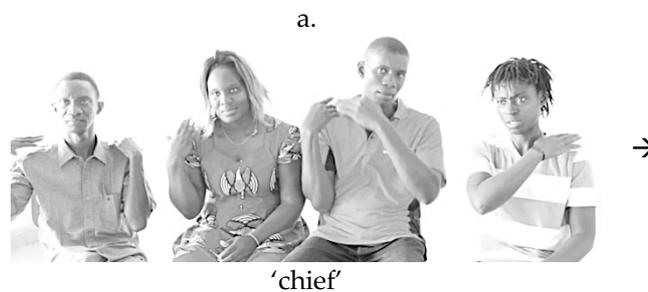
handed sign comes to signify both 'talk' and 'explain' (in Figure 67e), while the two-handed sign refers to 'chat' (in Figure 67f).



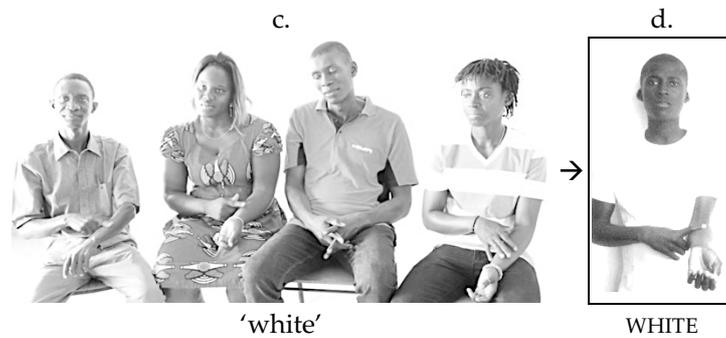


**Figure 67.** Selection of both form variants in handedness, from gestural forms produced with one and two hands for ‘hit’ (a), and ‘talk’ (d), to the adopted one-handed signs HIT from 2017 (b) and TALK from 2005 (e), and the two-handed signs BETTER-THAN (c) and CHAT (f) from 2017

It can also be the case that signers use not only one but two one-handed variants, as in the gesture variants for ‘chief’, as exemplified in Figure 68a. The one-handed form articulated in only one of the shoulders becomes part of a compound to mean ‘president and ‘director’ (in Figure 68b). In parallel, the one-handed variant produced across both shoulders is also integrated in LGG as part of a compound to mean ‘police’ and ‘soldier’ (in Figure 68c). There is only one two-handed variant being incorporated into LGG signifying ‘responsible’ as a sign (in Figure 68d).

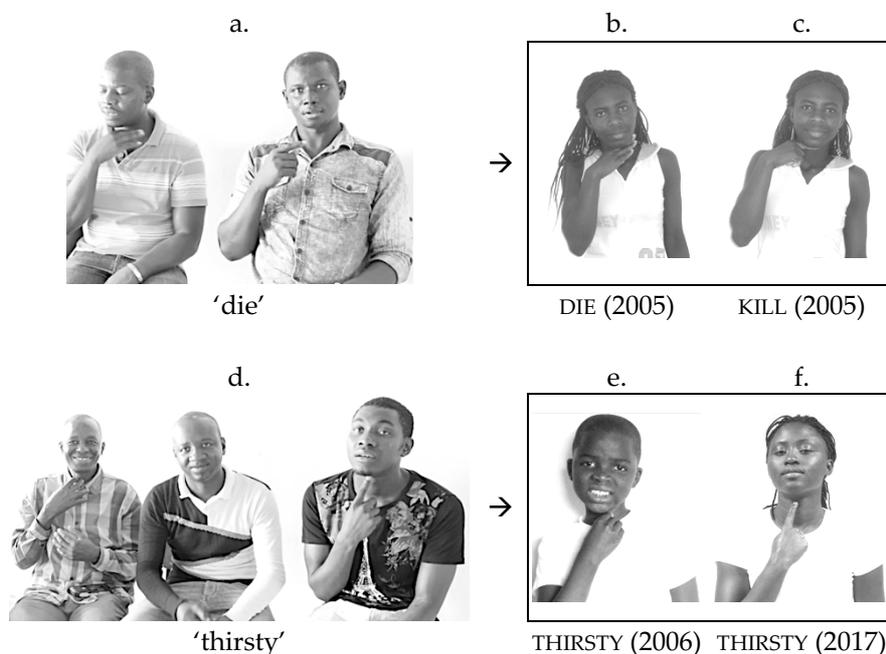






**Figure 69.** Selection of one form variant in handshape, from gestural forms produced with the whole hand and the index finger for ‘work’ (a) and ‘white’ (c) to the adopted signs produced with the index finger WORK from 2005 (b), and WHITE from 2006 (d)

Similarly, ‘die’ and ‘thirsty’ use both handshapes, the whole hand and the index finger, in Figures 70a and 70d. The *cut-throat* form is incorporated in both variants, but for different meanings: the whole hand for ‘die’ (in Figure 70b) and the index finger for ‘kill’ (in Figure 70c). The former was later replaced by a different sign, also based on a gesture, though less frequent, articulated on the nose. Importantly, of all four forms that vary in handshape, the *cut throat* is the only one that occurs much more often with the index finger. The sign THIRSTY was integrated with the whole-handed variant first (in Figure 70e) and only later became reduced to the index finger (in Figure 70f).



**Figure 70.** Selection of both form variants in handshape, from gestural forms produced with the whole hand and the index finger for ‘die’ (a) and ‘thirsty’ (d) to the adopted signs produced with the whole hand DIE from 2005 (b) and THIRSTY from 2006 (e), and with the index finger KILL from 2005 (c) and THIRSTY from 2017 (f)

Even though formational modifications have been observed in the integration process of conventional gestures into the LGG lexicon, they can hardly be considered a trend. The loss of a mirror or base hand in a two-handed gesture can only speak for the cases where such a process occurs, namely, in six items within the whole set. Therefore, I do not consider them representative of an articulatory tendency, because many signs with symmetrical hands are found in the LGG lexicon. The same can be said about the four cases where the whole hand was modified to an index-finger handshape. These cases can also be counterargued by signs that have changed in the opposite direction, such as in

PORTUGAL, that is produced in 2005 with the index fingers and in 2006 with the index and middle fingers (in Figure 115a). Either way, no other articulatory modifications were observed in the data.

### 3.5 Bissau gestures to LGG signs: integration routes

The current section focuses on lexical meaning. For signs that have gestural counterparts, do the semantic concepts conveyed by the original gestures carry over to the meaning in the sign? If so, is it the same scope of meaning? Is there evidence of a semantic split in which a gesture is modified into two (or more) signs with diverging forms? To analyse the changes occurring during the transition between gestures and signs, I compared the data collected with hearing and deaf people in Bissau on gesture use and the corresponding signs registered in the three LGG dictionaries. The comparison considered both similarities in form and semantic relationships around core concepts.

Recall that for 41 concepts, hearing people identified corresponding gestures used in Bissau, and that usage was subsequently confirmed by deaf observers (§3.3.2). Then, all the gestures collected in group sessions of both hearing and deaf people were compared with their sign counterparts in the three LGG dictionaries.

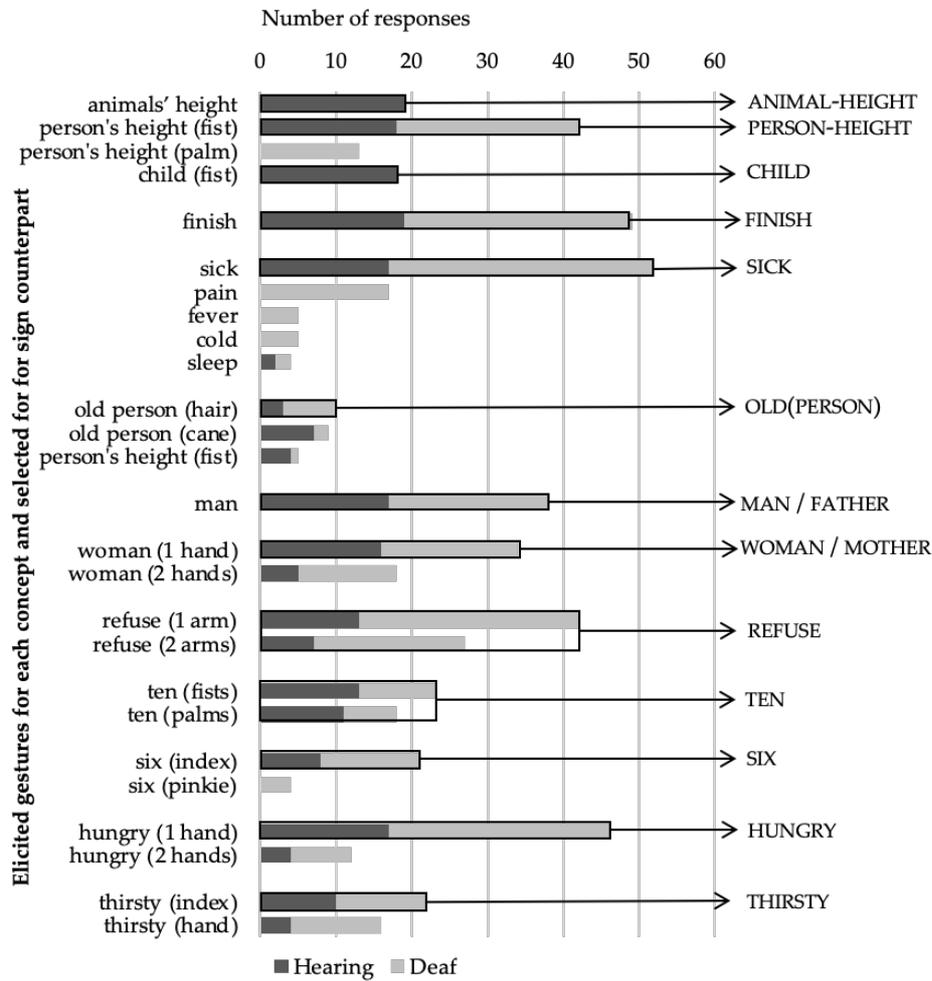
The results detailed in this section show different integration processes from gesture to sign. A third of the signs conserved the form and meaning of the original gestures, like FINISH or HUNGRY (in §3.5.1). Another third resulted from the disambiguation of polysemous gestures, like WHY and WORK, and variants very similar in form expressing the same concepts, such as ‘much’ or ‘ten’ (in §3.5.2). In the last third of the data, gestures distinct in form referred to the same concept and were thus considered synonyms, such as in ‘married’ or ‘witchcraft’. Since

in such situations, polysemous and synonymous gestures coexisted within the same semantic cluster, integration processes were more complex. Therefore, I treat them here in terms of specific networks of form-meaning pairs of gestures, such as those around the concepts of ‘beg’ – ‘thank you’ – ‘sorry’ or ‘married’ – ‘friend’ – ‘boy/girlfriend’ (in §3.5.3). Throughout the analysis, the manual forms of gestures and signs are expressed through glosses, while their meaning is referred to in single quotes. At the end of this section, I summarise the overall results (in §3.5.4).

### 3.5.1 Direct integration of gestures into LGG: one-to-one relations

Conventional gestures, i.e., gestures that are widely used within a group of people, are supposed to have already made a particular developmental path to ensure their recognisability within the community at large. Here, gestures are ready to be picked up by deaf people to be used as signs, i.e., they undergo integration processes that do not seem to require any significant phonological or semantic adjustments. I found that form and meaning were preserved in thirteen out of 41 gesture-to-sign transitions.

Of the thirteen cases showcased here, as shown in Figure 71, seven elicited gestures have their form and meaning preserved in their sign counterpart, namely in ANIMAL-HEIGHT, PERSON-HEIGHT, CHILD, FINISH, SICK, OLD-PERSON, and MAN. Six other concepts are expressed by gesture variants, of which one of them has an equal sign counterpart in WOMAN, REFUSE, TEN, SIX, HUNGRY, and THIRSTY. I will describe each one in turn, following this partition between the high preservation of the gesture and selecting a preferred form to adopt as a sign. Throughout the description, I contrast the gesture with the sign counterpart, examining how well the form and meaning are maintained during its integration into the new signed lexicon.



**Figure 71.** Direct integration of one gesture as one sign for thirteen concepts ('animal's height', 'person's height', 'child', 'finish', 'sick', 'old person', 'man', 'woman', 'refuse', 'ten', 'six', 'hungry', and 'thirsty'), including gesture variants in form and gestures with different motivations

The height specifier for animals is expressed mainly by the palm turned downwards (in Figure 72a), contrasting with the fist turned sideways for people (in Figure 72b). Deaf participants reported (in 13

of the 37 responses) that hearing people would also use the palm turned downwards for people's height, though not so often. In the same line, the fist indicates a shorter height for 'child'. Such an idiosyncratic gestural form is occasionally combined with the gesture for 'man' to specify the reference to 'adult man'. In LGG, the fist indicates human height and distinguishes age levels. The animal height with the palm in LGG is used only to refer to the general term 'animal' as part of the compound EAR^ANIMAL-HEIGHT.



**Figure 72.** Gesture responses to specify height produced equally by hearing participants for animals with the palm turned downwards (a) and for people with the fist turned sideways, including for 'child' (b)

The gesture responses for 'finish' exhibit the most invariable form and meaning across hearing gesturers (in Figure 73a), deaf observers (in Figure 73b) and as a sign over time in the 2005, 2006 and 2017 LGG dictionaries. This gesture was sometimes accompanied by the spoken word in Creole corresponding to its meaning: <caba>.

a.



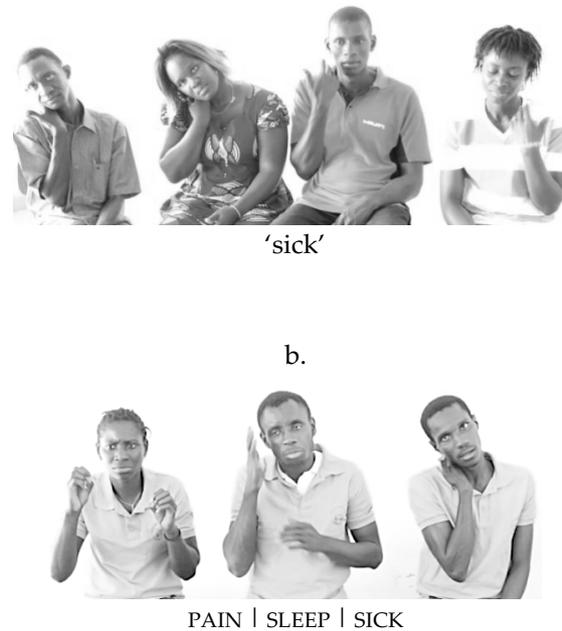
b.



**Figure 73.** Gesture responses for ‘finish’ produced equally by hearing (a) and deaf participants (b) with the palm turned downwards, moving away from each other

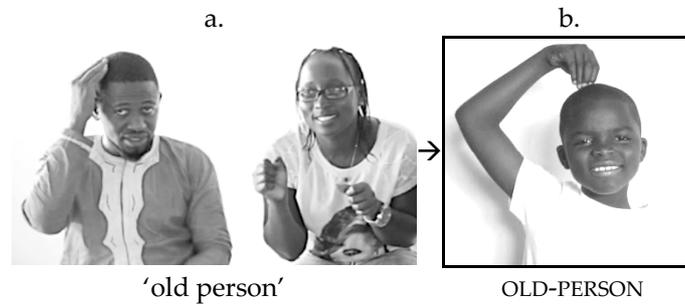
Similarly, the form for ‘sick’, where the back of the hand feels the fever heat on the side of the neck, was consistently produced as a gesture across groups (in Figure 74a). However, deaf observers add that besides that more conventionalised gesture for ‘sick’, it could be further represented by gestures for ‘pain’, ‘sleep’ (meaning ‘staying in bed’) (in Figure 74b), ‘fever’ and ‘cold’. These gestures are incorporated into LGG in the same forms and original meanings.

a.



**Figure 74.** Gesture responses for 'sick' produced equally by hearing participants with the back of the hand touching the side of the neck (a), and gesture responses with different motivations produced by deaf participants that have the sign counterparts PAIN, SLEEP and SICK, from 2005 (b)

There are three ways of representing an older person motivated by different iconic representations (in Figure 75a). One of them is the reference to the hair, which deaf observers most often produce. Another is acting as if walking with the support of a cane, more frequent among hearing gesturers. Alternatively, in only a few occurrences (five of 24), and especially with hearing participants, an older person is referred to by the height specifier for people. In LGG, signers adopt the sign articulated on the hair for an elderly person in general alone (in Figure 75b) and as part of a compound in HAIR^MAN 'grandfather' and HAIR^WOMAN 'grandmother'.

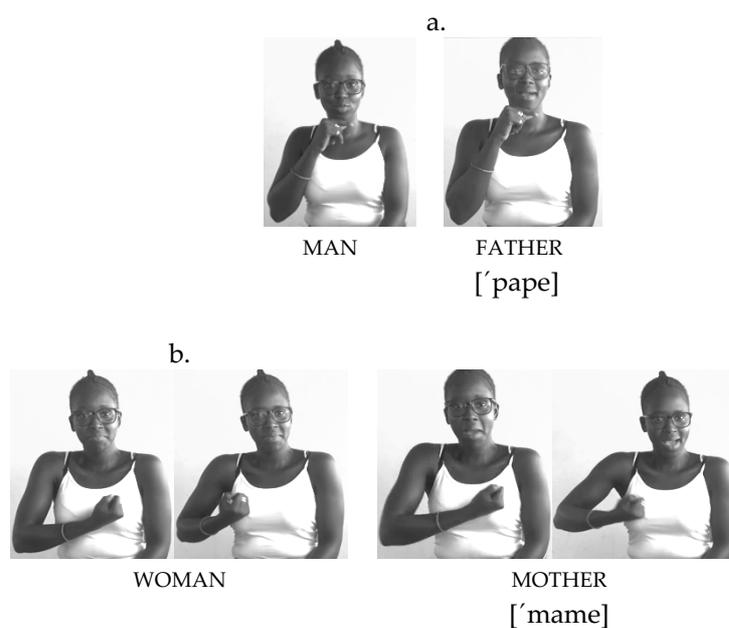


**Figure 75.** Gesture responses for 'old person' with different motivations, the grey hair and holding a cane (a), and the sign counterpart based on the grey hair, OLD-PERSON from 2006 (b)

The seventh preserved gesture as an LGG sign is MAN, consistently expressed in the same form across hearing gesturers and deaf observers and over time as a sign in the three LGG dictionaries. The remaining six concepts elicited gestures with variants in form. These include the two gesture variants for 'woman'. Although mainly produced with one fist touching a breast at the time, it can also be expressed by a two-handed variant. As observed in subsection 3.4.2, it is often the case in gesture-to-sign integration that the most frequent gesture variant is adopted as a sign.

Besides selecting the one-handed form in WOMAN, signers incorporate the polysemy inherent to the gestures for 'man' and 'woman' and adopt them in LGG. In this way, MAN refers to both 'man' and 'father' and WOMAN to 'woman' and 'mother'. In the elicitation sessions with the hearing participants, the gestures of MAN and WOMAN were sometimes accompanied by spoken words in Creole (see §2.5.4.4), revealing their polysemy. In this way, MAN could be produced together with <ome> and <pape> (translated respectively as 'man' and 'father'), and WOMAN with <mame> (meaning 'mother'). LGG signs maintain such a polysemy, distinguishing MAN from FATHER and WOMAN from

MOTHER by mouthing ['pape] and ['mame], respectively, in Figures 76a and 76b.



**Figure 76.** Distinction of polysemous signs by mouthing the Creole word for 'father' and 'mother' respectively in the pairs of signs MAN and FATHER (a) and WOMAN and MOTHER (b) from 2005

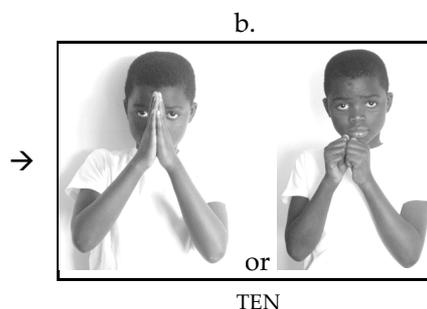
Apart from 'woman', five other concepts were expressed by gestures with variation in form, typically two main variants. The gesture for 'refuse' was the only one whose two forms, produced whether with one or two arms (in Figure 77), entered the LGG lexicon as interchangeable signed variants in the 2006 and 2017 dictionaries.



**Figure 77.** Interchangeable gesture variants in form for 'refuse', produced consistently across participants, either with one or two arms

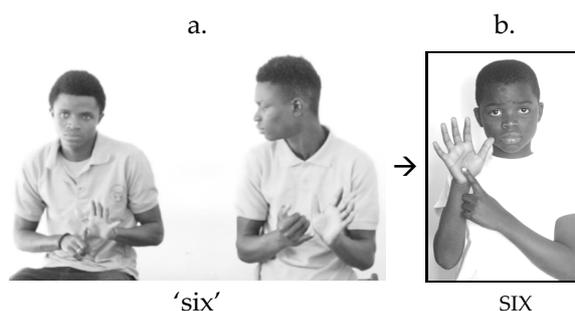
Similarly, the two gesture variants for the number 'ten' produced by joining the fists or the palms (in Figure 78a) are equally adopted by signers. In earlier stages of LGG, signers used both variants interchangeably for the number in isolation (in Figure 78b), but by the 2017 dictionary, they favoured facing palms making full contact. However, at this time, it also occurs as part of a signed compound with its joined fists variant, in TEN<sup>^</sup>GROW 'age' (see §4.5.2.3).





**Figure 78.** Interchangeable gesture variants in form for 'ten', produced consistently across participants, either with joined palms or fists (a), and their sign counterparts in TEN from 2006 (b)

In this line, hearing people produce the manual forms for numbers six to nine, mostly with contact between the palm of one hand and the fingers of the other hand. Nonetheless, some variation occurs whether by starting the counting with the little finger, the index, or even the thumb (in Figure 79a), and by representing 'five' with a fist instead of the palm. As a sign, the variant retained in LGG corresponds to the one produced with an open base hand and contact on the palm with the index finger in SIX (Figure 79b).



**Figure 79.** Gesture variants in form for 'six', produced by deaf participants, either with the thumb or the index pressed against the open palm (a), and the selected form with the index finger in its sign counterpart SIX from 2006 (b)

The gesture for ‘hungry’ was produced with either one or two hands on the stomach. The one-handed variant occurs more frequently as a gesture (in 79% of the responses by hearing and deaf participants for that concept), and was integrated into the LGG lexicon as early as 2006 (in Figure 66d, in §3.4.2). Similarly, THIRSTY was produced as a gesture in Bissau with two variants: the whole hand (all fingers) and only the index finger on the throat. The first variant was collected as a sign in 2006, but was replaced by the second variant in 2017 (Figure 70f, in §3.4.2).

This subsection presented the integration of the best conserved and straightforward gestures in form and meaning into LGG, of which FINISH is the most consistent example. Although in most cases, signers adopt the most frequent gestural forms, REFUSE keeps the two variants interchangeable in LGG, and HUNGRY adopts one in an earlier stage and the other later on. Semantically, polysemy is observed only in MAN / FATHER and WOMAN / MOTHER in gestures and signs, making it hard to state which one preceded the other. I recall that, at least, the emblematic gestures REFUSE, MAN / FATHER and WOMAN / MOTHER have been attested in different parts of West Africa, confirming their deeply rooted conventionalised use. It is also worth noting that the concept ‘sick’ was not only represented by the highly conventionalised gesture that was integrated as SICK, but also by four other gestures different in motivation, which have sign counterparts as well, namely PAIN, FEVER, COLD and BED.

### 3.5.2 Integration of gesture variants into LGG: few-to-few relations

During the gesture sessions in Bissau, a third of the concepts were expressed by gesture variants or polysemous gestures that were later specified in LGG to convey different meanings. In other words, of the 41 concepts studied, twelve involved the incorporation of more than

one form, either variants in form prompted by a single concept or very similar forms prompted by related concepts.

In this subsection, I describe the gestural responses to these twelve concepts and their LGG sign counterparts. These gestures were not adopted into LGG as directly as those in the previous subsection. The analysis of less direct gesture-to-sign integration processes starts by looking at the number of variants elicited by concepts, and then checking if the gestural forms correspond to more than one meaning. Six concepts presented variants in form that were also incorporated as signs for related meanings, as shown in Figure 80a. In contrast, six other concepts with associated meanings were expressed by polysemous gestures that were also integrated as signs, in Figure 80b.

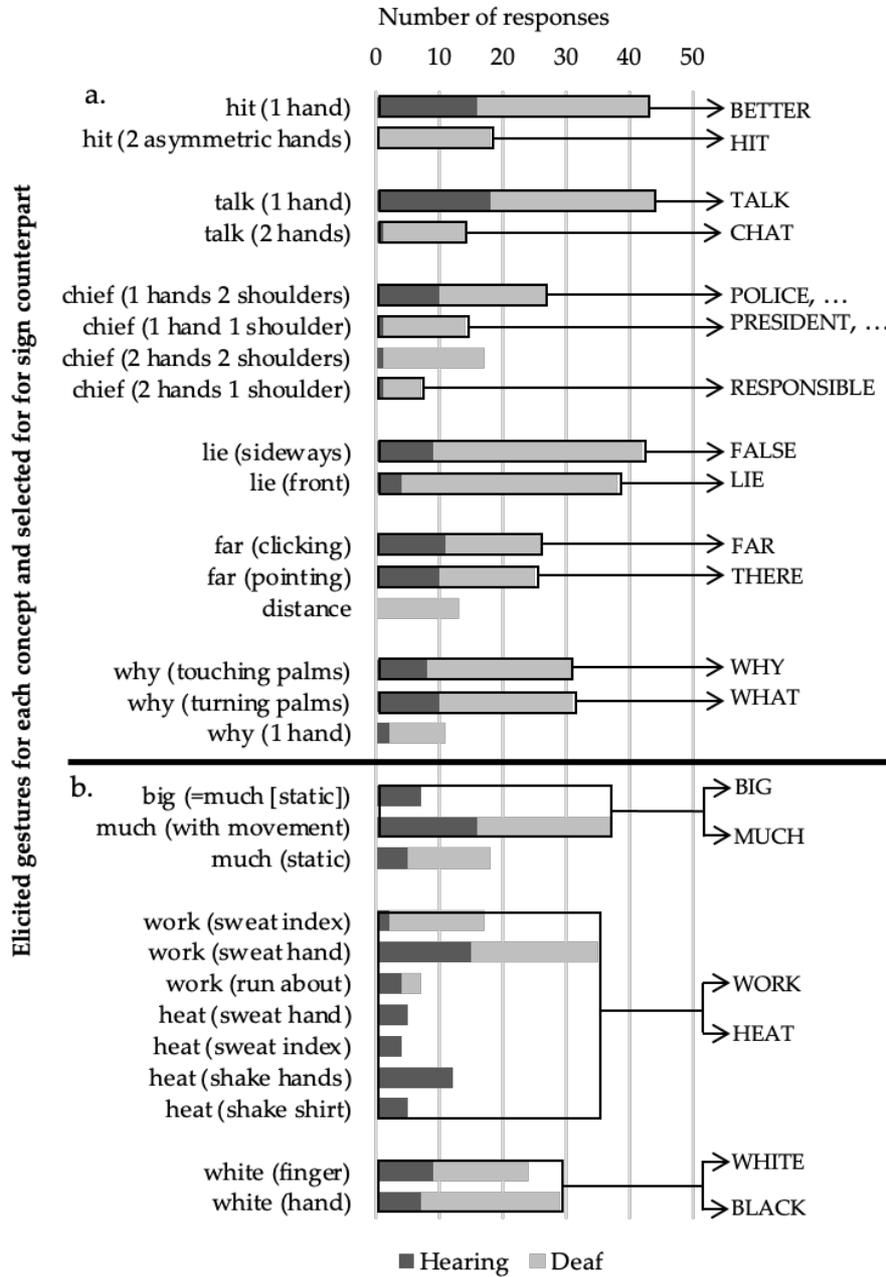


Figure 80. Integration of a few gesture variants in form as a few signs in twelve concepts with related meanings, six concepts ('hit', 'talk',

'child', 'chief', 'lie', 'far', 'why') eliciting two form variants both recruited as signs (a), and three pairs of concepts ('big' / 'much', 'work' / 'heat', 'white' / 'black') eliciting overlapping forms both distinguished as signs (b)

I first look at the six concepts expressed by gesture variants. Three of these concepts – 'hit', 'talk', and 'chief' – have already been described in subsection 3.4.2 concerning the incorporation of variants in handedness. In these cases, both one-handed and two-handed variants were adopted by signers but specified semantically as they entered the LGG lexicon.

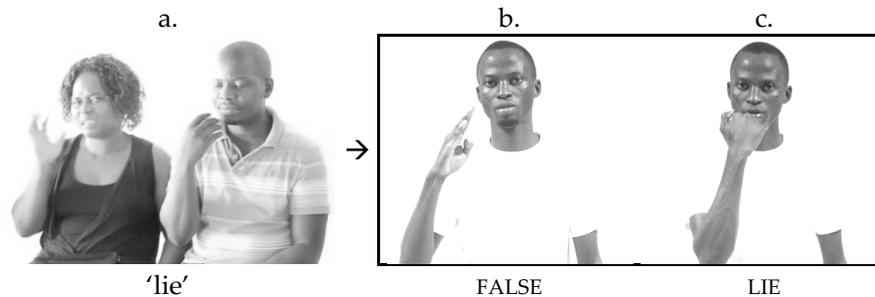
The first case of this level of gesture-to-sign integration is the expression of the concept 'hit'. In the elicitation sessions, a one-handed variant was consistently produced across participants with the sense of 'hit'. The sense conveyed by the two-handed variant, which represents the act of grabbing someone with one hand while hitting her with a stick with the other hand, meaning 'to beat someone up,' is maintained as a sign. This variant corresponds to the less common gesture variant – produced only by deaf observers. It recovers the iconicity of that act by adding a handling handshape as if grabbing the person being beaten. In contrast, the one-handed gesture is integrated into the LGG lexicon by expanding metaphorically to signify 'to beat someone at something'. Both gesture variants and sign counterparts meaning 'hit' and 'better than' are illustrated in Figures 67a, 67b, and 67c, in subsection 3.4.2.

Similarly, the concept of 'talk' elicits two gesture variants: a more frequent one, produced mostly with one hand, and, with fewer occurrences, a two-handed form. Sometimes, it is accompanied by the word <papia> in spoken Creole. Both variants are integrated into the LGG lexicon. As signs, the one-handed variant with reduplication signifies

'talk', whereas, with a single movement, it means 'explain'. The two-handed variant denotes 'chat'. The gesture variants for 'talk' and their signed counterparts are shown in Figures 67d, 67e and 67f, in subsection 3.4.2.

In a different way, the concept of 'chief' prompts three main gesture variants, and all of these are incorporated into the LGG lexicon with distinct meanings. One of the variants, produced with one hand on each shoulder at a time, is used as part of a compound in signs designating figures of authority, in POLICE, SOLDIER, and earlier versions of PRESIDENT. Another variant, articulated with one hand on one shoulder with an upward movement, is used in DIRECTOR, and is also recorded in the latest LGG dictionary in a more recent version of PRESIDENT. A third variant, with two hands on one shoulder, is integrated into LGG as RESPONSIBLE. The gesture variants and their sign counterparts are referred to in subsection 3.4.2, in Figures 68a, 68b, 68c, and 68d.

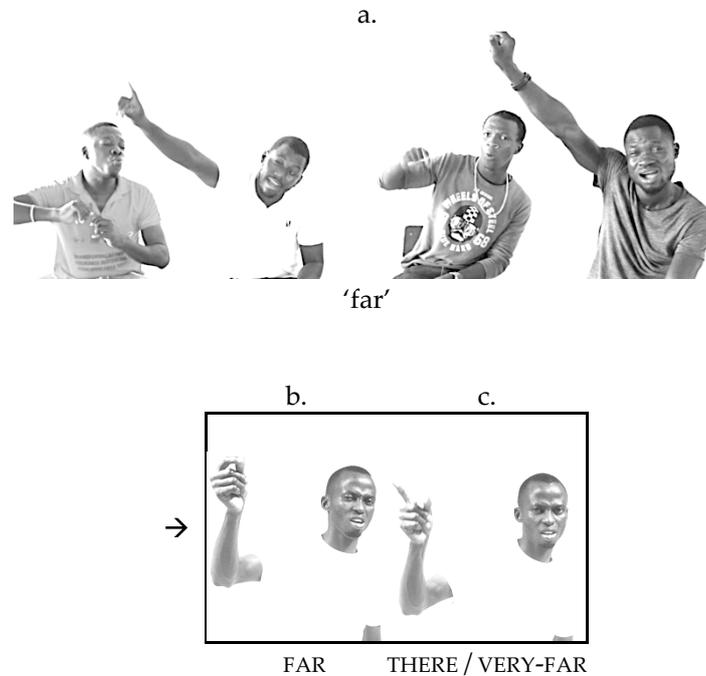
As in the previous cases, so do 'lie', 'far' and 'why' elicit gesture variants in form. The notion of falseness is expressed in Bissau by blowing air to a moving hand or index finger in front of the mouth, whether sideways or facing forward (in Figure 81a). In the elicitation sessions, the variants articulated with the hand were more frequent. They are the ones incorporated into LGG. In the integration process, signers created a grammatical contrast between those two forms, i.e., the side-ward variant means FALSE (in Figure 81b) and the front-directed form LIE (in Figure 81c).



**Figure 81.** Gesture variants in form for ‘lie’, produced consistently across participants, either with the hand moving sideways or away from the mouth (a), and their sign counterparts for related meanings in FALSE with the hand moving sideways (b) and LIE with the hand moving away from the mouth (c) from 2017

The fifth concept eliciting gesture variants, the one for ‘far’, shows once again how somewhat similar forms are incorporated into LGG with distinct meanings. The two main variants are evenly distributed across the responses by both hearing and deaf (in Figure 82a). Still, only clicking the fingers while the arm is extended carries the original concept of ‘far’ as a sign (in Figure 82b). At the same time, pointing to a distant location with the extended arm pointing away signifies ‘there’ or ‘very far’ in LGG (in Figure 82c).

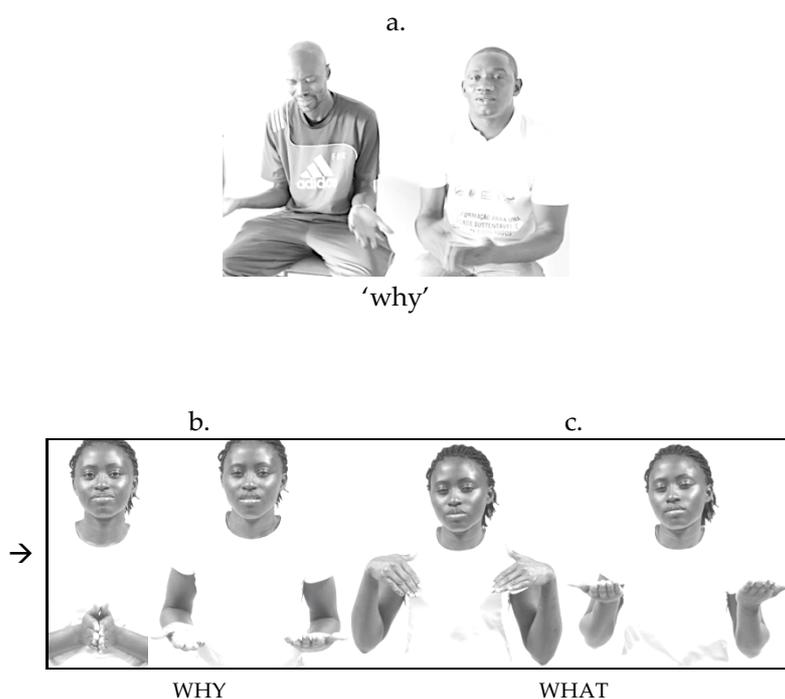
It is worth noting that both gesture variants contain deictic content and distance at the same time, while the two LGG signs cleave these apart. Unsurprisingly, the deictic sign retains the pointing index finger form, while the adjective uses an emphatic click for the adjectival meaning. Also, in LGG, the signing space is reduced, and the arm is held in a very similar position. This increases the regularity in form and makes the analogical differences between the two signs stand out, creating a more combinatoric system.



**Figure 82.** Gesture variants in form for ‘far’, produced consistently across participants, either with a clicking hand or pointing away (a), and their sign counterparts for related meanings in FAR with a clicking hand (b) and THERE / VERY-FAR by pointing away (c) from 2017

The last concept eliciting gesture variants is ‘why’ (in Figure 83a). Hearing gesturers produced slightly different forms when elicited with that concept, which deaf observers then confirmed. The two main variants implied turning the palms with and without a clapping before turning were also said to mean ‘how’ and ‘what’. Overall, the most common gestural form was the one with clapping. LGG signers adopted this gesture for ‘why’ (in Figure 83b). In addition, the form without the clapping was integrated into the LGG lexicon to signify

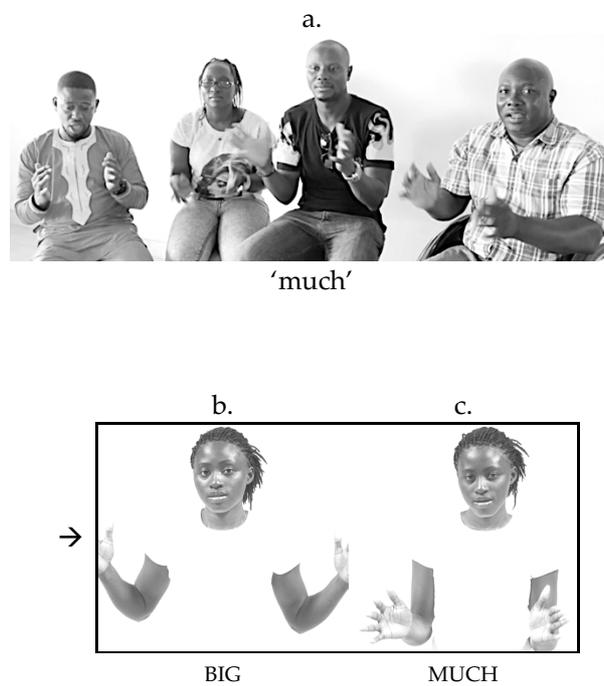
'what' (in Figure 83c) and combines in different compounds for 'where' and 'who'.



**Figure 83.** Gesture variants in form for 'why', produced consistently across participants, by turning the hands either preceded by a clapping or not (a), and their sign counterparts for related meanings in WHY with the clapping (b) and WHAT without the clapping (c) from 2017

Besides showing gesture variants, the same gesture can express related concepts, i.e., they present polysemy. In the first pair comprising the concepts of 'big' and 'much', the form articulated with two static hands in space is often used for both concepts by the same gesture. In contrast, the less frequent gesture involving a back-and-forth movement

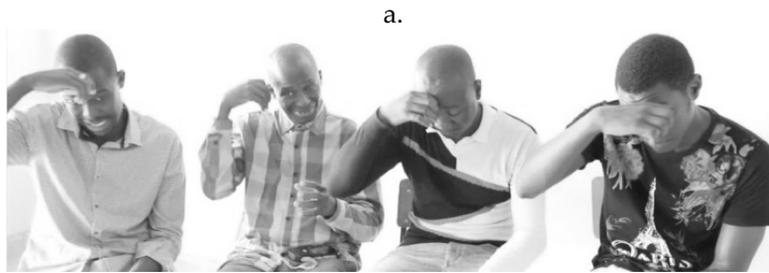
is produced only in response to 'much'. In other words, while 'big' elicits consistently the two static hands, 'much' triggers responses of both forms (in Figure 84a). Subsequently, both gestures are adopted as signs with different meanings, the first for 'big' (in Figure 84b) and the second for 'much' (in Figure 84c).



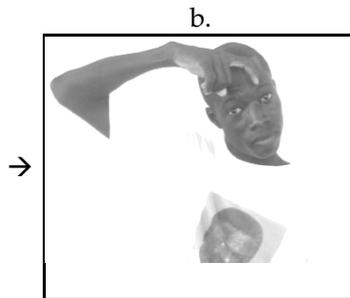
**Figure 84.** Gesture variants in form for 'much', produced across participants, with both hands either static, also for 'big', or with a back-and-forth movement (a), and their sign counterparts in BIG with both hands in space (a) and in MUCH with a back-and-forth movement (b) from 2017

The remaining two pairs of related concepts prompted polysemous gestures, although in slightly different circumstances. The first pair,

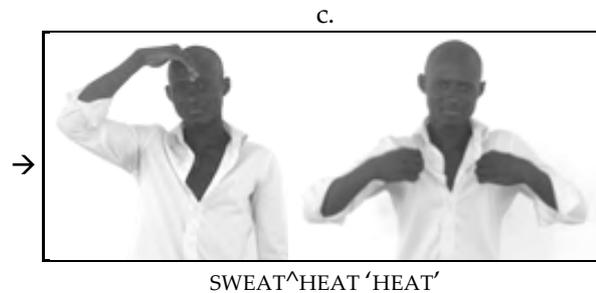
'work' and 'heat', was consistently expressed in Bissau by wiping the sweat off the forehead (in Figure 85a). Thus, the gestural form iconically motivated by 'sweat' extends semantically to what causes it, whether the physical effort in 'work' or the environmental conditions in 'heat'. While the sign WORK is recorded as a single sign in the 2005 dictionary (in Figure 85b), HEAT is combined in the same year with another bodily reaction, namely by shaking the shirt, in a compound, SWEAT^HEAT (in Figure 85c).



'work' / 'heat'



WORK

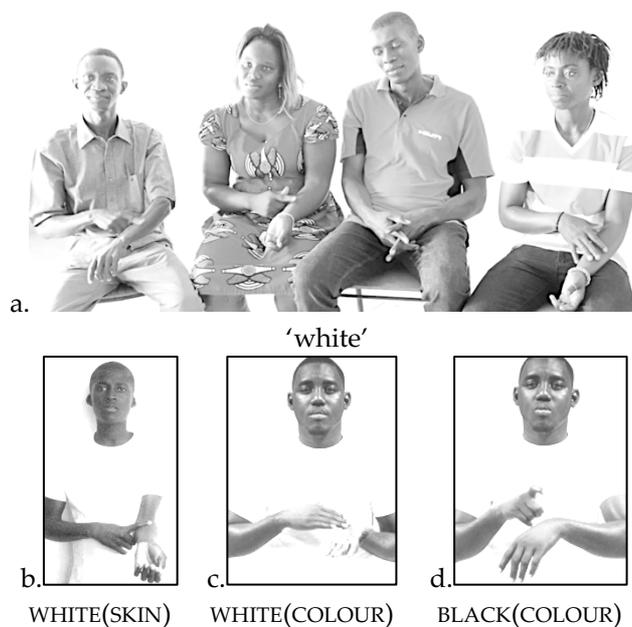


**Figure 85.** Polysemous gesture for 'work' and 'heat' produced consistently across participants with the side of the hand on the forehead (a), and its sign counterpart in WORK (b) and HEAT produced as a compound (c) from 2005

The third and last pair of related concepts was expressed by polysemous gestures for both 'white' and 'black'. As a gesture, in Bissau, the skin colour seems strongly conventionalised only for 'white', although presenting some variation in arm orientation and handshape (as described in §3.4.2). Figure 86a shows such a variation. Here, the two participants on the left use the index finger, while the one on the right uses the whole hand (the third participant from the left is not producing any gesture in that particular frame). As far as 'black' is concerned, hearing people responded to the concept by saying that its gestural form was equal to 'white'. Probably to disambiguate such polysemy, deaf observers of gesture use in Bissau add that hearing people sometimes combine the skin rubbing with a gesture with the palm for 'plane', referring to the white people from abroad.

In LGG, deaf signers disambiguate the polysemous form for both 'white' and 'black' by indicating 'white skin' (i.e., 'white person') with the index rubbing the inner side of the forearm (in Figure 86b). To distinguish 'white', as a general colour term, from 'white skin', signers

produce it on the palm to specify it further (in Figure 86c). Because 'black' did not seem as conventionalised as 'white' in gestures, it is possible that signers found 'white' to be more available to be picked up into LGG. As WHITE was specified as a sign in location and hand-shape, BLACK is likely to have been adjusted in terms of form contrasts, by tapping with the index finger on the outer side of the forearm (in Figure 86d). Before being produced with the tapping movement, in the 2017 dictionary, the sign for 'black' was produced by rubbing the forearm in 2006. At this stage, it was only distinguished from 'white' by the place of articulation.



**Figure 86.** Gesture variants in form for 'white', also said to be the same for 'black', produced across participants either with the index finger or the hand rubbing either the inner or the outer side of the forearm (a), and their sign counterparts in WHITE(SKIN) with the index on the inner side of the arm (b), WHITE(COLOUR) with the index on the palm (c), and BLACK(COLOUR) by tapping the index on the outer side of the arm (d) from 2006

Unlike the direct incorporation of gestures into the LGG lexicon described in the previous subsection, the course of gesture-to-sign integration here shows a less direct correspondence. Certain concepts are expressed by gesture variants adopted by signers for related meanings. In addition, pairs of related concepts may have polysemous gestures that are disambiguated by signers when entering the LGG lexicon. This means that, besides the twelve concepts expressed by gestures and with sign counterparts, there were eight more form variants adopted as signs and three others different in motivation that were combined as signed compounds. All of these cooccurring gestures were produced by both hearing and deaf participants.

Overall, this is privileged data in capturing gesture variation and the transition into signs. It enables the witnessing of how LGG signers select gestural forms and specify meaning when picking conventionalised gestures surrounding them and adopting them as signs. It also confirms the integration of highly conventionalised gestures used across West Africa, such as REFUSE and WHY. The following subsection addresses a much more complex entanglement of gestural forms and meanings jostling at some juncture before being unravelled into more discrete form-meaning correspondences.

### 3.5.3 Integration of gesture networks into LGG: many-to-many relations

In this subsection, I look at three clusters of concepts that are expressed by overlapping gestures. Each cluster involves gesture variants in form and gestures with different motivations cooccurring across concepts. Thus, on one hand, concepts are represented by synonymous forms, i.e., different forms with the same meaning. On the other hand, because many of them cooccur across concepts, they reveal polysemy, i.e., the same form with different meanings. Even in the face of such an

entanglement of synonymous and polysemous gestures, signers selected a form to integrate as a sign into the LGG lexicon, which was usually the one used more often for the concept in question.

Connections between gestures within these networks are set through distinct synonymous forms expressing the same concept, such as having both the gesture representing a *ring* on the finger and two *joined palms* for 'married'. At the same time, some of these forms expand semantically, taking on multiple meanings, like having the *cut-throat* gesture to refer to 'die', 'kill', 'criminal' and 'witchcraft'. In what follows, I present three networks that contain synonymous and polysemous forms of different – though related – concepts, overlapping as gestures, that become disambiguated as signs. The three networks involve the following sets of concepts:

- 1) 'beg' – 'please' – 'thank you' – 'sorry' – 'all good?'
- 2) 'married' – 'boy/girlfriend' – 'friend' – 'together' – 'same'
- 3) 'die' – 'kill' – 'witchcraft' – 'crook' – 'steal' – 'escape'

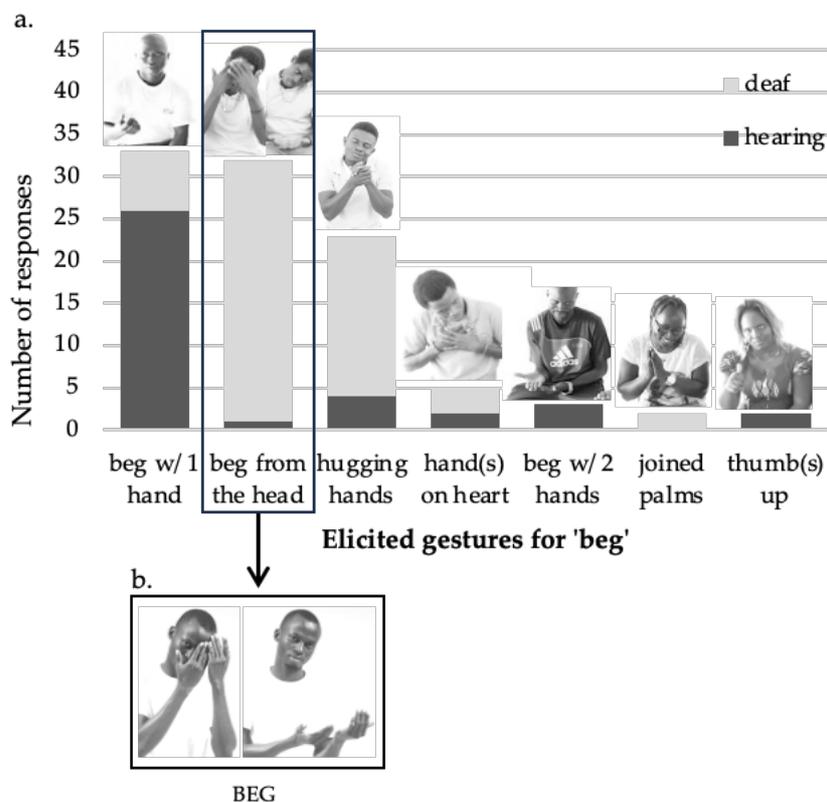
To analyse the entanglement between synonymy and polysemy, I will first describe the lexical variants, or synonymous gestures, expressing semantically related concepts. Besides using glosses to describe the manual forms of gestures and signs, and single quotes to refer to their concepts, I also italicise form descriptions of gesture variants for the same concept. Gestural forms overlapping for different concepts reveal an additional polysemy. Finally, I explain which forms are adopted for those concepts in LGG and if any other forms are incorporated into the lexicon to express related meanings.

### 3.5.3.1 'Beg' – 'please' – 'thank you' – 'sorry' – 'all good?'

The first network arises from an intertwinement of forms and meanings around the semantically related concepts of 'begging', 'asking politely', 'appreciating', 'apologising', and 'greeting'. Though it became clear that different gestures could express each concept, some forms were used more often than others in particular concepts, like the gestures *beg from the head* and *hugging hands*, corresponding respectively to the LGG signs BEG and THANK-YOU (in Figures 87 and 89).

In this semantic network, the concept of 'beg' elicited the most responses (N=100), distributed across seven different gestures (in Figure 87a). As suggested by the deaf participants (in §3.4.1.1), this concept may originate in a behaviour mainly performed by women where they take off their headscarf and prostrate themselves on the ground. If that is so, this behaviour could have been reduced to a conventionalised gesture to a movement starting on the forehead and ending with one palm over the other. This *beg from the head* form is by far the most frequent gesture provided by deaf participants for 'beg' (31 of 62). In contrast, most hearing participants (26 of 38 gestures) produced a *begging* gesture *with one hand*. Deaf observers commented that while women favour the *beg from the head* gesture, the two *hugging hands* gesture is preferred by men. This was the second most produced gesture by both groups (19 of 62 deaf participants and 4 of 38 hearing participants).

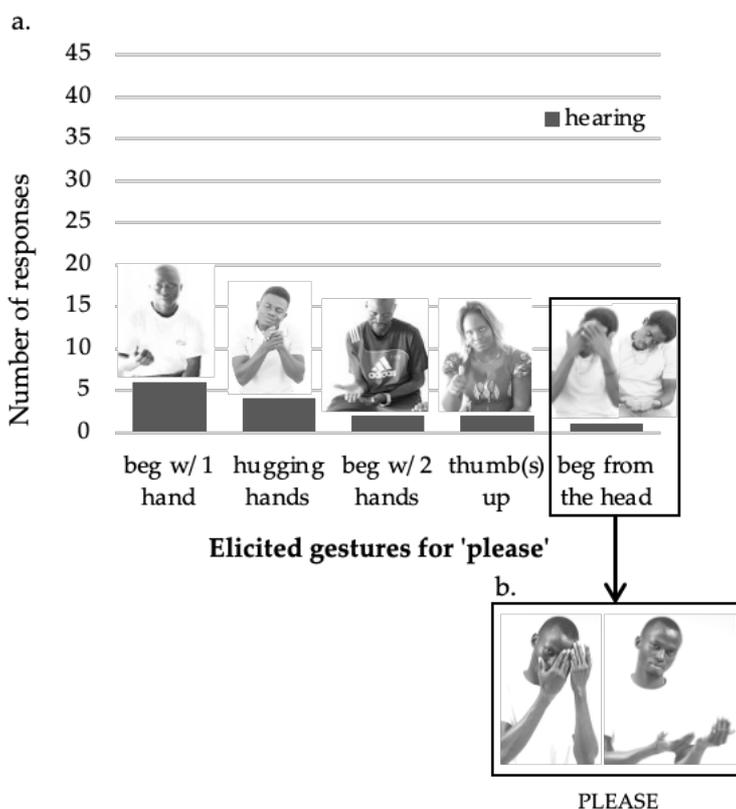
The three other gestural forms occurring for this concept – *joined palms*, *hand(s) on heart* and *thumb(s) up* – were used very few times. When looking at the gestures that were adopted as signs, the form *beg from the head* corresponds to the LGG sign BEG (in Figure 87b), and *beg with one hand* to RECEIVE. As shown in Figure 87a, these two gestures adopted as signs were the most frequently used in the concept of 'beg'.



**Figure 87.** Gesture synonyms for ‘beg’, namely seven forms distributed across 100 responses by deaf and hearing participants (a), and the adopted gesture *beg from the head* (N=32) as the sign BEG from 2017 (b)

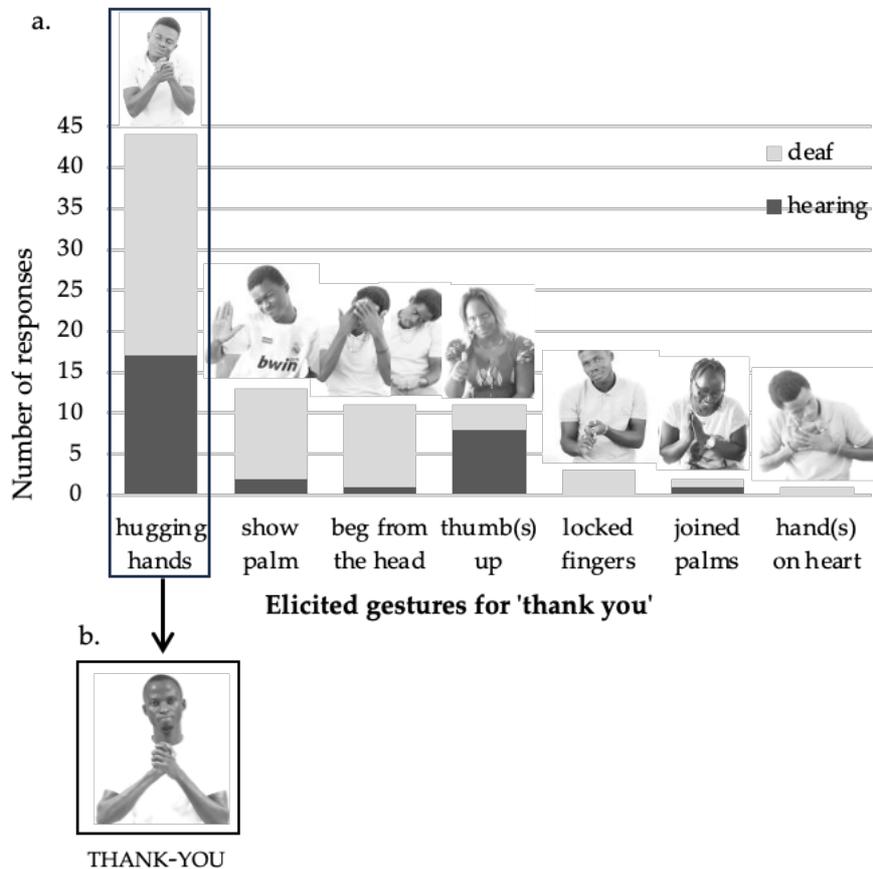
The gestures elicited for the concept of ‘beg’ coincided with those elicited for ‘please’. Because of such redundancy, I opted not to ask the latter to the deaf participants. Thus, Figure 88a shows only responses by hearing gesturers. For ‘please’, there are five different gestures instead of the seven elicited by ‘beg’. Curiously, the proportion of responses by hearing participants for each gesture was equivalent for both concepts. Thus, as with the concept of ‘beg’, the most frequent

gesture produced for 'please' was *beg with one hand*, followed by *hugging hands*. Even if produced less frequently within this group, the *beg from the head* gesture is the one adopted by LGG signers for PLEASE. In this way, signers seem to adopt its polysemy since it is also used as BEG. Despite the polysemy of this LGG sign, I glossed it differently in Figure 87b and Figure 88b, following its 2017 dictionary entries. Henceforth, I will use two different glosses for this sign.



**Figure 88.** Gesture synonyms for 'please', namely five forms distributed across 15 responses by hearing participants (a), and the adopted gesture *beg from the head* (N=1) as the sign PLEASE from 2017 (b)

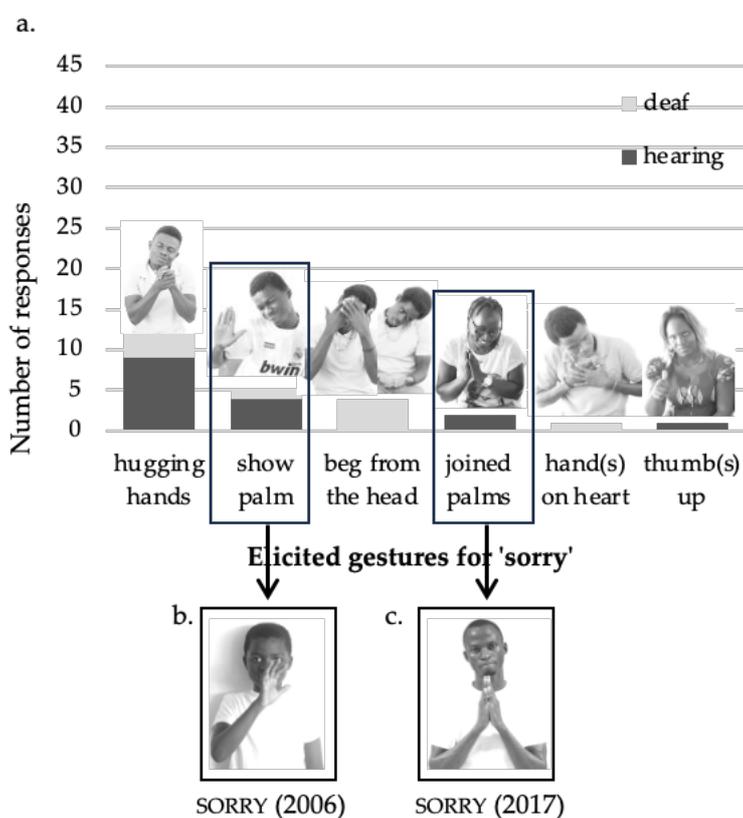
The concept of 'thank you' elicited the second most responses in this cluster (N=85), after 'beg', also distributed across seven different gestural forms (in Figure 89a). Here, the *hugging-hands* gesture represents the most frequent response (44 of 85 by both hearing and deaf participants). Most of the gestures elicited for 'beg' coincide with the ones produced for the concept of 'thank you'. The exception is made only by the *show-palm* and the *interlocked-fingers* gestures that are also elicited by other concepts. To represent 'thank you', LGG signers adopt the most frequent gesture response in both deaf and hearing participants, which is *hugging hands* (in Figure 89b). Again, more frequent gestures with more conventionalised meanings seem more likely to integrate into the signed lexicon.



**Figure 89.** Gesture synonyms for ‘thank you’, namely seven forms distributed across 85 responses by deaf and hearing participants (a), and the adopted gesture *hugging hands* (N=32) as the sign THANK-YOU from 2017 (b)

The fourth concept in this cluster shows again overlapping forms with the previous concepts. The concept of ‘sorry’ is also expressed by the *hugging-hands* and the *beg-from-the-head* gestures (in Figure 90a). Because these two gestures were adopted for the most conventional meanings in THANK-YOU and BEG / PLEASE, the following two most used forms by hearing gesturers integrate the LGG lexicon for ‘sorry’.

The integration of the two different gestures occurs at different periods. The *show-palm* form is registered in the 2006 dictionary (in Figure 90b), and the *joined palms* are documented in 2017 (in Figure 90c). The fact that different gestures are selected as signs in distinct years shows some difficulty in choosing from less frequent forms. The gesture for ‘sorry’ was not elicited with deaf participants. Nonetheless, they commented, especially in response to ‘thank you’, that some of the gesture variants could also mean ‘sorry’.

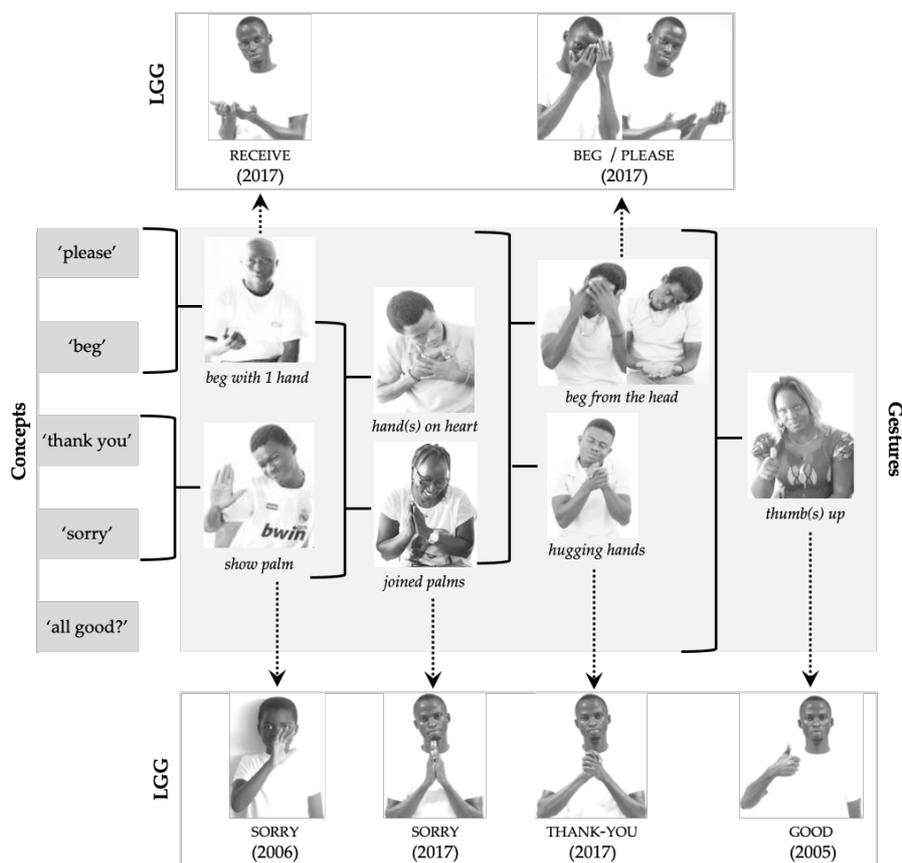


**Figure 90.** Gesture synonyms for ‘sorry’, namely six forms distributed across 25 responses by deaf and hearing participants (a), and the adopted gestures *show palm* (N=5) as the sign SORRY from 2006 (b) and *joined palms* (N=2) as SORRY from 2017 (c)

The previous figures show that often the same gestures are produced for different concepts. Out of these, the *thumbs up* is the most polysemous gesture. It is associated with all concepts involving asking, thanking and apologising, especially by hearing gesturers. Although it was not the preferred response for those concepts and was not chosen as a sign to denote any of those meanings, it is incorporated into the LGG lexicon as GOOD. The concept of 'all good?', asked only to hearing participants, elicited the *thumbs up* alone, justifying a higher conventionalisation for this particular meaning. As a sign, it occurs in the 2017 dictionary, with the two hands for 'good' after touching the chest. In 2005, it had been recorded to mean 'yes', and, in 2006, to signify 'good'.

Looking at the semiotics of the gestures, it is striking how, except for *thumbs up*, all of them put the gesturer in a subservient position to the interlocutor, by implying a message of 'I humbly request something', 'I am humbly thankful', or 'I am sorry'. In contrast, the *thumbs up* seems to be targeted at an interlocutor with a more equal status than the others.

Figure 91 demonstrates how the *thumbs up* can express all concepts in the cluster, contrasting with other gestures. The following two most polysemous gestures, the *beg from the head* and the *hugging hands*, are associated with four meanings each. Two other forms, the *joined palms* and the *hand(s) on heart*, are associated with three meanings. Some gestures have two meanings, like *beg with one hand* expressing 'beg' and 'please', and the *show-palm* gesture signifying 'thank you' and 'sorry'.



**Figure 91.** Network of ‘please’, ‘beg’, ‘thank you’, ‘sorry’, and ‘all good?’, eliciting a set of polysemous gestures adopted as signs, *thumb(s) up* as GOOD from 2005, *show palm* as SORRY from 2005, *joined palms* as SORRY, *hugging hands* as THANK-YOU, *beg with one hand* as RECEIVE, and *beg from the head* as BEG / PLEASE from 2017

Even with high polysemy, some forms have stronger associations with particular meanings, as shown in the frequency of responses. From the different responses to the concepts within the present cluster, signers tendentially choose the most frequent gesture to express the corresponding concept in LGG. Thus, in this semantic network, most

conventionalised gestures, i.e., forms linked more often to specific meanings, namely in BEG, THANK-YOU and GOOD, are readily incorporated into the LGG lexicon. This also occurs with RECEIVE although to express a different meaning than the ones elicited for gestures.

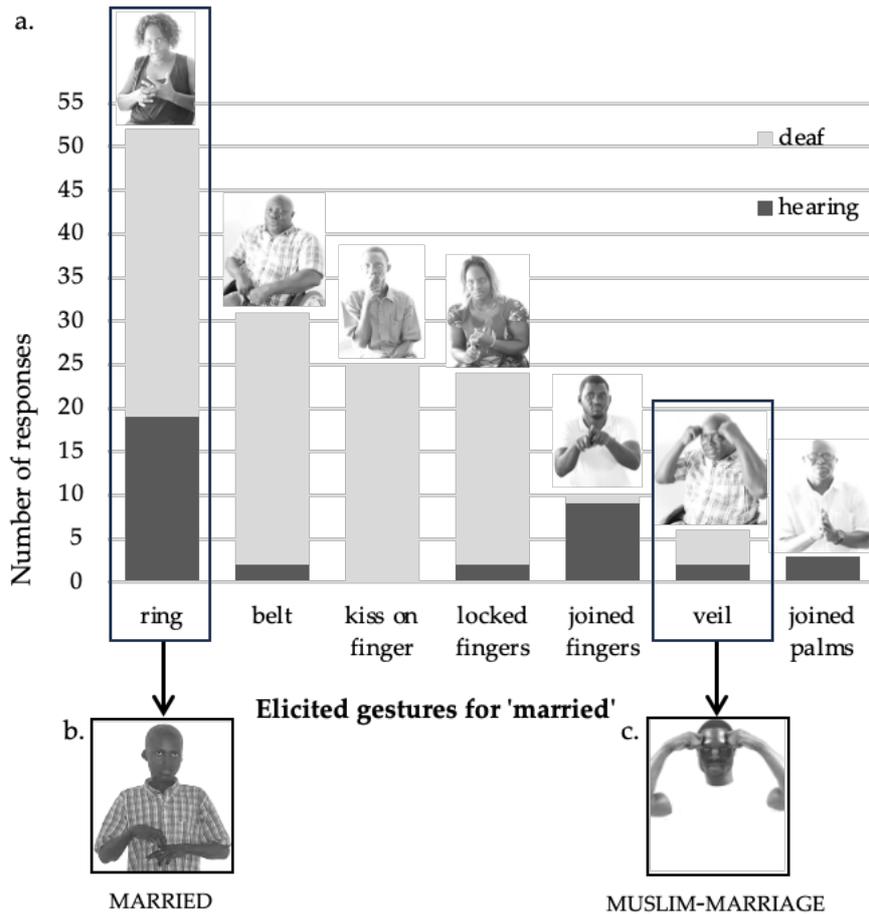
In this semantic cluster, the *thumb(s) up* was the most polysemous gesture, associated with all five concepts, which were also expressed by other gestures. Curiously, the meaning in which it is adopted as a sign, ‘all good?’, elicited the *thumb(s) up* as the only response. This signifies that highly polysemous gestures are likely adopted as signs with the meaning that is most strongly associated with them. This is not the case in the concepts of ‘please’ and ‘sorry’. The former is assimilated by the *beg from the head* for both ‘please’ and ‘beg’. In ‘sorry’, the forms integrating the LGG lexicon are the competing ones, i.e., those that had not been adopted as signs for other meanings. Therefore, signers recruit alternative synonymous gestures for SORRY at different moments in time, namely in the 2006 and 2017 dictionaries.

To summarise, this semantic network of intertwining gestures shows that, in the face of synonymous forms, most frequent gestures tend to be adopted as LGG signs. At the same time, most polysemous gestures favour their most strongly conventionalised sense.

#### 3.5.3.2 ‘Married’ – ‘boy/girlfriend’ – ‘friend’ – ‘together’ – ‘same’

Another set of concepts was found to be highly prone to synonymy and polysemy. This set references personal connections; namely, gesture responses to the concepts of ‘boy/girlfriend’, ‘married’, and ‘friend’. In this semantic cluster, I again found that the different concepts were expressed by synonymous forms that overlapped across meanings. Also, as occurred in the previous network of gestures and signs, the gesture produced the most often in response to each concept ended up integrating the LGG lexicon.

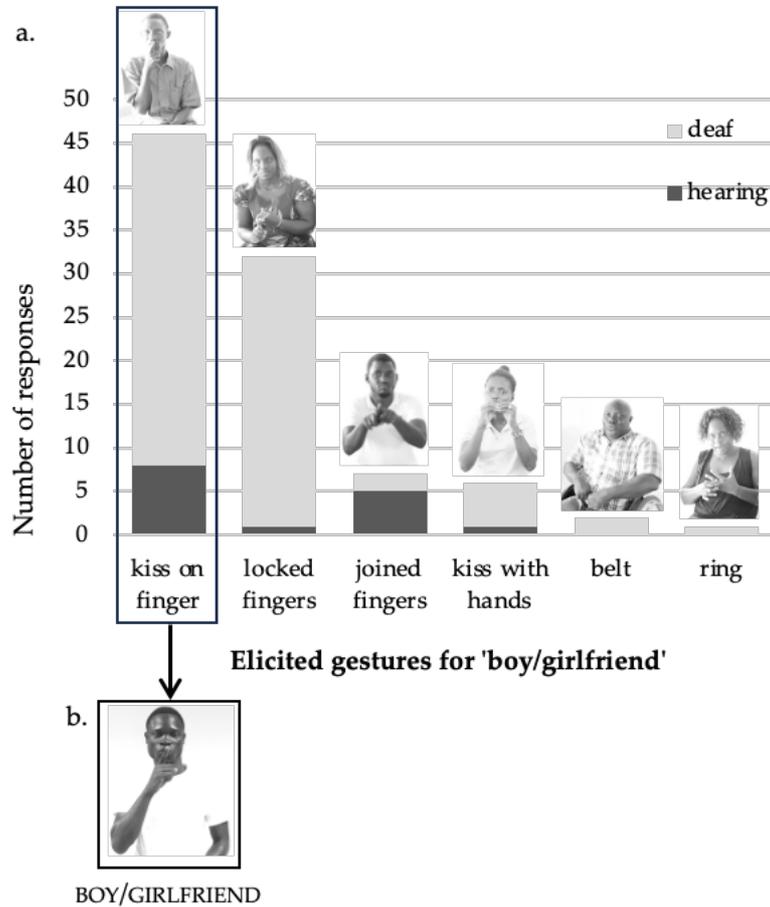
In the present semantic network, the concept of 'married' elicited the highest number of responses (N=151) across seven gesture variants (in Figure 92a). Besides the most frequent reference to the *ring* (52 of 151), 'marriage' is also represented by clothing items, such as a *belt* and a *veil*, the first being more common (31 of 151) than the second (10 of 151). Some participants suggested that both forms were interchangeable, and a couple of them added that these forms referred to Muslim marriage. In addition, hearing gesturers relate marriage with closeness, preferably represented metaphorically by two *joined fingers*, two *joined palms* or *interlocked fingers*. In the end, LGG signers recruited metonymic references for 'married', namely the gesture produced the most often, the *ring*, integrated as MARRIED (Figure 92b), and a much less frequent form, the *veil*, incorporated for a more specific concept as MUSLIM-MARRIAGE (in Figure 92c).



**Figure 92.** Gesture synonyms for 'married', namely seven forms distributed across 151 responses by deaf and hearing participants (a), and the adopted gestures *ring* (N=52) as the sign MARRIED from 2005 (b), and *veil* (N=6) as MUSLIM-MARRIAGE from 2017 (c)

The next concept, 'boy/girlfriend', is expressed by six different gestures, five of which overlap with 'married' (in Figure 93a). In this case, however, it is mainly associated with the gesture *kiss on finger*, in which the index finger, typically on the radial side, presses on the lips. This is followed by the representation of closeness through the *interlocked*

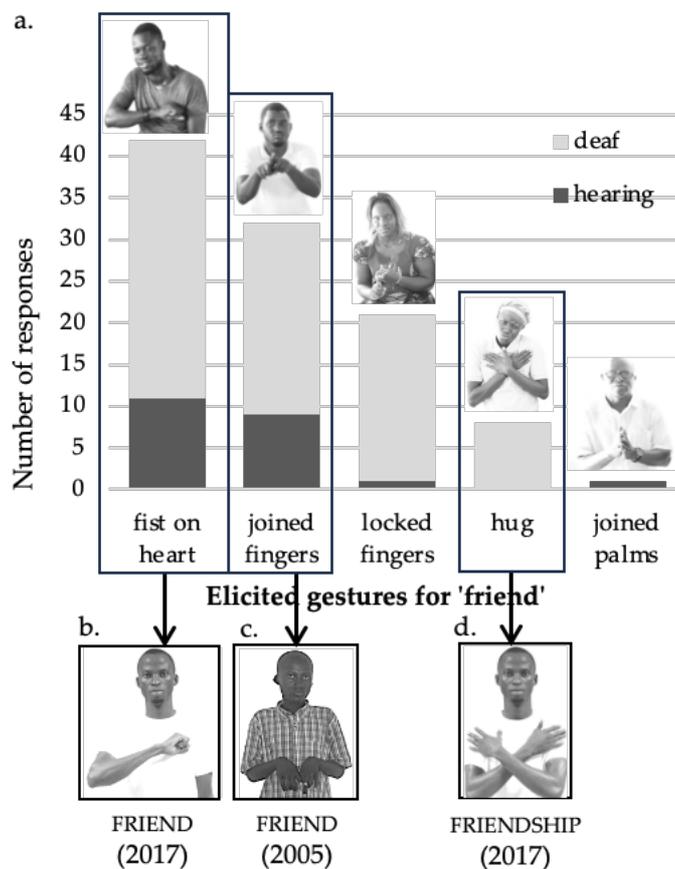
*fingers* and the *joined fingers*. Kissing was also represented by two hand bunches touching each other. Finally, the two other gestures produced in response to this concept coincided with the two most frequent for 'married', referring to the *ring* and the *belt*. Again, signers selected the form used most often as a gesture to incorporate into the LGG lexicon, corresponding to the *kissing-the-index* gesture (in Figure 93b). Importantly, it was incorporated as KISS in 2006, and only later in 2017 extended to BOY/GIRLFRIEND.



**Figure 93.** Gesture synonyms for 'boy/girlfriend', namely six forms distributed across 94 responses by deaf and hearing participants (a), and the adopted gesture *kiss on finger* (N=46) as the sign BOY/GIRLFRIEND from 2006 (b)

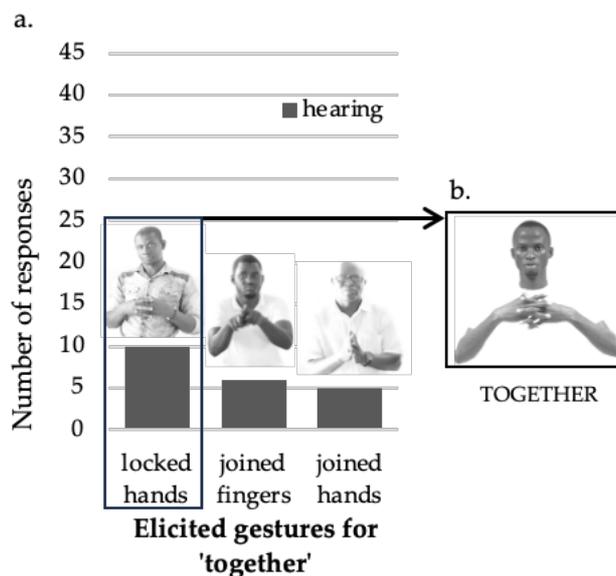
The concept of 'friend' was in the majority (42 of 104) represented with the *fist on the heart* (in Figure 94a). This gesture was followed by the reference to closeness with two fingers, whether *joined* or *interlocked*. The *joined index fingers* was the form adopted by signers in the first LGG dictionary, in 2005 (in Figure 94c). Deaf observers also mentioned

the *hug* associated with the concept of 'friend', incorporating it in FRIENDSHIP (in Figure 94d), and hearing gesturers the *joined palms*. As with the previous concepts, the most frequent gesture for FRIEND was incorporated into the LGG lexicon (in Figure 94b).



**Figure 94.** Gesture synonyms for 'friend', namely five forms distributed across 104 responses by deaf and hearing participants (a), and the adopted gestures *fist on heart* (N=42) as the sign FRIEND from 2017 (b), *joined fingers* (N=32) as FRIEND from 2005 (c), *hug* (N=8) as FRIENDSHIP from 2017 (d)

In the previous three concepts, deaf and hearing people perceived gesture use in Bissau differently, i.e., they responded with different proportions for each gesture variant. Nonetheless, as shown in Figures 92, 93, and 94, both deaf and hearing participants produced the most frequent gestures for the same concepts. In addition, since they concern close personal relationships, these concepts were associated with gestures representing closeness: *joined fingers*, *interlocked fingers*, *joined palms* and *interlocked hands*. Three such gestures were provided for 'together'. This concept and the one of 'same' were elicited with hearing gesturers alone because they were overlooked when compiling the list for the deaf participants. With the hearing participants, the concept of 'together' was expressed by three gestural forms (in Figure 95a). The most frequent one (with 10 of 21 responses), the *interlocked hands*, was again adopted as an LGG sign (in Figure 95b). In contrast, the concept of 'same' was consistently expressed by only the *joined index fingers* (with 19 of 19 responses).

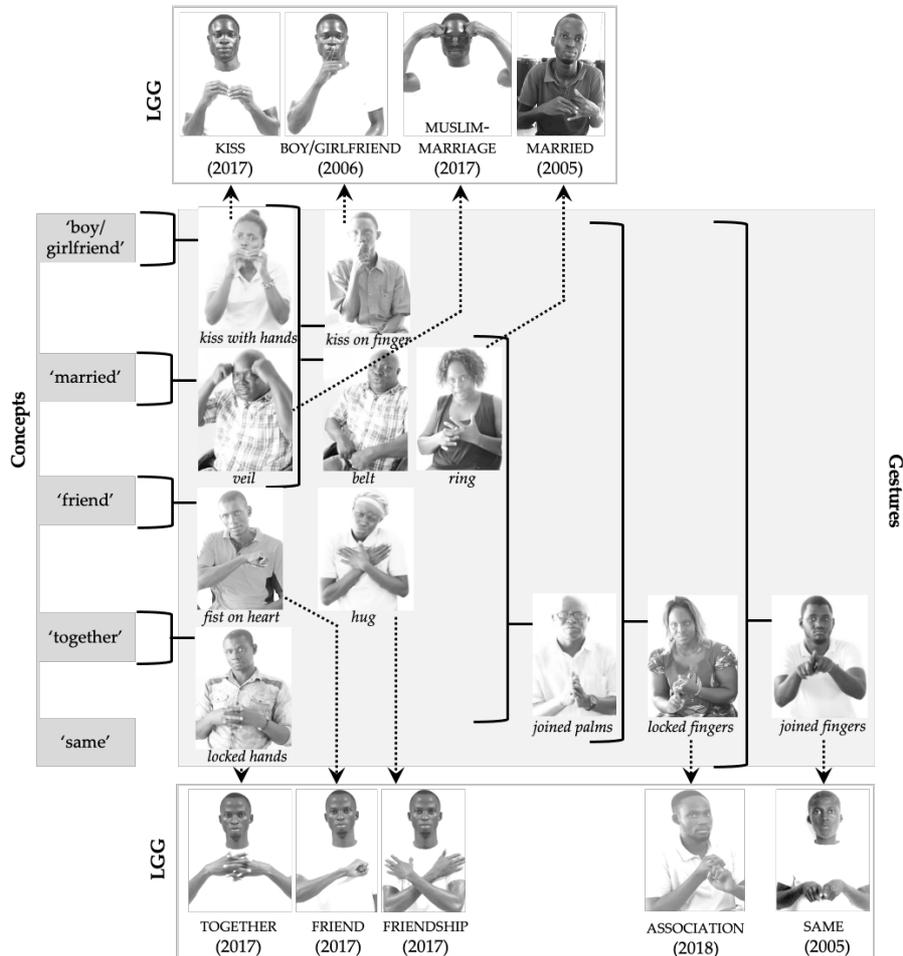


**Figure 95.** Gesture synonyms for 'together', namely three forms distributed across 21 responses by hearing participants (a) and the adopted gesture *locked hands* (N=10) as the sign TOGETHER from 2017 (b)

Looking at the whole set of concepts, gestures and signs together in Figure 96, those produced more often for a particular concept, even if bearing some polysemy, were directly incorporated into the LGG lexicon to express that same meaning. Such direct integration occurs with the *index on the lips* and the *ring*, both denoting the 'boy/girlfriend' and the 'marriage' relationships. Still, they are incorporated into the LGG lexicon, respectively as MARRIED and BOY/GIRLFRIEND, corresponding to the concepts where they occur more frequently. This is also the case of the *hand on the heart* in FRIEND, and *interlocked hands* in TOGETHER. While being produced the most often, such forms did not present any polysemy, i.e., they are not used to express other concepts.

A few other gestural forms were used in this semantic network to refer to only one concept, i.e., without polysemy. However, because the concepts in which they occur elicited other more frequent forms, they were instead promptly adopted by LGG signers for different – though related – meanings. This was the case of *kiss with two hands* in KISS, tracing a *veil* in MUSLIM-MARRIAGE, and a *hug* in FRIENDSHIP. In contrast, two polysemous gestures, the *belt* and *joined palms*, are not adopted by signers.

The gesture that intersects the most with the different meanings, and thus is the most polysemous, the *joined index fingers*, adopts the sense of ‘same’ in the 2017 dictionary. Concurrently, the concept of ‘same’ was expressed only by the *joined index fingers*. In the first LGG dictionary, in 2005, such a form represents ‘friend’, and as part of a compound, it also refers to ‘sibling’ and ‘neighbour’. Finally, another highly polysemous gesture that was not conventionalised with any particular meaning, the *interlocked fingers*, came to be used in 2017 as (DEAF) ASSOCIATION.



**Figure 96.** Network of 'boy/girlfriend', 'married', 'friend', 'together' and 'same', eliciting a set of polysemous gestures adopted as signs, *ring* as MARRIED, *joined fingers* as SAME from 2005, *kiss on finger* as BOY/GIRLFRIEND from 2006, *kiss with hands* as KISS, *veil* as MUSLIM-MARRIAGE, *locked hands* as TOGETHER, *fist on heart* as FRIEND, *hug* as FRIENDSHIP from 2017, and *locked fingers* as ASSOCIATION from 2018

As in the previous semantic network, the most frequent gestures of synonymous concepts are also incorporated into LGG here. The concept of 'married' is associated more often with putting a ring on the finger. The concept of 'boy/girlfriend' was expressed mainly by kissing representations, and that of 'friend' with the heart. As a consequence, the form used more often in each concept was adopted as the corresponding sign in LGG, respectively, in MARRIED, BOY/GIRLFRIEND, FRIEND and TOGETHER. However, while the *ring* and the *kiss-on-finger* forms were polysemous for both 'married' and 'boy/girlfriend', the *fist on heart* and the *interlocked hands* occurred only in the concepts of 'friend' and 'together', respectively.

In contrast, the *joined fingers* spread across all concepts, but is the only response for 'same'. The fact that such meaning is the most conventionalised leads to its integration as SAME. In addition, other gestures used for those concepts are assigned with related meanings, such as KISS, MUSLIM-MARRIAGE, FRIENDSHIP and ASSOCIATION.

This semantic network, as the previous one, shows how LGG signers recruit most conventionalised gestures – in form and meaning – as signs. They also take advantage of cooccurring forms by integrating them into the LGG lexicon as signs for related meanings.

#### 3.5.3.3 'Kill' – 'die' – 'witchcraft' – 'crook' – 'steal' – 'escape'

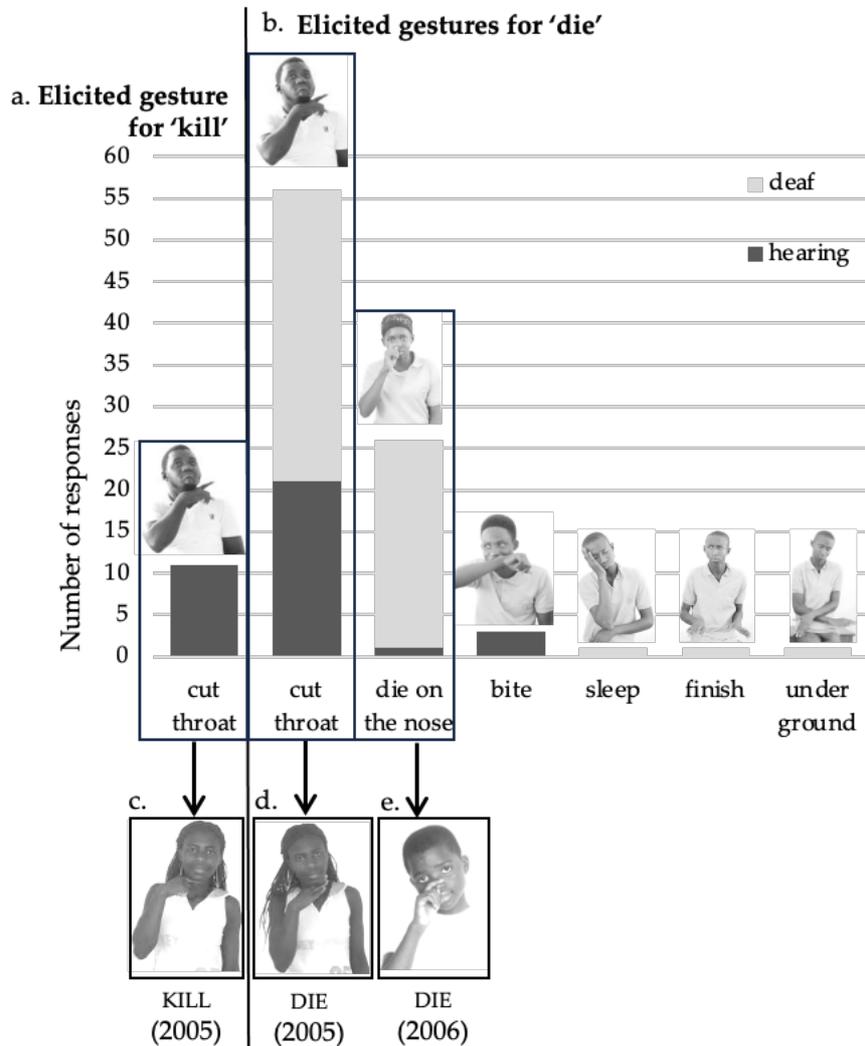
The third and last cluster presents one polysemous gesture linking the different concepts by representing the act of *cutting the throat*. Similar to the *thumb(s) up* and the *joined fingers* in the preceding networks, the highly polysemous *cut-throat* gesture was the only expression for only one concept, 'kill'. Here, again, each concept shows a favourite form, i.e., produced more often, which is then integrated into LGG. Also, as in the previous cluster, three forms produced more often in their

corresponding concepts – against cooccurring forms – were monosemous in those concepts, namely for ‘die’, witchcraft’, and ‘crook’.

Since *cutting the throat* was the gesture with the largest breadth across the different meanings, I start with the first two concepts, ‘kill’ and ‘die’, for which this gesture was provided more consistently. The concept of ‘kill’ was asked only to the hearing participants, since to the deaf ones it was included in the elicitation for ‘die’. For ‘kill’, hearing people produced exclusively the *cut-throat* gesture (11 of 11 responses), as shown in Figure 97a.

Otherwise, the concept of ‘die’ gave rise to 88 responses across seven different gestures. Here, deaf observers commented that hearing gesturers produced the *cut-throat* form much more often. *Cutting one’s throat* represents the majority of the responses to the concept of ‘die’ (in Figure 97b). Although the *cut-throat* gesture was primarily produced with the index finger, a few tokens relied on the whole hand. The two forms were adopted at the beginning of LGG emergence in 2005: the first in KILL (in Figure 97c) and the second in DIE (in Figure 97d).

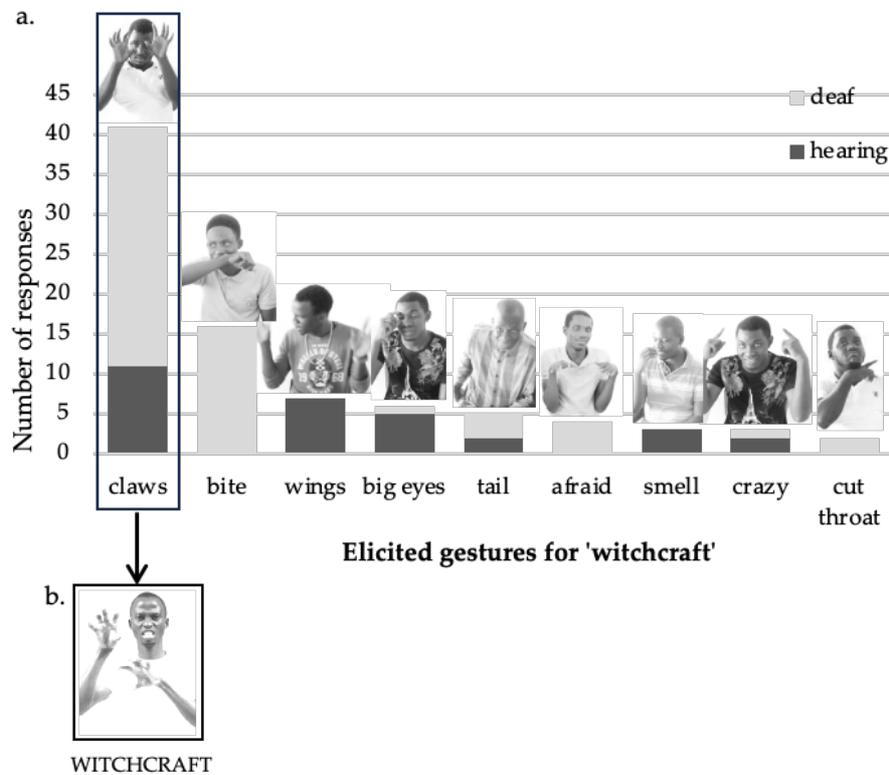
In contrast, *die on the nose* was seldom used. Only one hearing acknowledged it against 25 responses by deaf participants, where they recognised that it was not a widespread gesture among hearing people. The *cut-throat* form cooccurs with the emblematic gesture of *dying on the nose*, which one of the deaf participants justified with the idea of turning off the act of breathing. Deaf people adopted such a form in DIE in 2006 (in Figure 97e), replacing the *cutting throat* with the whole hand that was given the year before for the same meaning.



**Figure 97.** Gesture responses for 'kill' and 'die', namely eleven responses for *cut throat* by hearing participants (a), and gesture synonyms for 'die', namely six forms distributed across 88 responses by deaf and hearing participants (b), and the adopted gestures *cut throat* (N=11) as the signs KILL with the index finger (c), and (N=56) as DIE with the whole hand from 2005 (d), and *die on the nose* (N=26) as DIE from 2006 (e)

The following concept, 'witchcraft', got the highest variety of responses with nine different gestures in a total of 87 responses (in Figure 98a). Two of them also occur for the concept of 'die', namely, *cutting the throat* and *bite*. In fact, 'witchcraft' prompted the depiction of some supernatural entity with *claws*, *wings*, *big eyes* and a *tail*. The most frequent gesture for 'witchcraft' was the 'claws', sometimes combined with some other gesture like the ones referred to above or, on very few occasions, recoiling in *afraid*, indicating that it *smells* or that it makes one *crazy*. Again, the most frequent gesture, the *claws*, is the one incorporated into LGG in WITCHCRAFT (in Figure 98b).

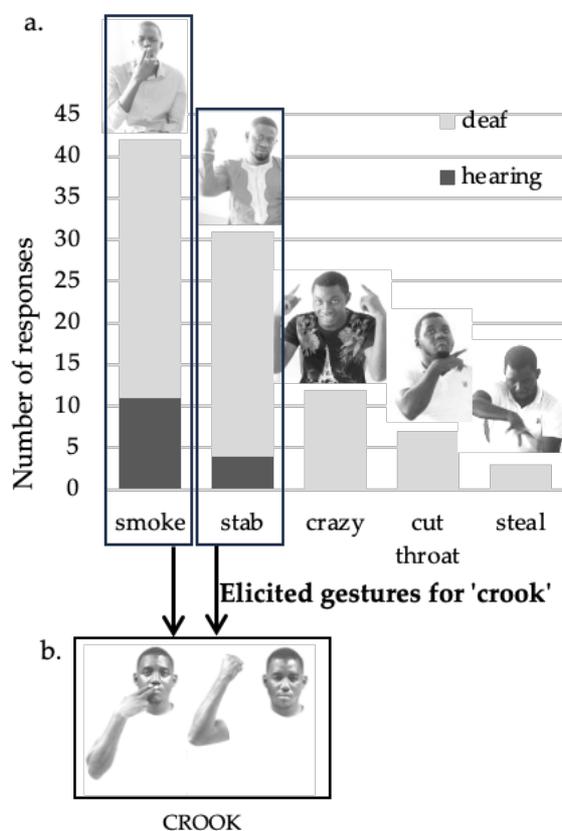
I recall that this item is included on Nyst's elicitation list for conventional gestures in West Africa. Although aware of the LGG sign WITCHCRAFT to be based on the *claws* form, such a concept was portrayed by other various images during the elicitation sessions. While curious about this subject, I felt that local hearing and deaf people were not comfortable elaborating about it with me. For that reason, I am not able to provide their view about the origin of these iconic references.



**Figure 98.** Gesture synonyms for 'witchcraft', namely nine forms distributed across 87 responses by deaf and hearing participants (a), and the adopted gesture *claws* (N=41) as the sign WITCHCRAFT from 2017 (b)

The fourth concept in this semantic network, 'crook', elicited the highest number of responses (N=95) across five different gestures (in Figure 99a). This concept proved to be more conventionalised in two primary forms, *smoke* and *stab*, among both hearing gesturers and deaf observers. Thus, as expected, the most frequent gestures, SMOKE and STAB, are incorporated in LGG, but this time as a signed compound (in Figure 99b). Although the compound for 'crook' is incorporated only in 2017, the individual sign SMOKE occurs in the 2006 dictionary.

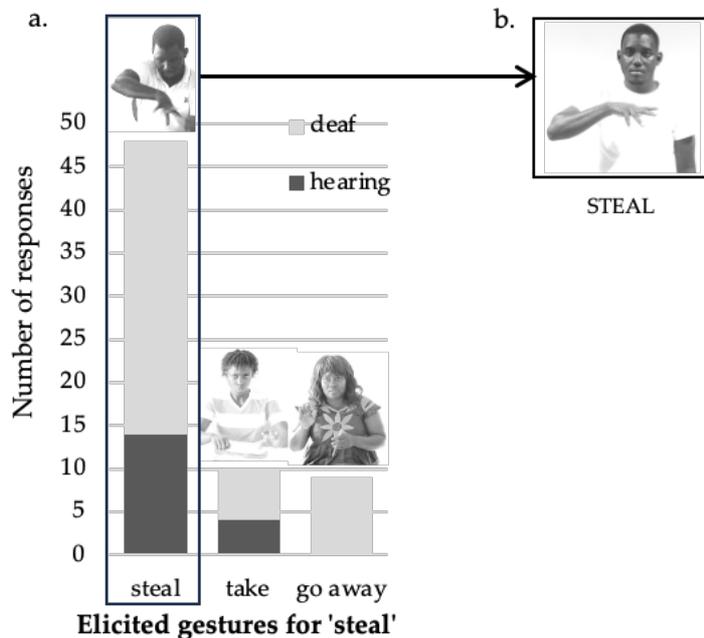
The reference to the act of *smoking* includes smoking drugs, implying getting high or *crazy*. The gestures *crazy* and *cut throat* occurred also in other concepts. The first is produced in response to 'witchcraft', while the second is associated with all previous meanings. These two forms and the emblematic gesture *steal* occur in a few responses only by deaf observers.



**Figure 99.** Gesture synonyms for 'crook', namely five forms distributed across 95 responses by deaf and hearing participants (a), and the adopted gestures *smoke* (N=42) and *stab* (N=31) as the signed compound CROOK from 2017 (b)

The sixth of this seven-concept cluster, 'steal', elicited again a highly frequent response (48 of 67) in the emblem *steal* (in Figure 100a). This

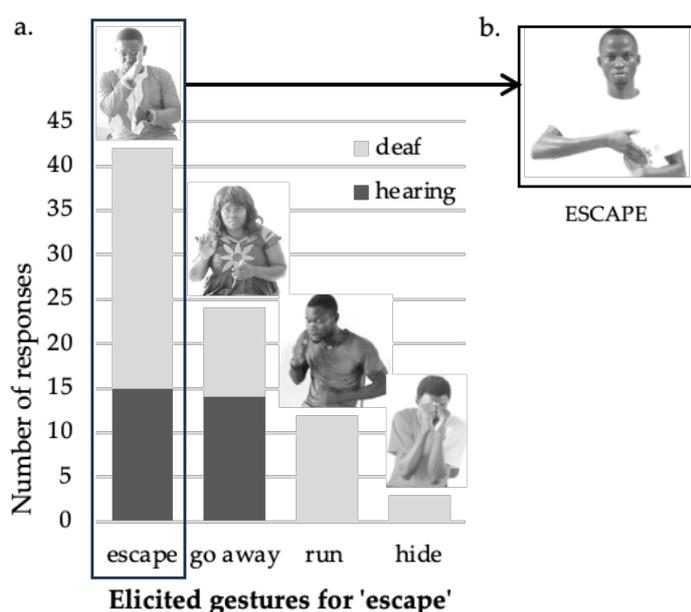
form is also produced in response to the previous concept, 'crook'. It was, however, of all the concepts in this semantic network, the one with the fewest gesture variants. The gesture *steal* was, on a few occasions, followed by a more iconic enactment of taking something. In addition, deaf observers alone associated such a concept with the gesture *go away*. As expected, signers adopted the form produced most often, STEAL (in Figure 100b).



**Figure 100.** Gesture synonyms for 'steal', namely three forms distributed across 67 responses by deaf and hearing participants (a), and the adopted gesture *steal* (N=48) as the sign STEAL from 2017 (b)

The last concept of this semantic network, 'escape', triggered different gestural responses (in Figure 101a). The emblematic gesture *escape* was the most frequent (42 of 81), closely followed among the hearing

gesturers by *go away*, which was also produced for the concept of 'steal'. Deaf observers alone also produced, on fewer occasions, the enactment of *run* and *hide*. Unsurprisingly, the form used more often, ESCAPE, integrates the LGG lexicon (in Figure 101b).



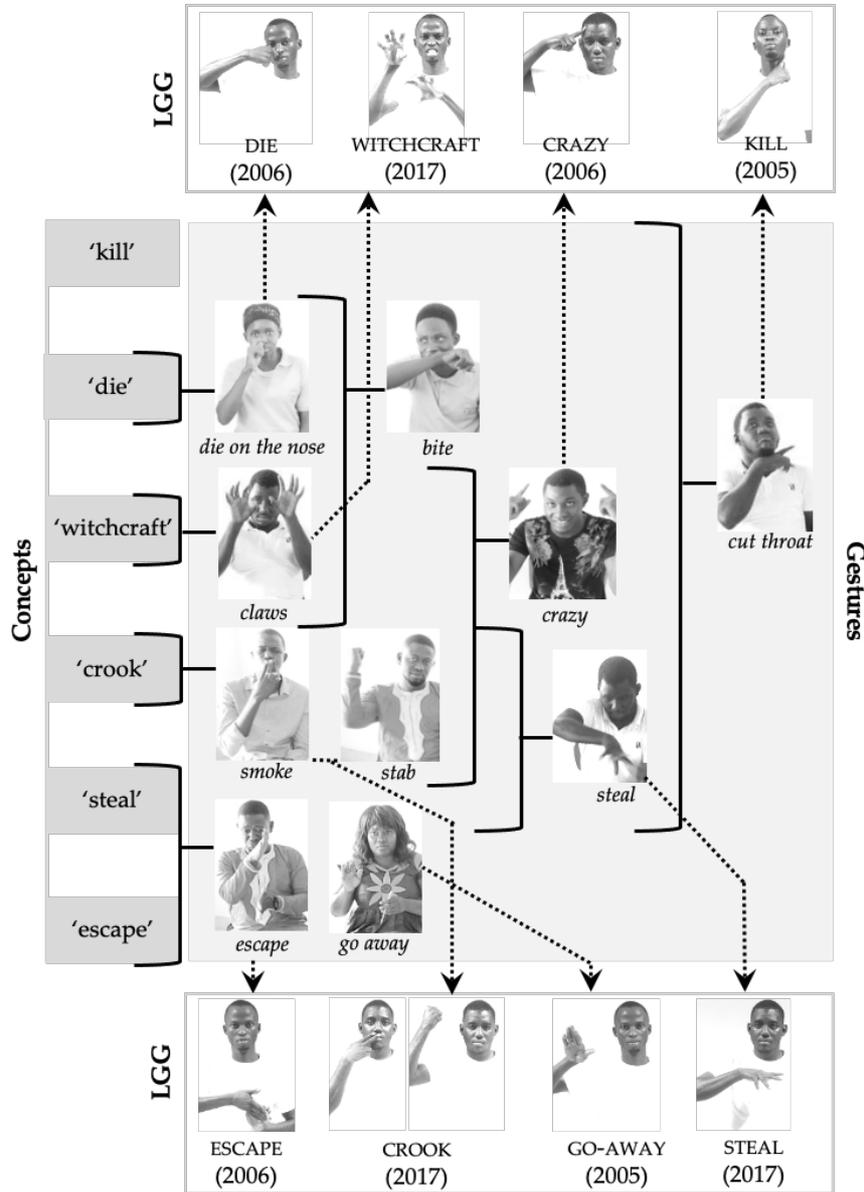
**Figure 101.** Gesture synonyms for 'escape', namely four forms distributed across 81 responses by deaf and hearing participants (a), and the adopted gesture *escape* (N=42) as the sign ESCAPE from 2006 (b)

Overall, this semantic cluster was connected by gestures overlapping across the different concepts. To express 'die', both hearing and deaf people agree mainly on *cutting the throat*, which is produced as the only response for 'kill'. While this gesture occurs in 'witchcraft' as well, such a concept is preferably represented by the characteristics of an evil entity, especially its *claws*. In addition, it is represented by what it makes one feel, such as *crazy*. This feeling is equally attributed to a

'crook', which is preferably represented by the enactment of *smoking*, *stabbing*, and *stealing*. The emblematic gesture for 'steal' can also be referred to by another emblematic gesture, favoured to express its corresponding concept, 'escape'.

In the end, deaf signers chose the most frequent gestures to represent the concepts of 'witchcraft', 'die', 'escape', 'steal' and 'crook'. Exceptionally, for 'die', signers adopted the two forms used most often to distinguish between 'die' and 'kill'. In addition, for 'crook', LGG signers combined the two most frequent gestures into a compound.

As shown in Figure 102, the least polysemous gestures – that, I recall, were also the ones produced more often for each concept, in 'die', 'witchcraft' and 'crook' – were incorporated into the LGG lexicon. Similarly, 'steal' and 'escape' are expressed as signs by the emblematic gestures that carry those meanings more frequently. In addition, other polysemous forms, such as *go away*, *crazy* and *cutting the throat*, are adapted as signs with the senses used more often in the corresponding notions.



**Figure 102.** Network of 'kill', 'die', 'witchcraft', 'crook', 'steal' and 'escape', eliciting a set of polysemous gestures adopted as signs, *cut throat* as KILL, *go away* as GO-AWAY from 2005, *die on the nose* as DIE, *crazy* as CRAZY from 2005, *escape* as ESCAPE from 2006, *claws* as WITCHCRAFT, *smoke* and *stab* as CROOK, and *steal* as STEAL from 2017

In the present semantic network, synonymous gestures are selected according to frequency of use to incorporate the LGG lexicon in each concept, similarly to the two preceding sets of concepts. Gestures produced more often for certain concepts presented different levels of polysemy. The least polysemous, for 'die', witchcraft', and 'crook' were readily integrated as signs, as was already the case in the previous cluster for 'friend' and 'together'. The opposite was true for the most polysemous form, *cut throat*, which was recruited with the meaning prompting this gesture alone, 'kill'. Again, this occurred in the same way in the previous two networks with the *thumb(s) up* for 'good' and the *joined fingers* for 'same'.

Again, as observed in the previous integration routes, so did signers recruit cooccurring gestures elicited for the different concepts within these gesture networks. Hence, besides the 16 signs corresponding to the listed concepts, 15 more cooccurring gestures for those concepts were also adopted as signs. Of these cooccurring gestures integrated as signs, ten were produced by both hearing and deaf participants. Two of them consist of form variants with the same motivation, and the remaining correspond to signs based on different motivations.

Looking back over all types of gesture-to-sign integration – i.e., direct, with minimal variants or in clustered networks – gestural sources more consistently associated with specific meanings are recruited as signs throughout the first 14 years of language emergence. Out of the 41 concepts with corresponding gestures that were integrated as signs, two entered the LGG lexicon already as compounds, SMOKE<sup>^</sup>STAB 'crook', and HEAT<sup>^</sup>SWEAT 'heat'. Four others combined later with other signs to specify their meaning: EAR<sup>^</sup>ANIMAL-HEIGHT 'animal', SNOTTY<sup>^</sup>CHILD 'child', WORK<sup>^</sup>RUN-ABOUT 'work' and CHEST1<sup>^</sup>GOOD 'all good?'. The only signs-from-gestures that were replaced later with newly created signs in the 2017 dictionary were STEAL and CROOK. Deaf signers argued that such sensitive concepts had to be replaced in

social contexts through forms that hearing people could not recognise (this topic is further developed in §4.5.3).

In sum, when integrating gestures into the LGG lexicon, signers benefit from previously conventionalised forms assigned to specific meanings. One-third of such gestures were incorporated directly into LGG, in one-to-one relationships. Another third involved the incorporation of a few gesture variants as a few signs, and the disambiguation of polysemous gestures when entering the LGG lexicon. This indicates that signers take advantage of gesture variants in form and gestures expressing similar meanings to incorporate them into the emerging lexicon as well. The last third concerns gesture networks, including overlapping forms around semantically related concepts. To disambiguate a set of several polysemous and synonymous gestures, signers tend to recruit those used more often for specific concepts. This is especially true when the most frequent gesture for a concept is associated exclusively with that meaning. It can also be the case that an otherwise highly polysemous gesture is the only one used for a particular concept, revealing how much that meaning has conventionalised in that form.

#### 3.5.4 Summary of results: the three integration routes of gestures as LGG signs

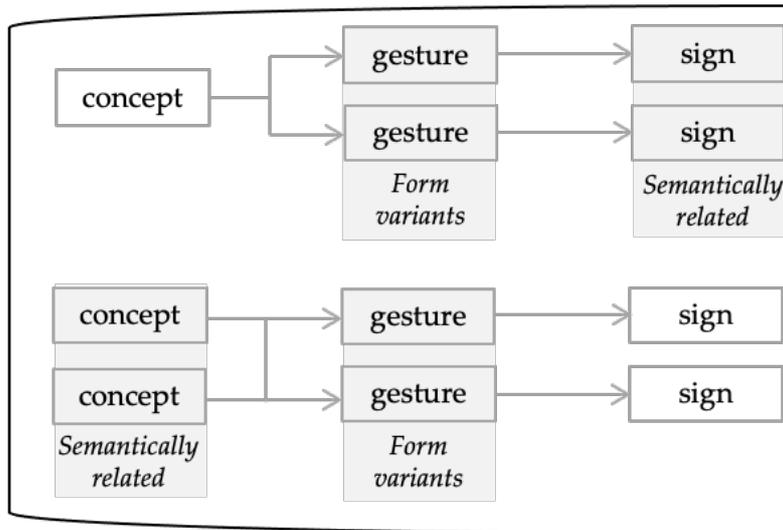
The present study focuses on how gestures used in Bissau are integrated into the LGG lexicon. Gestures were collected from hearing and deaf participants based on a set of 41 concepts. Such gestures were then compared to LGG signs equivalent in form and meaning from three dictionaries compiled over time. Finally, two significant findings emerged from the analysis. First, all concepts were expressed by conventional gestures, and these have, in turn, sign counterparts. Next, the integration route of gestures into the LGG lexicon is not always

linear. I found that the integration of gestures followed one of three patterns: direct integration of one gesture as one sign (in Figure 103a), integration of a few gesture variants as a few signs (in Figure 103b), and integration of many gestures entangled in semantically related networks also as many signs (in Figure 103c).

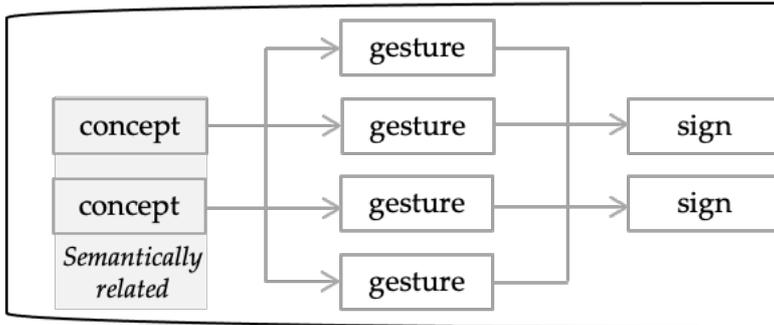
**a. Direct integration of gestures:**



**b. Integration of gesture variants:**



**c. Integration of gesture networks:**



**Figure 103. Routes of gesture integration as LGG signs for certain concepts:** direct integration of gestures (a), integration of gesture variants in form as semantically related signs (b), and integration of gesture networks (c)

First, one-third of the concepts (thirteen of 41) are expressed by equivalent gestures that were directly integrated into the LGG lexicon. In other words, the same manual form was consistently assigned with the same concept as a gesture and translation in the LGG dictionary, like FINISH. Another third (twelve of 41) concerned the incorporation of gesture variants. Half of them showed a couple of variants in form that were both adopted as signs, like blowing the hand sideways or to the front of the mouth, which were incorporated as LIE and FALSE. The other half consisted of pairs of related concepts, each expressed by the same gesture, such as wiping the sweat off the forehead for 'work' and 'heat'. As signs, WORK remained a single sign, and HEAT turned into a compound.

The final third (16 of 41) comprises three clusters of gestures whose meanings overlap across different forms. The three networks of synonymous and polysemous gestures were then integrated based mainly on their frequency of use for each concept. This is to say that, when different gestures cooccurred for the same concept as synonymous, the one produced more frequently for that concept was usually (eight of 16) the one recruited by signers, like *ring* for 'married'. Of these, half were monosemous, i.e., besides being the most frequent expression of a concept, they were exclusively used for that concept, like the *claw* for 'witchcraft'. In addition, the three most polysemous gestures, the *thumb(s) up*, the *joined fingers*, and the *cut throat*, were each associated with five concepts. While cooccurring with other gestures in four concepts, they were the sole response to the fifth concept, respectively, for 'all good?', 'same', and 'kill'. These meanings were associated with forms adopted into the LGG lexicon. A couple of signs are based instead on gestural forms that occur less often in certain concepts. This was the case when the cooccurring gestures with higher frequencies were more easily assigned to other concepts. Thus, the adopted gestures remained available, such as the *joined palms* for 'sorry'.

The highly polysemous gesture, *beg from the head*, is integrated with some of that polysemy in BEG and PLEASE. Notably, both concepts were expressed by synonymous gestures that were either selected or co-opted to other meanings. Also, the *hugging-hands* gesture presents simultaneously a high polysemy and a preference for a particular concept, 'thank you'. From this, it is possible to conclude that while there is a direct one-to-one integration of gestures with no cooccurring forms for the same concept, gestures with competing forms will be chosen as signs based on their frequency of use, i.e., on their degree of conventionalisation for specific meanings.

Considering the number of responses for each concept, one can assume that the gestures elicited more often had already been conventionalised. This justifies that there were only minor formational adjustments when entering the LGG lexicon. In fact, in a few cases with variants in handedness and handshape, signers selected one of the forms as a sign. Between gestures produced with one and two hands, the one-handed form was adopted as a sign for six items primarily anchored on the body, such as WOMAN, HUNGRY, and CRAZY. Similarly, index-finger handshapes were favoured against whole-handed forms in four gesture variants when recruited as signs, again anchored on the body, such as THIRSTY and KILL. Still, in terms of form, deaf participants suggested that three gestures originated in actions involving larger movements. In three others, they notice hearing people producing the gestures larger in space than their sign counterparts.

Finally, it is also worth noting that besides the corresponding signs to each of the 41 elicited concepts, signers adopted, within the different integration routes, additional signs from the available gesture variants, both in form and with different motivations. Hence, looking at the sign counterparts in the three LGG dictionaries, I found 20 more gestures adopted as signs to express different – though often related – concepts. Four cooccurred with SICK in the one-to-one integration route; seven

were form variants in the few-to-few integration route; and nine more, mainly with different motivations, cooccurred within gesture networks.

### 3.6 Discussion

A young sign language thriving in a gestural environment, such as LGG, provides an excellent opportunity to observe how the integration process of conventional gestures occurs. Methodologically, the study benefits from privileged access to a diachronic collection of LGG signs, allowing the examination of gesture conventionalisation in real time. Moreover, the observations about gestures from deaf participants during the elicitation sessions offer a unique perspective on gesture use. That said, I follow up on the question of whether gestures are directly incorporated or if they undergo modifications in form and meaning in the process.

Overall, the contrast between the gestures collected in Bissau and their signed counterparts only occasionally resulted in formational and semantic modifications. This is expected when there is a high conventionalisation of gestures serving as a substrate to an emerging signed lexicon, as suggested by Washabaugh (1986, 185) and Coppola (2020, 349, 372). However, the present analysis of the incorporation of a set of conventional gestures into the LGG lexicon points to a diversity of integration processes, particularly concerning their semantics.

Looking first at eventual form adjustments, most of the articulatory reduction occurs as early as gestures of frequent use are conventionalised. Therefore, form adjustments occurring during the integration of gestures as signs were incipient and limited to a general reduction of the manual items. This was deduced from deaf observers' perception

of the original motivation of gestures and the differences in the production of the same manual form by gesturers and signers.

Accordingly, deaf observers notice that gestural forms may become more reduced when being integrated into LGG, as also described by previous research (Kendon 2004, 308; Delaporte 2005, 7–8, 15; Delaporte & Shaw 2009, 55; Haviland 2015, 88; Coppola 2020, 363) and observed, for instance, in ASL when contrasted to old LSF (Frishberg 1975; Supalla & Clark 2015) and gestural sources (Peet 1868, 173). In general, modifications aim to lighten the articulatory effort (Delaporte 2005, 15) by reducing the movement of the hands (Frishberg 1975, 711; Delaporte & Shaw 2009, 55).

Overall, the data, consisting of gestures and LGG signs collected in Bissau, confirms a consistent conventionalisation of gestures' forms before their recruitment as signs. Still, actual variations in form were observed in only a few gestures collected in the elicitation sessions, namely in handedness and handshape. Thus, signers just had to select from one of the coexisting variants, typically the most frequent one. Other than these differences between gestures and signs obtained from the formal data, form adjustments were deduced for a few more items from deaf participants' perceptions of how hearing people articulate gestures compared to their sign counterparts.

As no noteworthy formational adjustments occurred in gesture-to-sign incorporation, their semantics were also kept in the process. In this study, concepts were expressed by gestures that were adopted as signs. Although their meaning and form were maintained, the incorporation route was not always linear. One may compare this to Morgan's findings (2016) on the integration of gestures used in Western Kenya into KSL, according to which most of the gestures in her set had only one sign counterpart. However, she identified one-third of the items as part of lexical clusters, including polysemous forms. This

coincides with the integration route of gesture networks described in the present study.

What comes out of these clusters used in Bissau is that they include widespread interactive and metaphoric gesture families (Kendon 2004, 227) or *gestalts* (Hirsch 1993; Müller 2017). The first network involves two gesture families: one revolving around interactive palm-up gestures centred on the act of receiving, as suggested by Muller (2004), and the other on the notion of fondness expressed by embracing hands. Both of these semantic clusters imply similar forms spreading across related meanings intertwined with one another. In the second network, human relationships are iconically expressed by *joined hands* and *fingers* as described for both gestures (Will 2021, 109) and signs (Taub 2001, 119), corresponding to the primary metaphor 'emotional intimacy is proximity' (Grady 1997, 293). Ultimately, they are integrated into the signed lexicon for the most generalising concepts of 'together' and 'same'. This was also the case in the transition of the Nicaraguan *joined-finger* gesture for 'sibling' to the LSN sign for 'same' (Coppola 2020, 365).

Another widely spread polysemous gesture is the *cut throat* for 'kill' and 'dead' (Calbris 2003, 22–25, for a French gesture; Brookes 2004, 222, for a South African gesture), whose meanings were distinguished, in Nicaragua, by being expressed with two different LSN signs (Coppola 2020, 360). Again, this was also the case in the integration of that gestural form into LGG.

To understand how signers sort out these tangles of forms and meanings, the analysis focused on the number of occurrences of the various synonymous gestures for each concept and the spread of polysemous gestures across different meanings. Such a new way of looking at gesture networks reveals that the conventionalisation of form-meaning pairs, expressed by how often they occur, is paramount to their

incorporation as signs. In addition, highly polysemous forms, like the *cut throat*, the *joined fingers* and even the *thumb(s) up*, reveal a preferred meaning for which there are no competing gestures, which is subsequently adopted as KILL, SAME and GOOD.

The integration of signs through gesture networks also reveals a maximal exploitation of cooccurring gestures used in the local community. This is to say that synonymous gestures elicited for various concepts are usually adopted as signs for different, though related, meanings. Such maximisation of cooccurring gestures is observed in all three integration routes. The fact that synonyms are generally distinguished in their meanings when being adopted as signs demonstrates a high degree of conventionalisation as gestures, as argued by Morgan (2015, 12–16).

It is worth noting that the proportion between the responses by hearing and deaf participants was generally balanced for the gestures recruited as signs. Considering that, in the elicitation sessions, only a few of the hearing teachers were said to be able to use LGG, there is probably no reason to assume a bias by the participants' knowledge of LGG, leading to the presence of many sign counterparts for the elicited gestures.

To conclude, the incorporation route of gestures expressing different concepts into the LGG lexicon reveals their degree of conventionalisation as form-meaning pairs. While gestures may take time to conventionalise in a multimodal system, form-meaning pairs are promptly determined throughout the emergence of a sign language. At the same time, signers capitalise fully on the array of available gestures to optimise lexical growth.

## 4 THE EXPANSION OF THE LGG LEXICON

*[...] gestures [...] have the communicative potential  
to not only become lexicalised but also  
be divided and recombined into other innovative forms.  
(Delaporte & Shaw 2009, 55)*

### 4.1 Introduction

While descriptions of how gestures are integrated into sign languages are already scarce, the research on lexical expansion from a gestural base is even less explored. The previous chapter described how conventional gestures are adopted as lexemes in the emerging LGG, particularly in terms of narrowing the semantic scope of each form. This paves the way to explore further how a new lexicon can be expanded.

The current chapter aims to understand how the word formation processes of compounding and derivation are used over time and across semantic fields. Compounding involves the combination of words, like FATHER^MOTHER to mean 'parents'. Derivation in signs is typically a simultaneous arrangement of minimal units where one (or a combination thereof) carries the core meaning, and the remaining units are modified based on that formational root to convey a specific meaning. For instance, the inverted V handshape representing human legs can serve as a root that derives into WALK, with a wagging movement, and into SIT, by bending the fingers in a double hook.

The diachronic study of LGG signs expanding from the stock of gestures used in Bissau relies on the three existing dictionaries collected in 2005, 2006 and 2017. In addition, it looks at one specific case of grammaticalisation, corresponding to the only LGG sign-from-gesture, HIT.

Having identified the signs that derive from gestures used in Bissau in Chapter 3, the present chapter focuses on how those signs-from-gesture are also sources of lexical expansion in LGG. By tracking the path of these forms in the lexicon over time, one wonders what happens to them. Which ones stay the same, which are phonologically modified for new morphological uses, and which ones are used in compounds? Chapter 4 seeks to answer these questions. After giving a general overview of the initial stages of a lexical system (§4.2), I present the methodology to study such a phenomenon in LGG (§4.3). The analyses are then described in three main sections corresponding to the approaches taken to understand lexical expansion in LGG. A more specific literature review precedes each of these analyses. I begin by looking at implicational hierarchies in kinship and colour terms (§4.4). Afterwards, I focus on the morphological processes leading to the expansion of distinct families of LGG signs (§4.5). Finally, I describe the grammaticalisation of the snapping fingers for 'hit' (§4.6).

## 4.2 Background on lexical expansion

In this section, I briefly frame the emergence of a lexical system as a whole. The study of deaf homesigners has been essential to understanding how a lexicon comes about. Depending mainly on the visual-manual modality, homesigners systematically segment gestures into discrete meaningful units, (re)combine them (Goldin-Meadow 2017), and (re)analyse them (Senghas 2021). While creating a system by themselves to their sole benefit, they outperform surrounding hearing adults (Goldin-Meadow et al. 1995, 254–256). Since they do it without exposure to a conventional linguistic model, it is suggested that such an ability to combine meaningful units is a resilient property of language (ibid., 242–244). Based on the observation of gestural systems of

deaf homesigners, Goldin-Meadow suggests a set of resilient properties of language (2002, 346–347). Table 8 lists only those at the word level, implying that stable – or conventional – gestures are reanalysed and recombined within paradigms, semantically categorised, and assigned with grammatical functions.

**Table 8.** Resilient properties of language at the word level from stable gesture forms to different grammatical functions (Goldin-Meadow 2002, 347, in gesture systems of homesigners)

Property	Instantiation
Stability	Gesture forms are stable
Paradigms	Gestures consist of smaller parts that can be recombined to produce new gestures with different meanings
Categories	The parts of gestures are composed of a limited set of forms, each associated with a particular meaning
Grammatical functions	Gestures are differentiated by the noun, verb and adjective grammatical functions they serve

To zoom in on the different stages leading to the building up of a new lexical system, Morford and Kegl (2004) compared three distinct populations of deaf people regarding their social interaction in visual-manual communication: isolated homesigners, homesigners in contact, and signers. By comparing their linguistic performances, the authors proposed a path leading from the gestural basis to a signed lexicon. Here, conventional gestures with some functional shift used by an isolated homesigner lexicalise and are used in sequence. Still, it is only as signers that they add a bound morphology, constrain forms, and combine lexicalised terms into compounds (*ibid.*, 377–378).

Overall, language-like properties are expected to build on each other over time. The various studies on the initial stages of language

emergence aim to identify the moment when grammatical patterns become more stable (Abner et al. 2019, 235).

With this reasoning in mind, how then do LGG signs based on conventional gestures extend semantically, morphologically and grammatically during the first two decades of language emergence?

### **4.3 Methodology**

Chapter 4 builds from the analysis in Chapter 3, investigating the transition from gesture to sign. Here, I put the focus on lexical changes once gestures are adopted as signs. The methodology is first introduced by the research questions in subsection 4.3.1. These aim at understanding diachronic changes through the analyses of implicational hierarchies, morphological processes and grammaticalisation. The data sources are described in subsection 4.3.2. The analyses of the lexical expansion of semantic fields, families of signs and the grammaticalisation of one gesture-to-sign are explained in subsection 4.3.3.

#### **4.3.1 Research questions**

To understand how the lexicon is built up early in language emergence, I posit that emblematic gestures are available to deaf signers as a groundwork lexicon. From there, I focus on the semantic and morphological mechanisms occurring throughout lexical expansion.

- How does lexical structure unfold over time in the sign language emerging in Bissau?

In particular,

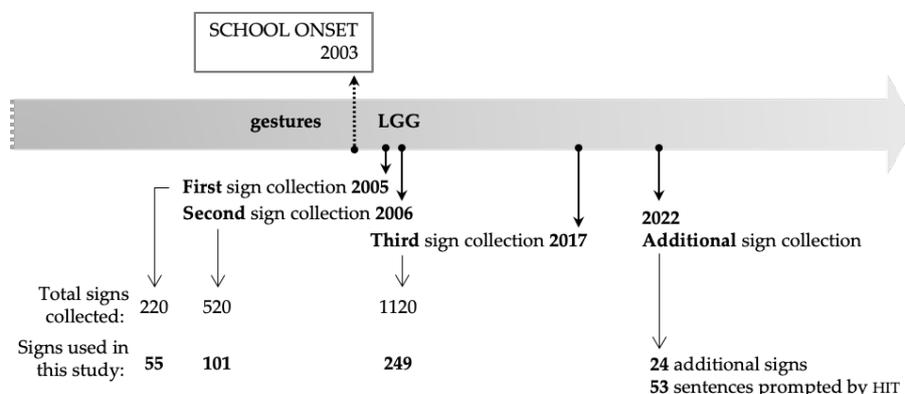
- How do signs-from-gestures expand during the first years of language emergence in the semantic domains of kinship and colours?
- What are the trajectories of development of derivation and compounding in families of signs-from-gestures?
- How do grammatical functions extend from 'hit' in LGG?

#### 4.3.2 Data sources

The present analysis is based on different data sources. For the most part, data is drawn from the three LGG dictionaries collected over time (2005, 2006 and 2017), as explained in Chapter 2 and resumed in this subsection (§4.3.2.1). In addition, the analysis relies on extra videos collected to complement the dictionary records (§4.3.2.2).

To track how a lexicon is built in the first years of language emergence, I used different time snapshots of the LGG collection. I primarily focused on those LGG signs that came from gestures as the starting point of lexical expansion. This enables the diachronic analysis of a specific set of signs lexicalising from gestures.

Figure 104 illustrates the timeframe in which sign collection occurred. As explained in Chapter 2, deaf people in Bissau started gathering in larger numbers (in a school setting) during the October 2003 to June 2004 school year. Therefore, the first two collections, in 2005 and 2006, provide a relatively reliable picture of the original signs. The third moment, in 2017, occurs after a considerable period during which signs may have eventually changed. Therefore, these are significant moments in time, enabling the present diachronic study. In addition, in 2022, I recorded signs that had been collected in 2005 and 2006 but not in 2017, some neologisms related to politics, as well as sentences illustrating the sign HIT in a discursive context.



**Figure 104. Documentation periods during LGG emergence**, which occurred in 2005, 2006, 2017, and 2022, after deaf education was first established in Bissau in 2003

#### 4.3.2.1 LGG dictionaries

As detailed in Chapter 2, there are three LGG dictionaries: two collected in the first couple of years of sign language emergence, in 2005 and 2006, and the third one a decade later, in 2017. Here, I only resume the most relevant information (see §2.3 for details). The first collection in 2005 was not published. The second, collected in 2006, was published only in 2008. The third was published in 2017, the same year as the sign collection.

After deaf students began to gather in school premises in Bissau at the end of 2003, their sign language was first documented in 2005. At that time, ten deaf students participated actively in a small micro-community, gathering often at the school. It was then possible to collect from them 220 signs elicited from pictures in school books and drawings. This first collection was glossed in Portuguese and Creole and informally printed in the school. We and the school saved the digital form.

In 2006, the deaf school wanted to publish a proper dictionary with a larger number of signs. On that occasion, the elicitation was prompted by pictures from primary school books with a large group of deaf students. The dictionary was published two years later, in 2008, with 520 signs. It had an educational purpose, aiming at deaf students' bilingual development, so it included illustrations and literacy exercises. This dictionary was again organised by topics and translated into Portuguese and Creole.

Ten years later, in 2017, a new collection was undertaken with the twelve deaf sign language instructors working at the National School for the Deaf. This resulted in 1120 signs. Since this dictionary was now directed at the general population, it included dialogue samples. It was also divided into topics and translated into Portuguese and Creole.

#### 4.3.2.2 *New data*

Besides the three dictionaries, I collected additional videos for 14 individual signs and 53 LGG sentences prompted by HIT. The recording sessions occurred during my 2022 field trip and were carried out at the National School for the Deaf (*Escola Nacional de Surdos – ENS*). In this extra data, I also include 10 newly created signs for government-related terms that were sent to me by Amará Soares.

#### *Set of signs updating the diachronic data*

As a basic methodological premise, sign collections were meant to enlarge the vocabulary based on the lexical items that preceded them. However, a few signs were overlooked, especially in the last dictionary. Because they were missing in the diachronic lexical comparison across dictionaries, I collected them on a later field trip. So, in 2022, I

recorded videos that were missing or needed clarification from the previous sign collection.

The first set of 14 individual signs was collected to provide a more complete picture of the lexical expansion in early LGG. Some signs documented in 2005 and 2006 were not included in the 2017 dictionary (19 and 22 items, respectively) due to oversight or redundancy. Therefore, for this particular analysis, I collected six signs that had been recorded only in 2005: HUSBAND, WIFE, NEIGHBOUR, PANTHER, CHOLERA, STOMACH-ACHE; and four in 2006: CHILDREN, BENFICA, SPORTING, and WHITE(SKIN). The last three, together with MAN and FATHER, WOMAN and MOTHER, explicitly aimed at observing eventual articulatory nuances in disambiguating polysemy.

These videos were collected in an informal setting, with about a dozen deaf young adults, mostly LGG instructors and other employed members of the school who would be hanging around. I would ask them as a group how they would sign now those signs collected for former dictionaries. In the case of eventual polysemous signs, I would ask them if they distinguish them in their signing. The explanation was then given to me as a consensual agreement. In the end, someone would volunteer to sit in front of the camera, or I would turn the camera to the one(s) willing to produce the targeted sign or utterance. In total, I filmed 13 deaf young adults, aged between 21 and 36, of whom only four were women. Except for one female sewing instructor, one male employee, and two male LGG teaching trainees, the remaining participants were LGG instructors.

#### *Set of LGG sentences prompted by HIT*

A second set of videos was also recorded in 2022, in a special elicitation session to gain a clearer understanding of the usage of the sign HIT. This is a highly conventionalised gesture that occurred in the 2017

dictionary as a polysemous sign with the meaning of ‘hit’, but also ‘better (than)’ and ‘than’. Given that dictionary sources are often incomplete in the amount of information that they provide about the pragmatic use of signs, I relied on 53 additional LGG sentences explicitly recorded to clarify the analysis of HIT.

To understand its contextual uses, I asked some of those deaf adults, who had already worked with me in the previous collection set, to give me examples of HIT in an LGG sentence. As they would think of a good example, they would sit in front of the camera to produce it. They were free to sit there as they wished and to sign whatever came to their minds, as long as it included the requested sign. In the end, I had 53 sentences involving HIT (with different meanings and grammatical functions) produced by 11 deaf adults, including four deaf women. Of these, two were not LGG instructors, and another one was still in his teaching training. The sentences had an average duration of eight seconds each (in a total of 00:06:40).

#### *Set of neologisms for government-related concepts*

To explore the mechanisms of sign creation in more recent signs, I benefited from a video sent to me by Amaré Soares, the deaf teacher in charge of the Mariposa school, in November 2022, documenting ten newly created signs for government-related concepts. Of these, ten referred to governmental structures and roles (GOVERNMENT, PRIME-MINISTER, VICE-PRIME-MINISTER), and seven others to different ministers. They were produced by 12 deaf young adults, students of the Mariposa school.

### 4.3.3 Data analysis

To analyse the lexical expansion of LGG, I take different approaches. I look at the diachronic unfolding of two semantic fields and of specific families of signs. In addition, I explore the range of grammatical functions deriving from HIT.

I focused on the grammaticalisation of HIT since, within the set of signs-from-gestures, this was the only item showing clear grammatical functions in the 2017 dictionary. Here, it also occurs as HIT. To explore the range of its contextual uses, the 53 LGG sentences collected in 2022 were translated and categorised in terms of the meanings and functions of the snapping-finger form. In the end, I obtained nine categories presented in detail in subsection 4.6.2. Besides HIT (9 sentences), there was one semantic extension to 'beat' (1 sentence). The remaining categories expressed grammatical functions in 'against' (3 sentences), 'more than' (7 sentences), 'better than' (8 sentences), 'better for' (1 sentence), 'best' (6 sentences), 'most' (1 sentence), and 'very' (17 sentences).

The two semantic fields selected for the analysis of lexical expansion – kinship and colours – have been described often in spoken and signed languages. All signs related to those semantic fields in LGG were organised according to the year they were collected to understand how they emerged and developed over time. Besides signs related to kinship and colours, I investigated signs covering other semantic areas that were morphologically related to those occurring in the hierarchies. For instance, I refer to the use of MAN/FATHER and WOMAN/MOTHER not only as a gender marker in kin members, but also in professions. Additionally, I took into account signs that had similar motivations to those I was focusing on. For example, as football references initially supported colours, as well as name signs for countries.

For the observation of the morphological processes activated over time, across the three dictionaries, I included eventual replacements of signs. Given that deaf participants acknowledged during the collection of the 2017 dictionary that newly created signs were intentionally replacing some of the signs-from-gestures, I dedicate a short subsection to this particular phenomenon, in subsection 4.5.3.

#### *4.3.3.1 Lexical expansion through derivation and compounding*

Because I have been able to track the signs analysed in this chapter back to their gestural roots (in Chapter 3), I take those signs to be the morphological roots from which further processes of derivation and compounding operate to expand the emerging lexicon of LGG.

The derivation process entails the modification of minimal phonomorphological units of single signs, leading to the creation of new signs to designate related concepts, like the inverted V handshape representing the human legs, from which stems a variety of possibilities, like WALK, SIT, JUMP, or DANCE. These modifications are rooted in the unchanging units connecting semantically all derivative forms. In a different form of lexical expansion, compounding, two or more signs are combined to designate a single lexical concept; e.g., EAT<sup>^</sup>SLEEP, as the original ASL compound for 'home'. In the analysis of compounds, I seek to identify paradigms relating the semantic relationship between their constituents and the semantic fields that they were designating (as proposed by Downing 1977, 831).

To illustrate how the set of signs for the current analysis was put together, Table 9 refers back to the 41 concepts elicited during the gesture sessions, in the same order as they were presented to the hearing participants (in §3.3.2). Table 9 includes 40 direct sign counterparts of the gestures produced for those concepts, and eight additional sign counterparts with different motivations that were integrated into the LGG

lexicon for other concepts. I recall that, in the gesture elicitation sessions in Bissau, some concepts were expressed by different gestures that were also incorporated into LGG. This was the case of 'sick' (#32) prompting the gesture that is directly adopted as the sign SICK, and cooccurring gestures also integrated as signs, namely COLD, PAIN, FEVER and SLEEP (in grey in Table 9).

Table 9 presents 75 derivatives (including 17 deriving from additional sign counterparts), and 163 compounds (including 35 combinations with additional sign counterparts) sharing roots with the corresponding sign counterparts. In total, the analysis of lexical expansion encompasses 286 signs. That said, 12 sign counterparts, such as the one for 'big' (#1), are not associated with any derivatives or compounds in any of the three dictionaries. In contrast, the other sign counterparts are the basis for derivative or compound signs, or both. This is true for all items, except WITCHCRAFT, KILL and CRAZY.

**Table 9.** Total number of signs used in the analyses of lexical expansion, including the concepts listed in the order they were elicited, their direct sign counterparts, additional sign counterparts (in light grey), and derivatives and compounds

# Concepts	Direct sign counterparts	Additional sign counterparts	Derivatives	Compounds	Total
1 big	1				1
2 much	1				1
3 animals' height			1	3	4
4 people's height			5	3	8
5 child	1		1	5	7
6 man	2		1	18	21
7 woman	2		1	17	20
8 witchcraft	1		5	3	9

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wings		1	2	9	12
crazy		1	11	10	22
9 steal	1				1
10 work	1			9	10
11 finish	1			1	2
12 sorry	2				2
13 beg	1		1		2
14 why?	1		1	2	4
15 hit	1		2		3
16 escape	1				1
go away		1	2	2	5
17 lie	1		1		2
18 die	1			1	2
19 refuse	1				1
20 all good?	1		5	13	19
21 far	1		1		2
22 six	1				1
23 ten	1		1	1	3
24 boy/girlfriend	1		1	4	6
kiss		1	2		3
25 married	2		1	4	7
26 old person	1		1	3	5
27 friend	1		5	1	7
28 together	1				1
29 same	1		3	5	9
30 chief			4	14	18
31 crook	1			1	2
32 sick	1			6	7
pain		1		2	3
fever		1		7	8
cold		1		2	3
sleep		1		3	4
33 kill	1		8	12	21
34 heat				1	1
35 hungry	1				1
36 thirsty	1				1

37 talk	1		5		6
38 thank you	1				1
39 please	1				1
40 white	1		3	1	5
41 black			1		1
	40	8	75	163	<b>286</b>

The diachronic track of LGG signs was mainly analysed based on the translations provided by the dictionaries, assuming that they referred to the same concepts. Also, as explained in the previous subsection, signs lacking more recent versions were filmed later.

#### 4.4 Lexical expansion of semantic fields: kinship and colour terms

The first of the three analyses of lexical growth in LGG focuses on the diachronic unfolding of kinship and colour signs. I begin by reviewing the literature on the topic in both spoken and signed languages (§4.4.1). Then, I describe the LGG data in each semantic field (§4.4.2).

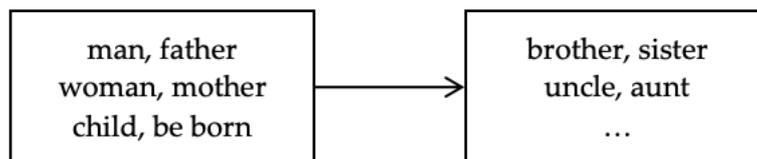
##### 4.4.1 Background

To understand how the lexicon gets progressively structured, lexicons have been compared crosslinguistically in various semantic domains, like kinship and colours, in both spoken and sign languages (e.g., Zeshan & Sagara 2016, for colour, kinship, and quantification). These typological studies of lexical structures reveal implicational hierarchies that are shared across languages. Depending on the features that a language presents, like a word B predicting (or implying) the presence of a word A, the language is assigned to a particular type (Hengeveld 2006).

Besides searching for common properties in unrelated languages, linguistic dependencies can be investigated synchronically through markedness. This is based on the idea that there are unmarked items (more basic and frequent) and marked ones (Greenberg 1966). However, Greenberg also acknowledges that synchronicity does not give a complete picture of how a hierarchy unfolds. Instead, he argues in favour of using diachronic change to trace language universals (1969, 477–478).

#### 4.4.1.1 *Implicational hierarchies in kinship terms*

Biosocial categories are a good example of linguistic organisation (Koch 2001, 1145). Excellent candidates for lexical universals for kinds of people are the concepts of ‘man’, ‘woman’ and ‘child’ as the basic units in human reproduction, regardless of cultural practices. Therein, the fundamental mother-child relation becomes foundational for kinship terms (Goddard & Wierzbicka 2013, 50–53), especially when associated with the notion of ‘being born’ or ‘giving birth’, as shown in Figure 105. All subsequent semantic derivations will be culture-specific according to Goddard (2018, 133).



**Figure 105.** Lexical encoding for kinship terms stemming from the universal biosocial unit and extending to other, more culturally specific, kinship terms (adapted from Goddard 2018, 132)

To contrast with 'child', 'old' is often used (Goddard 2001, 23). Kinship relations are typically analysed according to gender and age, whether they are lineal (ascendant or descendant) or collateral (other than lineal), consanguineal (biologically related) or affinal (Kroeber 1909, 78–79). In his investigation based on 120 languages, Greenberg (1966) demonstrates markedness hierarchies. Here, lineal and consanguineal relationships, like 'offspring' / 'parent' / 'grandparent', tend to be less marked than collateral, as 'sibling' and 'cousin', and affinal ones, such as in-law and step kin. Of course, kin terms express social organisation and will therefore vary accordingly (Jonsson 2001, 1206).

In sign languages, people are likely to be iconically represented by their appearance. In her comparison of 40 sign languages – including those in Kenya, Namibia, Tanzania – Wilkinson found that men are usually represented by their facial hair, while women are represented by breasts (Wilkinson 2009, 121–129). Sagara and Zeshan have observed several other general tendencies in sign languages, such as distinct lexical items for 'mother' and 'father'. Typologically, there are a number of sign languages presenting polysemous forms for MOTHER/WOMAN/FEMALE and FATHER/MAN/MALE. The signs that come to function as 'female' or 'male' usually combine through compounding to mark the gender of kin members, and eventually also with age marking, as in FEMALE<sup>^</sup>OLDER<sup>^</sup>SIBLING in Indian Sign Language (2016, 21–22).

Besides MOTHER and FATHER, Woodward (1978, 128), comparing 20 sign languages, identified two more basic native kin terms: OFFSPRING and SIBLING. Cross-linguistically, the notion of 'parents' normally results from the compound FATHER<sup>^</sup>MOTHER (Wilkinson 2009, 159). The OFFSPRING term may refer to the notions of 'baby', 'child' (as 'short person') or 'give birth' and is generally marked for gender (ibid., 141–144). Other than these, grandparental terms are consistently associated with

OLD(PERSON) (ibid., 140–141). In general, terms used to represent kinship relations are often polysemous (ibid., 146).

In keeping with an implicational hierarchy, cross-linguistic patterns show that as relationships get further away from the nuclear kin, in non-core relations, there are fewer gender and age distinctions (Sagara & Zeshan 2006, 24–25). Also, signs designating such relations tend to integrate fingerspelling initialisation at later stages after continuous language contact (ibid., 26; Wilkinson 2009, 153). In addition, language contact may result in the use of mouthing to tell apart polysemic signs, as in <broer> or <zus> with the NGT sign for ‘sibling’ (Quer et al. 2017, 35).

To illustrate how kin terms are organised in some sign languages, Table 10 shows examples of sign formation in four African sign languages; namely, those of the villages of Bouakako, Ivory Coast (LaSiBo; Tano 2016, 182–207), Adamorobe, Ghana (AdaSL; Nyst 2007, 98–101), and of the deaf communities of Kenya (KSL; Wilkinson 2009, 273) and Uganda (UgSL; ibid., 285; Lutalo-Kiingi 2014a, 87, 90).

Kinship terms are ordered in rows roughly from closer relations (top) to more distant (bottom). Here, it is worth noting that the signs MAN, WOMAN, and SAME are very similar in these unrelated sign languages, and that BIRTH is the same in LaSiBo, AdaSL and UgSL. Such a coincidence is likely pointing at shared gestural sources, as seen at least for the *chin-beard*, *breasts* and the *joined-fingers* forms for ‘man’, ‘woman’, and ‘same’, in the previous chapter. Moreover, collateral relationships resort to fingerspelling, i.e., to initialisation, in the cases of ‘cousin’ in KSL and ‘uncle’ and ‘aunt’ in UgSL.

**Table 10.** Kinship terms in the African Sign Languages of Bouakako, Ivory Coast (LaSiBo), Adamorobe, Ghana (AdaSL), Kenya (KSL) and Uganda (UgSL)

	LaSiBo	AdaSL	KSL	UgSL
Father	MAN(^BIRTH)	MAN	MAN	MAN^BIRTH
Mother	WOMAN(^BIRTH)	WOMAN	WOMAN	WOMAN^BIRTH
Offspring	BIRTH	BIRTH^CHILD	gender^CHILD	B(oy)/G(irl)^CARRY-ON-THE-BACK
Sibling	(BIRTH^)^SAME (gender^) HEIGHT	SAME	gender^SAME	B(oy)/G(irl)^BIRTH
Spouse	gender^UNION	MARRY	PERSON^MARRY	gender^MARRY
Grandparent	OLD(PERSON)	OLD(PER-SON)	OLD^PER-SON	gender^OLD
Uncle /aunt	-	-	gender^SIDE	U(ncle)/A(unt)
Cousin	-	SAME	C(OUSIN)	-

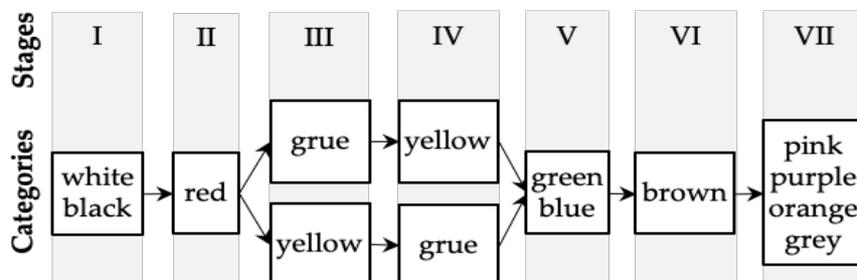
In sum, the building up of kinship terms relies on an initial vocabulary, distinguishing kinds of people. In sign languages, these terms are likely to be based on similar motivations. Further along the hierarchy, signs for family members tend to resort to initialisation. Importantly, such descriptions have not been carried out with sign languages as young as LGG.

#### 4.4.1.2 Implicational hierarchies in colour terms

Similar to kinship, colour terms have also been looked at in terms of their typological hierarchies, as first proposed by Berlin and Kay (1969), based on 89 languages of three unrelated family stocks. They conclude that all languages have terms for white and black (stage I). If

a language has a third colour, it is red (stage II). If it has four colours, then it has either green or yellow (stage III), and, if it has five, it has both (stage IV). The fifth colour is blue (stage V) and the seventh is brown (stage VI). Languages with eight or more colours have at least one term for pink, purple, orange or grey (stage VII). Thus, as the functional need arises, people will expand their colour vocabulary. Depending on the number of basic colours that a language contains, it is assigned a type.

The green, blue, yellow triade was later revised by Kay (1975, 260), who observes that, in the world's languages, green and blue – which he terms as 'grue' when a language only has one term for both of them – get distinguished from one another only after coexisting with yellow, as shown in Stages III and IV in Figure 106.



**Figure 106.** Hierarchy of basic colour terms across seven stages (Kay 1975, 260)

In sign languages, the representation of the three most basic colours is usually made by association with a coloured body part, like lips for RED, which can result in polysemy, in this case for both 'lips' and 'red'. Such polysemy also occurs in other signs designating coloured objects and their corresponding colours, like 'orange' for both the fruit and the

colour, something also found in spoken languages (Sagara & Zeshan 2016, 18). The further away into the hierarchy, the less iconic the signs for colours will typically be (*ibid.*, 19).

Typological studies about colour signs were carried out by Woodward, comparing ten sign languages, including those of Providence Island, Hong Kong and Saudi Arabia (1989, 149, 151), and Sagara and Zeshan, comparing 33 sign languages, including Adamorobe, Indonesian and Finnish Sign Languages, and Kata Kolok (2016, 18). To this comparison, I add descriptions of colour signs in Yolngu Sign Language by Adone and colleagues (2012, 64), and additional information on Adamorobe Sign Language by Nyst (2007, 95–96). In the latter, yellow and green are based on coloured objects, as in BANANA<sup>SOFT</sup> and BANANA<sup>HARD</sup> (these were not included in Sagara and Zeshan's study).

The data presented in Table 11 shows one example per language type, i.e., a sign language containing only three basic colours (black, white, and red), that of the Providence Island; another with four colours (the previous three and yellow), the Yolngu Sign Language; the Adamorobe Sign Language, with five colours (the last four and green), etc etc. It is worth noting that Kata Kolok has one term for both green and blue, or grue. The lower half of Table 11, from the Hong Kong Sign Language downwards, illustrates macro-community sign languages, contrasting with the first four sign languages used instead by micro-communities. It is worth noting that there are no very young sign languages like LGG in this typological study.

**Table 11.** Sign language types according to basic colour terms, developing from three to nine colours

Sign Language	black	white	red	yellow	green	blue	brown	purple	pink
Providence Island	x	x	x						
Yolngu	x	x	x	x					
Adamorobe	x	x	x	x	x				
Kata Kolok	x	x	x	x		x			
Hong Kong	x	x	x	x	x	x			
Saudi Arabian	x	x	x	x	x	x	x	x	
Indonesian	x	x	x	x	x	x	x	x	?
Finnish	x	x	x	x	x	x	x	x	x

While signs for most basic colours mostly point to some coloured body part, the remaining ones are likely associated with a coloured object. Also, the further along the hierarchy, the fewer signs are expected to present an iconic motivation. All in all, implicational hierarchies in kinship and colour terms can be grounded on universal tendencies and simultaneously manifest differently depending on the cultural environment (Brown 2000, 158–159, 164).

#### 4.4.2 Lexical expansion of kinship and colour terms in LGG

To illustrate how structure is built up in the LGG lexicon, I zoom in on two distinct semantic fields: kinship (in §4.4.2.1) and colours (in §4.4.2.2).

#### 4.4.2.1 *Kinship terms in LGG*

As listed in Chapter 3, there are five gestures used in Bissau that refer to family members: MAN, WOMAN, CHILD, OLD-PERSON and SAME for 'sibling'. Based on the three existing LGG dictionaries, I observed that these same terms were then combined as compounds over time to specify kinship relationships through compounding further. I found that the initial combinations of signs relied on that original stock. Here, I describe the sequential unfolding of kin terms in LGG to find out which developmental trajectory is followed in this language. I begin by focusing on LGG signs for closer (lineal and consanguineal) kinship ties. Then, I present signs for more distant family members (collateral and affinal relationships). In the end, I also explore other signs related in form to signs within the kinship field.

Table 12 shows that the semantic hierarchy of kinship terms expands from conventional gestures presented in the first column to express closer kin ties. The following three columns of Table 12, representing the sequence of signs collected in the different dictionaries, reveal how signers first extend the designations for family members by resorting to polysemy, in 2005 and 2006, and then by compounding, in 2017. Rows display how manual forms unroll over time. While the upper half of Table 12 illustrates the development of signs for closer kinship terms, the lower half of the last column presents signs from the latest dictionary, collected in 2017. These signs referring to more distant family relationships do not derive from the initial gesture stock but are instead created from scratch by LGG signers.

**Table 12.** Diachronic expansion of kinship terms in LGG, from gestures used in Bissau through the signs collected in 2005, 2006 and 2017

Gestures	LGG		
	2005 (polysemy)	2006	2017 (compounding)
man/father	FATHER		
woman/mother	MOTHER		FATHER^MOTHER^CHILD 'family'
height-specifier		OFFSPRING	BIRTH^CHILD 'offspring' gender^BIRTH 'son'/'daughter'
married	gender^RING 'wife'/'husband'		
old-person		GRAND-PARENT	gender^ OLD-PERSON 'grandfather' / 'grandmother'
same	SAME^BREASTFEED 'sibling'		BREASTFEED^SAME 'sibling'  gender^TWO 'stepfather'/'stepmother' gender^BLESSED 'godfather/mother' BIRTH^TAKE 'adopted' gender ^YOUNGER 'grandson' / 'granddaughter' gender^RELATION 'cousin' gender^T 'uncle'/'aunt' gender^S 'nephew' / 'niece'

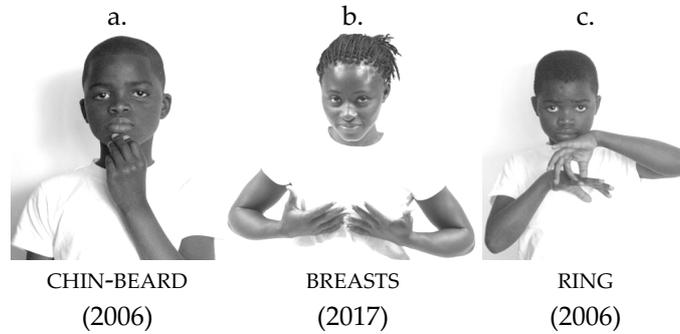
*Closer kinship terms in LGG*

Signs for closer family ties in LGG involve the lineal relations of 'parents', 'offspring', and 'grandparents' and the most direct collateral relationship of 'sibling'. Like the gestures for 'man' and 'father', and

'woman' and 'mother' are polysemous, so were their sign counterparts in MAN / FATHER and WOMAN / MOTHER during the first years of LGG emergence. Presumably due to confusability from this polysemy, LGG signers eventually added the mouthing in the kin member signs, namely in FATHER and MOTHER, respectively, as ['pape] and ['mame] (see Figure 76, in §3.5.1). It is important here to note that mouthing seldom occurs in LGG communication, so this is a special case.

Other than MAN vs. FATHER and WOMAN vs. MOTHER, whose polysemy was disambiguated by adding mouthing, the remaining polysemous signs for kinship terms were developed by compounding. The term for 'spouse' is expressed by the sign MARRIED combined with the gender distinction. This is also the case of OLD-PERSON later appended to MAN and WOMAN to mark gender in 'grandparent'. In other words, a gender distinction for married couples became the paradigm that helped to expand kinship terms further.

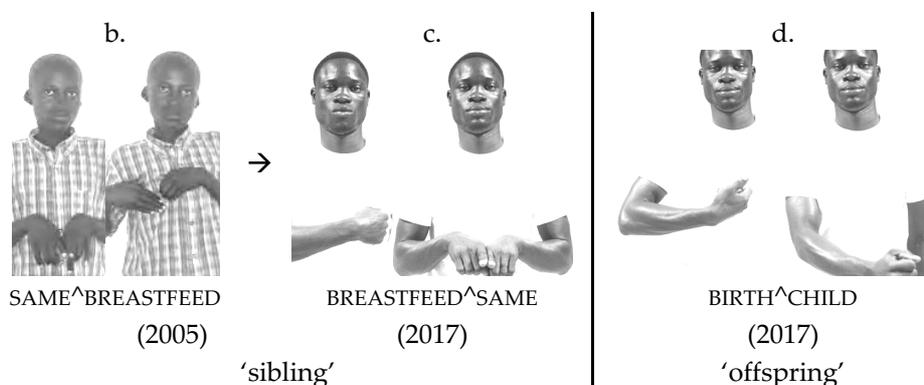
To refer to the concepts that would have motivated the gestural forms adopted as the signs MAN, WOMAN and MARRIED, signers slightly modified those forms for 'chin beard', in Figure 107a, 'breasts', in Figure 107b, and 'ring', in Figure 107c. Such modifications seem to have recovered the signs' iconicity by making their motivation more explicit.



**Figure 107.** Signs for the original concepts motivating the signs MAN, WOMAN and MARRIED in LGG, distinguished in form for CHIN-BEARD (a), BREASTS (b), and RING (c)

Besides combinations with MAN and WOMAN for gender marking, two other signs turned into compounds. The joined-finger form for ‘sibling’ was combined as early as 2005 with BREASTFEED, in Figure 108a, specifying what was a highly polysemous gesture. Later, in 2017, the compound for ‘sibling’ loses one hand in BREASTFEED and inverts the order of its members from higher to lower, in Figure 108b. To express gender, it becomes a three-member compound, as in MALE<sup>^</sup>BREASTFEED<sup>^</sup>SAME ‘brother’.

Similarly, the height specifier at a lower level, which can also be polysemous for ‘child’ and ‘short’, is combined later, in 2017, with BIRTH, for ‘offspring’, in Figure 108c. However, when specifying gender, it loses the height specifier and maintains a two-member composition as in MALE<sup>^</sup>BIRTH ‘son’.

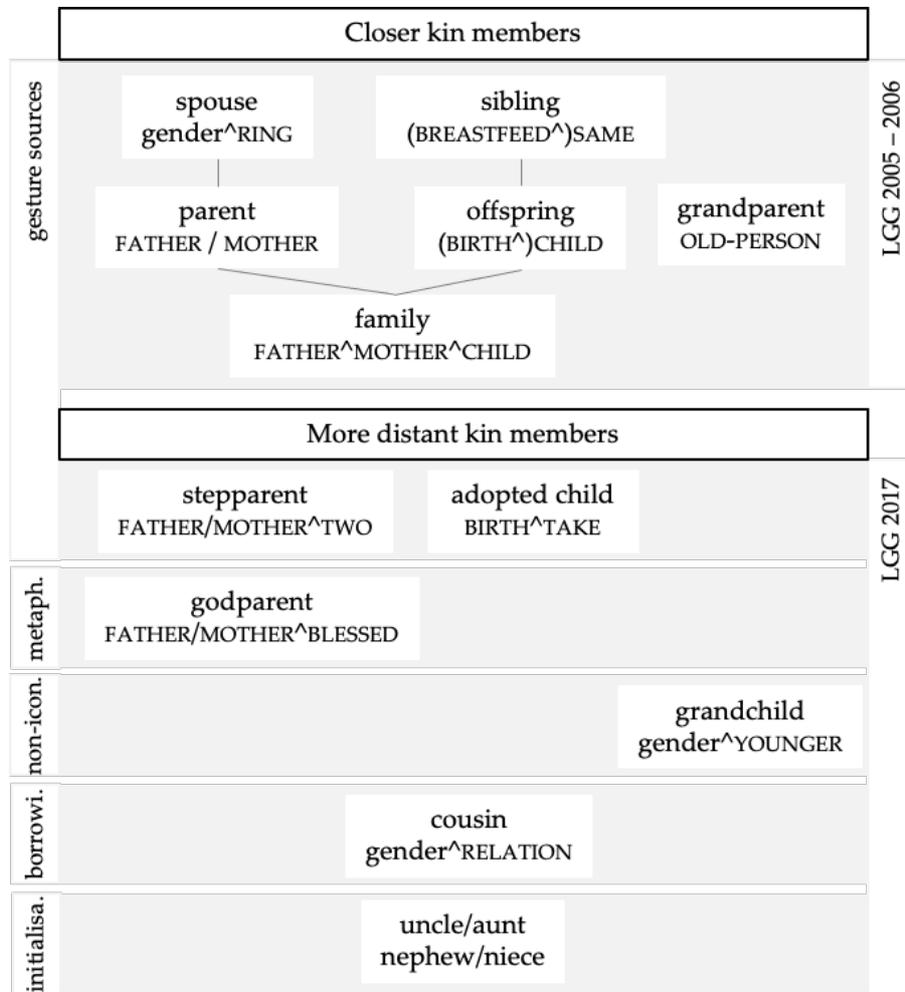


**Figure 108.** Polysemous signs distinguished by compounding for 'sibling' in 2005 (a), and in 2017 (b), and for 'offspring' (c) in LGG

#### *More distant kinship terms in LGG*

Importantly, as kinship relations get farther from the nucleus, such as collateral and affinal ties, new designations no longer consist of combining pre-existing signs but are instead created from scratch. Figure 109 shows how, in the first collection years, in 2005 and 2006, signs for closer kin terms take advantage of gesture sources.

In 2017, new signs were collected for more distant kin relationships. These are ordered in Figure 109 from top to bottom according to the motivations leading to their creation. Thus, signs for 'stepparent' and 'adopted child' are combinations involving gesture sources. The sign for 'godparent' represents a metaphoric association with the blessing drops of water on the head. The sign for 'grandchild' appears to have lost its iconic motivation, i.e., the explanations given by deaf people show how much it has reduced in its form to the point of obscuring its iconicity. The sign for 'cousin' is said to be borrowed from LGP (see §2.5.4.2). Finally, at the bottom of Figure 109, there are signs with initialisation for 'uncle', 'aunt', 'nephew' and 'niece'.

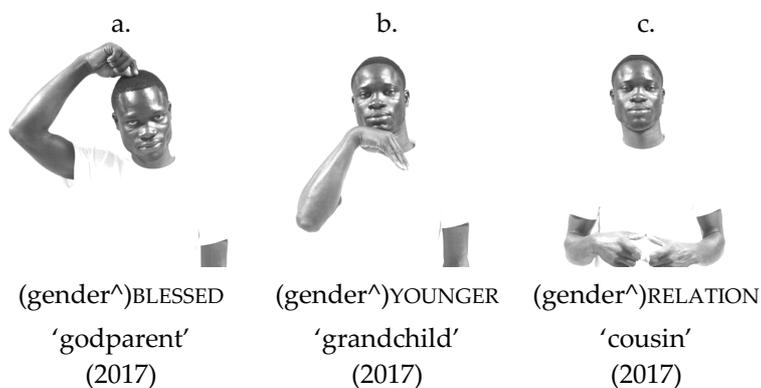


**Figure 109. Sequence of kinship terms** in LGG according to their motivational origins on the left and their collection year on the right, with the closer kin members on the top half and more distant kin members on the bottom half

Looking more closely at the newly created signs for closer family members that did not benefit from the gesture stock, it becomes clear that signers made use of different strategies. Figure 110a shows the

compound member BLESSED for 'godparent'. This sign represents iconically the act of sprinkling holy water on the head during the baptism ceremony. In addition, it extends metaphorically to signify the kin relation established by that ceremony.

The following two signs, in Figures 110b and 110c, would not be easily deciphered by an outsider, considering the explanations given by one deaf signer about their original motivation. The sign for 'grandchild', produced with the back of the hand against the underside of the chin, in Figure 110b, would refer to a younger person. Also, the sign for 'cousin', tracing a triangle with joined thumbs and index fingers, as shown in Figure 110c, would represent a diagram of that collateral relationship. The fact that deaf signers suggested that this sign is borrowed from LGP makes the diagram explanation probably not the most reliable one.



**Figure 110.** Signs for more distant kin members in LGG, namely for 'godparent' (a), 'grandchild' (b), and 'cousin' (c)

The remaining two more distant kinship pairs resort to initialisation. The signs for 'uncle' and 'aunt' consist of a combination of the gender specification, the signs MAN and WOMAN, with T, corresponding to the

Portuguese and Creole words <t>io and <t>ia. Similarly, ‘nephew’ and ‘niece’ combine the gender marker with S, again from the words <s>obrinho and <s>obrinha, followed by the height specifier. Taking the signs from the three dictionaries as a reference data set, I observed that initialisation appeared only in the later stages of LGG development. Does this indicate a new type of lexical creation? Apart from reference to family members, initialisation occurred in a few other signs, especially for toponyms and school-related concepts. Nonetheless, it remains a marginal strategy in sign creation, corresponding only to 13 of 1100 signs.

To summarise, for kinship terms in LGG, signers took advantage of an initial gestural stock for ‘man’, ‘woman’, ‘child’, ‘same’ and ‘old person’ to express closer kin relations through polysemic associations. Then, they combined these first signs as compounds to clarify their designations. Later, they created new signs that refer to more distant family ties, resorting to more abstract associations and initialisation.

### *Expanding outside of the kinship field*

Other than most family members, gender marking with the signs MAN and WOMAN may refer to people concerning different personal relationships and professional activities. Here, the gender assignment would be more adjective-like, as a ‘male’ or ‘female’ value attributed to the nature of the relationship or activity.

Besides gender marking, some of the sign sources for family terms present semantic extensions that go outside the scope of kinship ties. For instance, the ‘ring’ in MARRIED is included in KISS^RING ‘civil marriage’ and CATHOLIC^RING ‘catholic marriage’ (in 2017). Similarly, the two joined fingers in SIBLING are polysemous in FRIEND (in 2005) and SAME (in 2006), and part of a compound in SAME^SIDE-BY-SIDE ‘neighbour’ (in 2005). By modifying the movement of the two fingers so that they

are pulled away from each other, signers (re)create DIFFERENT, by polysemy, DIVORCE, and by compounding KISS^DIFFERENT 'break up'. The sign KISS included in the compounds for 'break up' and 'civil marriage' was first collected in 2006 to mean 'kiss' and then by polysemy boy/girlfriend (in 2017). It is also part of two other compounds, KISS^GIVING-ARM 'fiancé' and KISS^CALL 'to woo'. Interestingly, the sign for 'kiss' with the index finger touching the lips is replaced by two finger-bunch handshapes to signify 'to date' and with a different movement 'soap opera'.

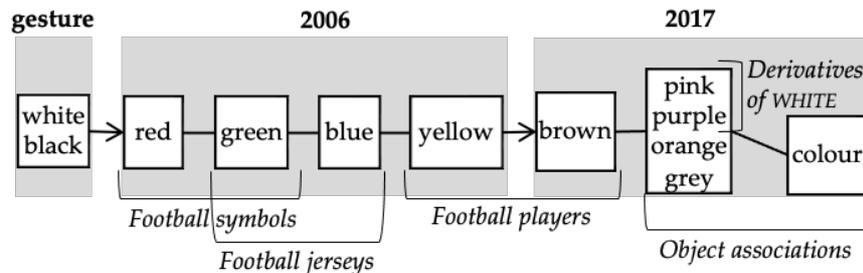
#### 4.4.2.2 *Colour terms in LGG*

Like in the semantic field of kinship, the expansion of colour terms follows a diachronic sequence, as implied in the literature about synchronic hierarchies for both spoken and signed language types. Similar to the previous description on kinship terms, the current one also assumes that gestures preceded the signed forms and presents the LGG signs for colours in the diachronic order in which they are collected. In addition, it is shown here how similar motivations for colours, namely, based on football, are used to create signs in other semantic fields. At the same time, I describe different motivations, other than football-related, to refer to colours at a later stage.

Contrasting with kinship, which is initially supported by a gestural stock, the only gesture that is reliably linked to a colour is the polysemous form for both 'white' and 'black'. This gesture is incorporated into the LGG lexicon as WHITE and, with a phonological modification of WHITE, to express BLACK (Figure 86, in §3.5.2).

When I trace the colour terms across the diachronic snapshots, as shown in Figure 111, it becomes evident that the two initial colours emerged before RED, GREEN and BLUE, and then YELLOW. These four, which occur in the 2006 dictionary with WHITE and BLACK, are all based

on football references, whether the animal symbols, the jerseys or famous players. The remaining colours, collected a decade later, are (re)created with different motivations, namely by modifying the sign WHITE or by associating particular objects with their corresponding colours. The 2017 colour signs are grouped in Figure 111 according to their original motivation: football related in BROWN, derivatives of WHITE and related to coloured objects (the fruit orange, cigarette ashes for GREY and nail polish for COLOUR).

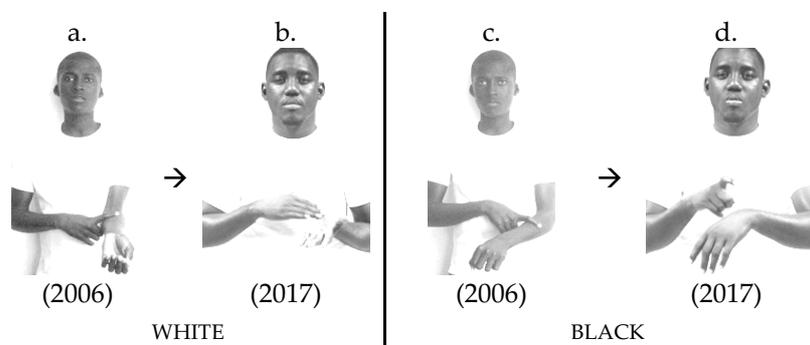


**Figure 111.** Chronology of emergence of colour terms in LGG, from the gestures used in Bissau to the signs collected in 2006 and 2017

### *Gesture sources*

The first collection of LGG signs in 2005 did not contain colours. However, in the following year, deaf signers were already using six different terms, including WHITE and BLACK. At this point, the distinction between the two was not made by the movement, which involved rubbing the skin in both cases, but by the place of articulation in the forearm, whether the dorsal or the palmar side. For BLACK, the rubbing was kept on the dorsal side of the forearm, as in the most frequent gesture, in Figure 112c, while WHITE was produced instead on the palmar – and lighter – side of the forearm, in Figure 112a. This same sign refers

to ‘white’ in general, applied to all things, in 2006. A decade later, its meaning is specified as ‘white skin’, while the designation of the ‘white colour’ has its location altered from the forearm to the palm of the hand, in Figure 112b. To further differentiate the sign BLACK – for both the skin and the general colour term – from WHITE – also with a rubbing – it changes, in 2017, to a tapping movement, in Figure 112d.



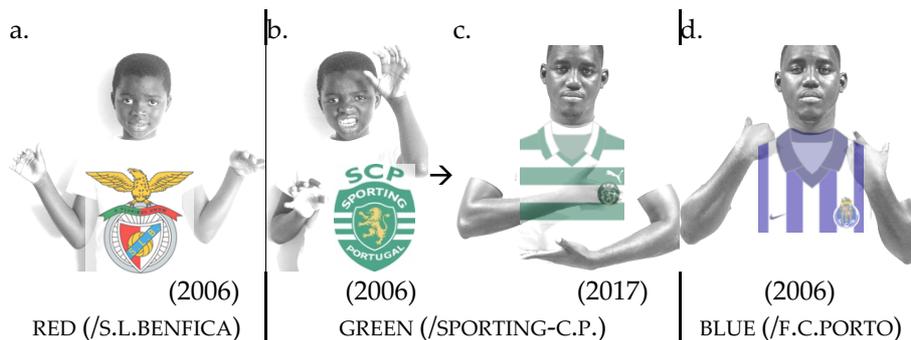
**Figure 112.** Signs for ‘white’ and ‘black’ in LGG, by rubbing the inner side of the forearm for ‘white’ in 2006 (a), and the palm in 2017 (b), and rubbing the outside of the forearm for ‘black’ in 2006 (c), and tapping it in 2017 (d)

### *Football references*

From the reasoning behind the motivation of the four other colour terms, it is safe to assume that RED and GREEN were created under the same motivation. These refer to the animals symbolising the two major football teams in Portugal: the eagle of *Benfica*, whose jersey is red, in Figure 113a, and the lion of *Sporting*, whose jersey is green, in Figure 113b. These two animals were represented, respectively, by personifying the eagle’s wings and the lion’s claws. Following a similar etymological pattern, BLUE refers to another relevant Portuguese football team, *Porto*, whose official shirt consists of vertical stripes of blue and

white. In this case, the sign refers to the vertical stripes on the shirt rather than its animal symbol, the dragon, as in Figure 113d. These three colours and the football clubs they refer to are all recorded in the 2006 dictionary as pairs of polysemous signs.

Interestingly, in the signs for colours collected in 2017, the *claws* for GREEN had been replaced by the horizontal stripes (of green and white) of *Sporting's* jersey, in Figure 113c. In this way, signs for both BLUE and GREEN have become analogues, especially after coexisting with yellow. Also, at this stage, the wings in RED were combined with LIP as a compound, most likely to distinguish the reference to the colour from that of a bird.



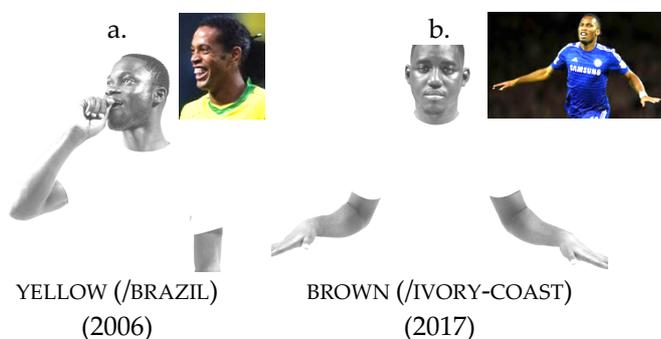
**Figure 113.** First three newly created signs for colours in LGG, namely by representing the eagle's wings of the football club *Sport Lisboa e Benfica* for 'red' (a), the lion's claws of the *Sporting Clube de Portugal* for 'green' in 2006 (b), its jersey's stripes for 'green' in 2017 (c), and the vertical stripes of the *Futebol Clube do Porto* for 'blue' (d)

With a different motivation, but still football-related, YELLOW refers to the sign name of Ronaldinho Gaúcho, a Brazilian player especially famous in the first decade of the 2000s. His sign name is based on his

prominent front teeth, and it refers not only to the colour of his national team jersey, 'yellow', but, as a polysemous sign, it also extends to the country he represents, 'Brazil', in Figure 114a.

In 2017, five additional signs for colours were created under different motivations. As predicted by the literature in both spoken (Berlin & Kay 1969) and signed languages (Sagara & Zeshan 2016), the new colour designations are BROWN, PINK, PURPLE, ORANGE, and GREY. The first one is still football-related since it represents the classic goal celebration by Didier Drogba, where he would run with his arms like wings, in Figure 114b.

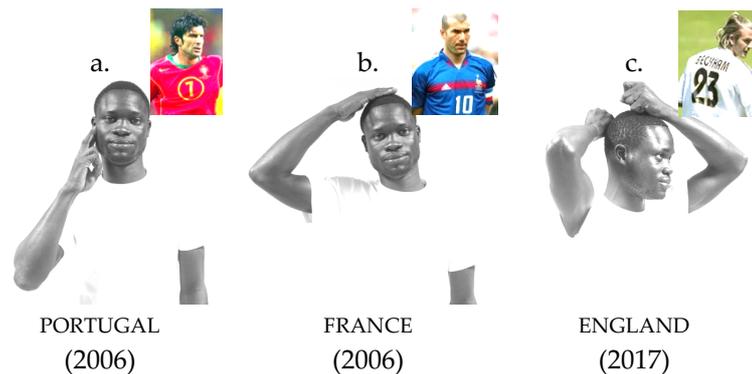
Associating this player with 'brown' is probably because, at that time, he was one of the few famous African players in the European league. This Ivorian-renowned football player had an international career until a few years later than the player mentioned above.



**Figure 114.** Signs for colours representing football players in LGG, namely for 'yellow' (a), and 'brown' (b)

The predominance of football references in the first five basic colours in LGG, after 'white' and 'black', reflects a topic favoured by men. By being rooted in male socialisation, such a topic demonstrates a

dominance of male signers in Bissau. Thus, engaged with a visually straightforward football iconography, deaf men appear to be leading the emergence of LGG. This is true for colour signs and new designations for countries associated with football. Hence, in 2006, as YELLOW is polysemous to BRAZIL, so will later BROWN derive into IVORY-COAST. Such a polysemy is distinguished by handshape modifications alone. In what countries are concerned, the first signs were motivated by the sign names of football players famous in that same first decade of the years 2000: the sideburns of Luís Figo in PORTUGAL, in Figure 115a, the baldness of Zinedine Zidane in FRANCE, in Figure 115b, and the pony-tails of David Beckham in ENGLAND, in Figure 115c.



**Figure 115.** Signs for countries representing football players in LGG, namely Luís Figo for ‘Portugal’ (a), Zinedine Zidane for ‘France’ (b), and David Beckham for ‘England’ (c)

Among the country name signs collected later, in 2017, others follow that same reasoning: ITALY, in Figure 116a, depicting the soul patch beard of Francesco Totti, a well-known Italian football player; GHANA, moulding the large forehead of Michael Essien, also internationally famous as a professional football player, in Figure 116b. Similar to the enactment of the goal celebration of Didier Drogba is the one by

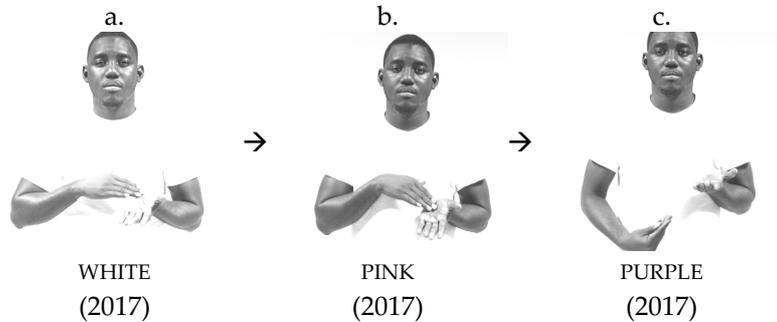
Samuel Eto'o to represent CAMEROON, his home country, in Figure 116c. All of these players had contemporaneous successful careers during the first decade of the 21<sup>st</sup> century. Finally, still in the football domain but not related to a particular player (so harder to situate in time), the sign for SPAIN depicts the shield logo of the Royal Spanish Football Federation, on the left side of the chest.



**Figure 116.** Signs for countries representing football players in LGG, namely Francesco Totti for 'Italy' (a), Michael Essien for 'Ghana' (b), and Samuel Eto'o for 'Cameroon' (c)

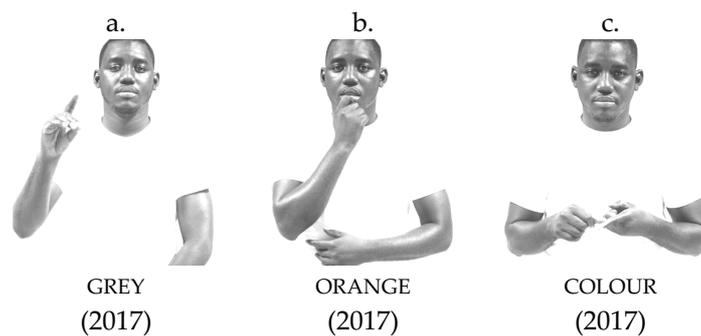
### *Other motivations*

Resorting to a different strategy, PINK seems to derive from WHITE by changing its movement and PURPLE, in turn, derives from PINK by extending the movement as if pushing the colour further, in Figure 117c. I recall that WHITE involves rubbing the palm of the hand, in Figure 117a, while PINK is produced with a bouncing movement of the dominant hand, in Figure 117b.



**Figure 117.** Signs deriving from ‘white’ on the palm in LGG (a), by modifying its movement for ‘pink’ (b), and ‘purple’ (c)

Following a different logic, GREY, representing the handling of a cigarette being tapped to ash it off, indicates the typically grey ashes (in Figure 118a). Also associated with the colour of a particular referent, the colour orange is, as in many other languages, designated by the fruit’s name (in Figure 118b). To distinguish one from the other, the colour sign consists of a compound, COLOUR^ORANGE. This general term COLOUR is a reduced version of the act of painting nails (in Figure 118c). Since the colour orange uses this sign for disambiguation, it is safe to assume that the hypernym was probably created at this point.



**Figure 118.** Signs for colours representing coloured objects in LGG, namely ashes for ‘grey’ (a), the fruit for ‘orange’ (b), and nail polish for the general term ‘colour’ (c)

The motivations behind the creation of colour signs consistently demonstrate a universal hierarchy. In this case, a conventional gesture provides the sequence onset with WHITE and BLACK. Together with those two basic colours, the 2006 dictionary recorded RED, GREEN, BLUE, and YELLOW. Interestingly, we see 'green' replaced later by a sign closer to BLUE. The sign YELLOW emerges at this time with a different motivation from the other three colours, associated with a famous football player. The fact that YELLOW, in 2006, and then BROWN, in 2017, as well as signs for country names, rely on personalities known for a limited period, enables a more precise identification of their creation in time in the first decade of the 2000s. Finally, the remaining colour terms collected in 2017 show a distinct set of motivations. Overall, the diachronic collection of colour signs in LGG demonstrates the emergence of a chronological sequence of colour terms.

#### **4.5 Lexical expansion of sign families through compounding and derivation**

The second analysis of the lexical expansion of LGG signs looks at the diachronic path of signs sharing formational roots. I first review the literature on compounding in both spoken and signed languages, and derivation of signed forms (§4.5.1). The analysis is described by focusing on five different groups of sign families (§4.5.2). Finally, I show how some of the gestural sources were intentionally replaced at a later stage in sensitive concepts (§4.5.3).

##### **4.5.1 Background**

Two common processes for creating new lexemes in sign languages are combining signs, in compounding, or modifying them internally,

in derivation. A lexical system in the making can be observed closely through lexical families, i.e., through clusters of words that share a semantic and a formational core. In sign languages, compounding is relatively straightforward and comparable to spoken languages (in §4.5.1.1). Derivation, however, uses formational roots that differ in type from spoken languages (in §4.5.1.2).

Both of these devices are standard lexicalisation processes in sign languages (Wilcox & Occhino 2016, 12). There are other processes to expand the lexicon, such as creating entirely new signs, using initialisation, or borrowing a foreign word. Over time, words may also be replaced due to cultural shifts affecting some concepts, namely those related to social norms, taboos, or acquired knowledge (Bowerman 2019, 52, for spoken languages; Wei et al. 2018, for sign languages). Grammaticalisation, though, is likely to occur only after a basic lexicon and word sequencing structure have been established (Streeck 2021, 110).

#### 4.5.1.1 *Compounding*

When tracing the earliest words in a young and emerging language, there are reasons why compounding is expected to be one of the most basic morphological constructions. Compounding seems to be the most productive (Guevara & Scalise 2009, 101), “simplest and most common means of building up meaning” (Klima & Bellugi 1979, 203), especially in new sign languages (Tkachman & Meir 2018, 2). It aims foremost at the disambiguation of existing words (Supalla & Clark 2015, 194), which are then used as the semantic basis on which a related concept gets contextually specified with the addition of other words (e.g., Morgan 2015, 12, for ‘candle’, in KSL, in which FLAME is combined with additional signs for colour, size and shape of the candle and the typical action of lightening it). Usually, such compounds are composed of two – or even three – free lexical items (Schmaling 2000, 127;

Lepic 2015, 10) that may result from the shortening of longer explanatory or characterising word sequences, especially in new languages (Meir et al. 2010, 311–312).

In established sign languages, signed compounds have been described in terms of their motivations (e.g., Klima & Bellugi 1979, 198–224, in ASL; Brennan 1990, 139–150, in BSL; Zeshan 2000, 82–85, in IPSL), the syntactic relationships between their members (Vercellotti & Mortensen 2012; Lepic 2023, in ASL; Santoro 2018, in *Lingua dei Segni Italiana* [LIS] and LSF), and their diachronic blending (e.g., Frishberg 1975, 707–711; Lepic 2015, 95–99, in ASL). In the African continent, types of compounds were systematised in Hausa SL (Schmaling 2000, 169–196) and their creation was analysed in KSL (Morgan 2015).

Here, I review how compounds come about in new sign languages, focusing on the semantic relationships between compound members that are likely to be established in certain conceptual classes. In particular, I look at compounds for kinds of people that include gender and age marking. Since one of the strategies in creating signs for kinship terms involves initialisation, I also review here compound types that resort to initialisation. Finally, I see how literature has approached diachronic change in signed compounds.

### *Semantic relationships between compound members*

Semantic relationships were studied in novel compounds in English by Downing. She determined that the kind of relationship between compound members seems to depend precisely on the entity being named (1977, 831). Table 13 shows that objects are referred to in terms of their use, or function, and animals in terms of their inherent characteristics. In the column on the right, I present examples for each relationship type from the village sign language of the Al-Sayyid Bedouin tribe, given by Meir and colleagues (2010).

**Table 13.** **Semantic motivations of compounds** deriving from different semantic relationships between the constituents referring to distinct semantic classes (in Downing 1977, 831), with examples from ABSL (in Meir et al. 2010)

Class	Motivation	ABSL examples
Man-made objects	Purpose	MOVIE^WIDE-OBJECT 'tv'
Animals	Appearance	PECK^WINGS 'bird'
People	Gender	MOTHER^OLD 'grandmother'

In the emergence of a visual-manual system, objects can be semantically distinguished from actions by using a disambiguation strategy. In the micro-community sign language of the Al-Sayyid Bedouin (ABSL), deaf people, when naming a new object, tend to produce a string of properties related to it. For instance, for 'calendar', to which there was no conventionalised sign, they refer to its function ('telling the time'), its format ('rectangle', 'written', 'in rows') and the way it is usually handled ('flipping the pages'), in no particular order. In another example, appearing to be more conventionalised than the previous but still showing variation among signers, 'stove' is represented by a selection of a smaller number of salient properties cooccurring in different combinations and ordering, again for function ('cook'), format ('wide object') and handling manner ('turn', 'insert') (Meir et al. 2010, 311–312). If manipulable objects are referred to with an action, the disambiguation between the action and the object may rely on additional information on their format, like size and shape specifiers, as observed in the family homesign system in Zinacantán, Mexico (Haviland 2015, 78), in ABSL, in the macro-community SL of Israel (Tkachman & Sandler 2015, 26–29), and by silent gesturers in Mexico and the Netherlands (Ortega & Özyürek 2020b, 96).

By comparing different stages of conventionalisation of word combinations for naming concepts, Meir and colleagues observe that structure arises in ABSL only when similar types of words (such as function and shape of an object) are consistently selected and put together in the same order (2010, 312). A consistent ordering also emerged in the gestural system used with and by the deaf people in Amami Island, Japan, consisting of source > characteristics (form and action) > handling (Osugi et al. 1999, 104 – 105). From this, we would expect to see such types of combinations in a young sign language like LGG.

Similar to what occurs in systematic correspondences between certain semantic domains and iconic types, studies on the “precursors of compounds” show that specific types of entities consistently activate different combinations (e.g., Morford & Kegl 2004, 373–375). For instance, in the family sign languages of the San Juan Quiahije community, in Mexico, as well as in the gestural system used in Amami Island, in Japan, deaf people represent food items by typically combining information on their source, preparation, consumption and size and shape (respectively in Hou 2016, 164, and Osugi et al. 1999, 104). This is also the case with Nicaraguan homesigners, where fruit items, in particular, are represented by the way they are prepared (cut, squeezed or held) and consumed (Morford & Kegl 2004, 373).

To represent animals, deaf homesigners represent animals by their physical characteristics and typical actions (Morford & Kegl 2004, 373, in Nicaragua). As observed by Hou in the family sign languages of SJQ, the physical characteristics of animals are mostly facial and related to their size, and descriptions may additionally refer to what one does to them (2016, 149–150, 170). Therefore, I expect that LGG will also designate semantic classes in this way.

### *Gender and age markers*

The designation of kinds of people often relies on gender and age specifications. For instance, Pepper observes that cross-linguistically many compounds in his database from 106 languages around the world refer to the gender and age of animate entities, especially in kinship and animal-related terms, like *horse^woman* ‘mare’ by the Brazilian Mbyá Guaraní (2020, 241, 253). Similarly, native American lexical items refer to acculturated concepts through strong naming tendencies, such as marking the gender and age size of animals, in *female^horse* ‘mare’, *male^hen* ‘rooster’ and *small^cow* ‘calf’ (Brown 2001, 1186). Also, Gavriilidou describes such a combination with gender marking for professions in Greek, like *woman^doctor* (2016, 105).

In sign language, gender marking is not always analysed as a full member of the compound. Quer, Cecchetto and Donati (2017, 243) consider it a “nominal inflection”. Schmaling (2000, 168), together with age marking, regards them as “enclitic-like morphemes”. Supalla and Clark (2015, 214, 226) view it as a “clitic”.

It is common in sign languages for kinship terms to rely on combinations with gender, like *MAN^MARRY* for ‘husband’ (Zeshan 2000, 85, in IPSL; Vercellotti & Mortensen 2012, 561, in ASL) and *WOMAN^BIRTH* for ‘daughter’ in IPSL (Zeshan 2000, 85) and for ‘mother’ in LaSiBo (Tano 2016, 199), and with age, as in *MOTHER/FATHER^OLD* ‘grandmother’/‘grandfather’ (Meir et al. 2010, 319, in ABSL). In addition, gender marking occurs in reference to professions, such as *FEMALE^TALL^WRITE* ‘teacher’ (Safar 2020a, 66, in YMSLs), *WOMAN^SEW* ‘seamstress’ (Figueiredo-Silva & Sell 2011, 36, in Libras) or *MAN^ELECTRICITY^FIX* ‘electrician’ (ibid., 38). Gender marking can be optional in some compounds and be employed only when the contextual distinction is needed, as an “apparent” compound. Otherwise, it can become an indispensable member of the compound (ibid., 32–34).

When gender and age are used in a compound, both spoken and signed, they tend to lose their referential properties and gain a more attributive function. Heine and Kuteva suggest that, as the paradigm increases in frequency and scope, it is more likely to be subject to semantic extension, generalisation and consequently desemanticisation and decategorialisation (2008, 148–149, 157). A good example of such an extension is gender<sup>^</sup>CHILD ‘offspring’ in KSL, where CHILD, typically depicting a short height, can also refer to an adult offspring.

### *Initialised signs*

Apart from combinations of more native-like elements, which are mostly iconically motivated, there are sequences of signs that borrow linguistic aspects from the surrounding spoken language(s) (Brentari & Padden 2001). The most productive strategy of the sort employed by signers is to pair-up a native sign with the first letter of a translation from the spoken word, like UNCLE, produced on the forehead where signs for male kin members are rooted, or BLUE, made with the same movement as other colours (Frishberg & Gough 1973, 122; Padden 1998, 45–46, in ASL). Besides such an initialisation, words can also be fingerspelled, as in DEAD<sup>^</sup>E-N-D ‘dead end’, in which the ASL sign for ‘dead’ is joined with three fingerspelled letters for ‘end’ (Padden 1998, 53, in ASL). It is, of course, implied that the influence of the spoken language on the creation of compounds – and of signs, for that matter – is dependent on the type of contact that deaf people have with spoken and/or written words. One could then imagine that a sign language emerging in a school setting, such as LGG, tends to resort to such a strategy to create new signs.

### *Diachronic change in signed compounds*

Although different types of compounds are constantly being created throughout language development, it can also be the case that ‘older’ compounds get reduced over time. The diachronic reduction of signed compounds has been typically referred to as blending (Frishberg 1975, 707–708, 710–711; Johnston & Schembri 1999, 174; Meir et al. 2010, 315). This implies a reduction of the combination as a whole and the eventual blending of the member signs of the compound into one another (Johnston & Schembri 1999, 174). This causes them to be perceived as single signs when the reduction process occurring over time camouflages the original combination of different signs. A well-known example of this is the ASL sign for ‘home’, deriving originally from the compound EAT<sup>^</sup>SLEEP (Frishberg 1975, 710). Otherwise, one of the constituents may be dropped, as in WINGS<sup>^</sup>BEAK ‘bird’ (ibid., 709, in ASL). It remains to be seen if any phonological reduction happens in such a short period for LGG.

Overall, compounding is a recurring mechanism of specifying meanings and, in this way, expanding the lexicon, especially to disambiguate polysemous words. It can activate consistent relationships within specific semantic classes to distinguish related concepts from each other. Otherwise, the lexicon can expand through derivational processes.

#### *4.5.1.2 Morphological derivation in signs*

In signs, derivation involves the modification of an internal segment to express a new meaning (Quer et al. 2017, 188–189). Some minimal units, namely concerning specific locations (or places of articulation), handshapes and movements tend to link families of signs (Frishberg & Gough 2000 [1973], in ASL; Zeshan 2000, 28–33, in IPSL). Even though in sign linguistics the term ‘derivation’ still lacks consensus, I will use

it here to refer to the establishment of form contrasts. Given that the notion of derivation implies a root, i.e., a minimal meaningful unit, and an affix modifying the meaning of that root, I review here the designations that have been proposed for such a process in signs.

Within signs, derivational processes are likely to cooccur simultaneously, unlike the typical concatenative affixation in spoken words. Moreover, minimal form units of signs – handshape, location, orientation, movement and non-manual features – are often meaningful (Supalla 1986, 182). When minimal units of signs share the same meaning within a group of signs, they are *morphologically preserved* or *motivated*, such as basing the male/female distinction in ASL on different body locations: ‘male’ on the forehead and ‘female’ on the chin (Frishberg 1975, 714–716). With this in mind, Johnston and Schembri suggest that signs are morphologically complex, i.e., multimorphemic (1999, 131), and, thus, the minimal units function simultaneously as both phonemes and morphemes as *phonomorphemes* (ibid., 118).

By considering the role of these minimal units in combining to form new words, they have also been called *ion-morphs* by Fernald and Napoli (2000, 36–37). Here, the forehead for ‘male’ and the chin for ‘female’ would be such ion-morphs that can combine with the open palm with the meaning of parent for ‘father’ and ‘mother’. Similarly, Zwitserlood and colleagues (2021) and van der Kooij and colleagues (2023) propose designating such sub-sign elements – whether individually or as clusters – as *form-meaning units*, or *FMUs*.

Based on the intuition that words related in meaning are also related in form (Anderson 1992, 71), language users establish paradigms as part of form-related semantic *gestalts*. They begin by recognising morphological patterns of fixed and variable elements, also in sign languages (Lepic & Occhino 2018, 153, following a usage-based theory of Construction Morphology). Then, they rely on such “schematic

morphological constructions” as templates to derive new signs from (Lepic 2015, 98), by selecting a restricted set of affixes (Fernald & Napoli 2000, 37).

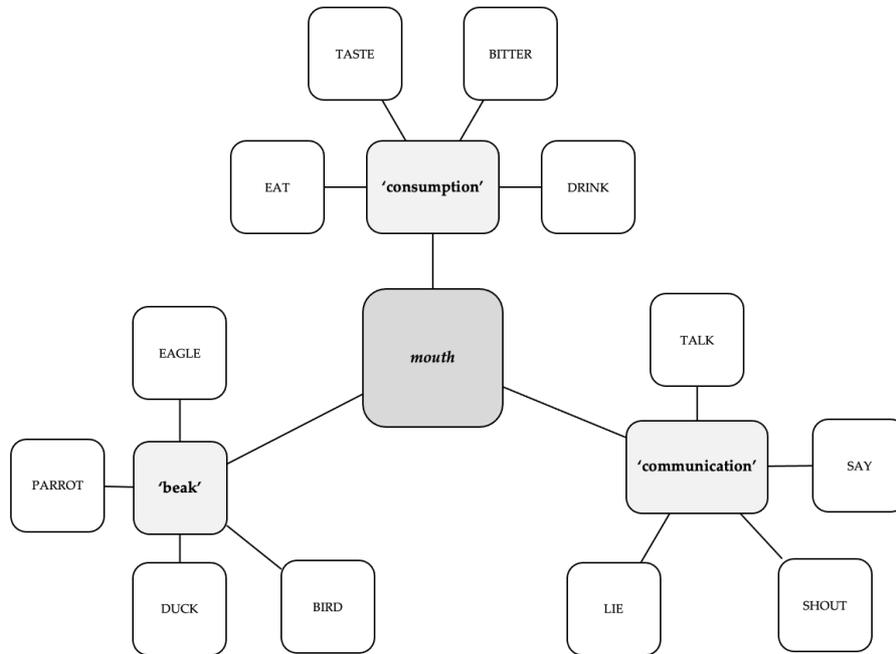
To address the particular mechanism of deriving some minimal units from others in signs, Liddell and Johnson distinguish fixed ones that stand for the root of the sign, calling them *incomplete S(egmental)-morphs*, from units that are modified, which they designate as *P(aradigmatic)-morph* (1989, 254–257). These P-morphs are then the derivational affixes. This type of morphological process is based on the notion that, within a word, there are parts, i.e., morphemes, that are attached to others. The attached parts, the so-called *affixes*, do not occur by themselves and are thus bound morphemes to a root (zooming in on the internal structure of a word) or a stem (zooming out to the relationship to its affix) (Aronoff 1994, 40). Despite the attempts to assign new labels to a modality-specific phenomenon, Lepic suggests that, in the end, *affixation*, as a general term, does fit well with the non-concatenative derivation that occurs in signs (2015, 163). For “ease of exposition”, as recognised by Napoli, these can be seen as *root* and *affix* (2019, 604).

Morphological roots can be formed from any of the three main phonological parameters: locations, handshapes, and movement. In what concerns the latter, movement oppositions, such as in GOOD / BAD, or COME / GO, constitute small clusters of signs related in form and meaning (Frishberg & Gough 2000 [1973], 105–106, in ASL).

Handshapes can be the linking element in a family of signs. In this line of thought, entity handshapes can also form a lexical family, as in  for FORK and PLUG (Zwitserlood et al. 2021, 16–17, in NGT). In addition, such a handshape may represent the human legs in activities deriving into JUMP, FALL and WALK (Meir 2012, 80, in ISL), or the eyes into SEE, LOOK, and SIGHTSEEING (Frishberg & Gough 2000 [1973], 113–114, in ASL).

Finally, there are meaningful locations on the body that can project a diversity of related concepts, as observed recurrently across sign languages. Sometimes, different families of signs are rooted in the same location. This is the case of the forehead for signs of mental activity, such as THINK and KNOW (Zeshan 2000, 30, in IPSL; Lepic 2015, 155–156, in ASL; Morgan 2022, 508, in KSL), and for signs representing horns, as in COW and BULL (Zeshan 2000, 23; Morgan 2022, 509, in KSL).

Figure 119 shows the mouth as a phonomorphological root, deriving into ASL signs related to communication, like TALK, SHOUT and ANSWER (Lepic & Occhino 2018, 156). It can also derive into ASL signs related to the consumption of food and drinking, such as EAT, TASTE and DRINK (Lepic & Occhino 2018, 156). Finally, Figure 119 illustrates ASL signs stemming from the mouth for types of beaks to refer to different birds, like BIRD, DUCK, PARROT and EAGLE (Fernald & Napoli 2000, 28–29). In sum, these clusters select distinct schematic constructions sharing the same root location.



**Figure 119.** Families of signs rooted in the mouth (in dark grey and italic) involving terms related to the concepts of consumption, communication and beaks (in light grey and between single quotes), with examples from ASL, with their lexical meanings in glosses (based on data from Lepic & Occhino 2018, 157)

In a modality-specific way, i.e., in a signed system, minimal units constituting a sign, such as handshape, location, or movement, may simultaneously modify to derive new signs. In such a concomitant derivational process, some elements are fixed and others vary, entwined with one another. Given the different proposals of terminology for this process, I henceforth opt to use phonomorphemes to refer to the minimal units, for easier interpretation. In addition, I distinguish fixed and variable phonomorphemes as roots and affixes.

Both derivational processes, rooted in specific phonomorphemes, and combinations of certain semantic relationships in compounding are very productive in sign languages. However, only compounds have been described in emerging signed lexicons, and scarcely. I wonder then how these morphological processes functioned in the first years of LGG emergence.

#### 4.5.2 Lexical expansion of sign families in LGG

In this subsection, I show that signs that derive from gestures are fruitful in serving as a basis for expanding into new signs. To illustrate how signers rapidly expand their lexicon from gestural sources, I pinpoint five groups of sign families (13 sign families in total) and describe the morphological processes established therein. These five types of families are organised from those favouring compounding to those presenting more derivation. Thus, to find out how these strategies are deployed for different sign families over time, I detail for each one the processes of derivation (expressed by single glosses) and compounding (represented by a combination of glosses followed by the corresponding meaning in single quotes).

Specifically, I profile compounds using SICK, FEVER, and WORK as hypernyms (§4.5.2.1). Then, I describe sign families deriving from polysemous gestures, *thumb(s) up*, *palm(s) up*, and *go away*. These extend especially by compounding but also by derivation (§4.5.2.2). Next, I demonstrate how signs rooted in the height specifier unfold through both derivation and compounding (§4.5.2.3). Subsequently, I present sign families expanding from four meaningful body locations. Although the gesture-to-sign variants prompted by 'chief' are exploited as derivatives of a form-meaning unit rooted on the shoulder(s), they are mostly combined with other signs in LGG.

In contrast, the remaining three body locations show a preference for derivation. These correspond to the forehead for cognition, which includes CRAZY, the chest for feelings, including FRIEND, and the sign family of TALK (§4.5.2.4). Lastly, I describe signs based on specific handshapes favouring derivation, namely handshapes depicting *cutting tools* and *claw(s)*. Here, I also refer to the sign family of *wings*, which resorts instead to compounding, as an additional illustration of how animal designations may expand over time based on those two gesture sources (§4.5.2.5).

I recall that the analysis of the lexical growth is based on the three documentation periods that occurred during the emergence of LGG (§2.3), which enables the capture of the primary lexical stock and the strategies used by deaf signers to (re)create new signs. I do not address polysemy as a separate process but rather as a mechanism leading to the need for disambiguation through form modifications, involving derivation and compounding.

#### 4.5.2.1 Signs SICK, FEVER and WORK for hypernymy

In the first of the five groups of families of signs, I focus on three sign-from-gestures that, when integrated into the LGG lexicon, desemantise and become hypernyms. In these cases, they are exclusively part of compounds, as shown in Table 14. Here, the gesture forms functioned as LGG signs as early as 2005 (in the second column). Across the three families, it becomes evident that they are extended through compounding in the very beginning, especially in (*hot/*) *fever*, and later on, in 2017, as shown by the compounds involving SICK and WORK. The families of SICK and FEVER are presented together in Table 14a because the compounds for ‘malaria’ rely on both signs at different periods. Importantly, I represent the polysemous signs for the concepts of ‘hot’ and ‘fever’ (in Table 14a), on one side, and ‘sweat’ and ‘work’ (in Table

14b), on the other side, with different glosses expressing their two meanings.

**Table 14.** Family of signs of SICK, FEVER (a) and WORK (b) in LGG, expanding from gestures through the signs collected in 2005, 2006 and 2017; the white boxes correspond to the gesture sources and their sign counterparts and the grey boxes to compounds; the straight lines indicate equivalent forms and the dotted lines equal meanings with form modifications

a.

Gesture	2005	2006	2017
<i>sick</i>	SICK		
	SICK^RUNNY-NOSE 'have a cold'		SICK^RUNNY-NOSE 'flu'
	SICK^EAT 'cholera'		SICK^RIBBON 'aids'
			SICK^WORM 'ebola'
			SICK^MOSQUITO 'malaria'
<i>(hot/) fever</i>	FEVER		FEVER^VERY-HOT 'fever'
		FEVER^MOSQUITO 'malaria'	
	(HOT) <sup>a</sup>		
	SUN^HOT 'sun'		
	HOT^MORNING 'morning'		
	HOT^AFTERNOON 'afternoon'		
	HOT^SUNRISE 'sunrise'		

	HOT^SUNSET 'sunset'		
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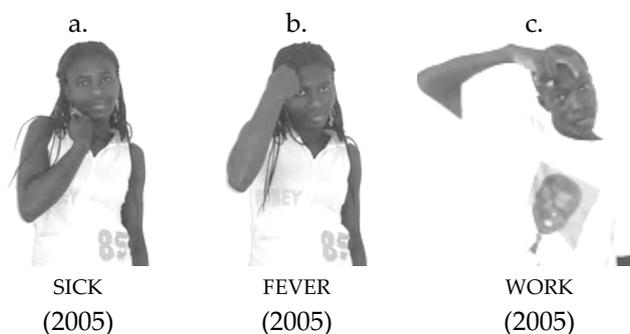
<sup>a</sup> HOT has the same form as FEVER, but is glossed differently to express another meaning

b.

Gesture	2005	2006	2017
(sweat/) work	(SWEAT) <sup>b</sup>		
	SWEAT^HEAT1 'heat'	SWEAT^HEAT2 'heat'	SWEAT^HEAT2^ HEAT1 'heat'
	WORK		WORK^RUN-ABOUT 'work'
			WORK^CLOTHES- SEW 'sewer'
			WORK^WASH- FLOOR 'maid'
			WORK^CLOTHES^W ASH 'laundress'
			WORK^NEWSPAPER 'journalist'
			WORK^CUT-TREE 'lumberjack'
			WORK^RELATE 'business person'
			WORK^WHITE- LAND 'farmer'

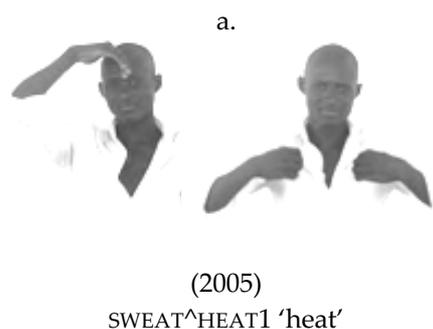
<sup>b</sup> SWEAT has the same form as WORK, but is glossed differently to express another meaning

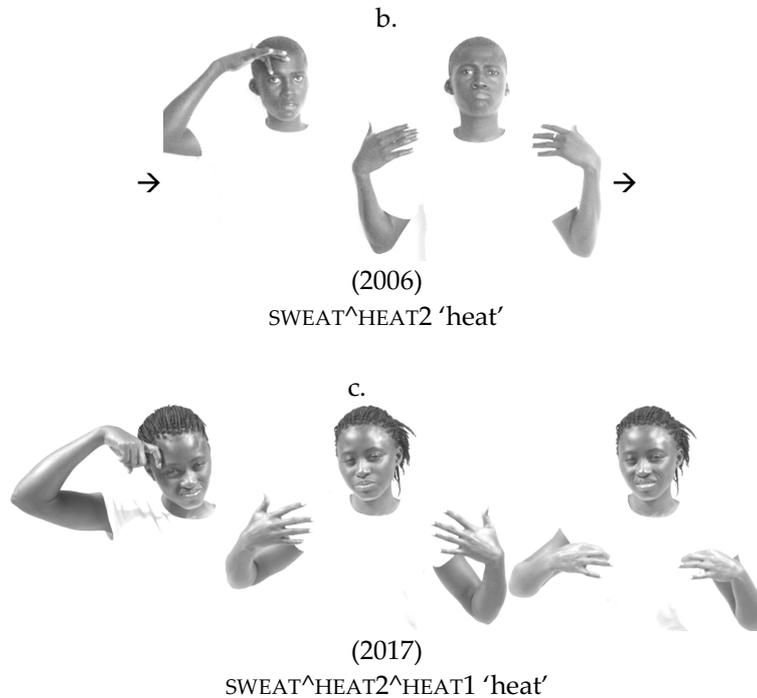
As early as 2005, the signs SICK and FEVER were incorporated directly from their gesture sources, i.e., maintaining the same form and meaning, in Figures 120a and 120b. Similarly, the act of wiping the sweat off the forehead was integrated into LGG as a single sign to express 'work', in Figure 120c.



**Figure 120.** Signs adopted from gestures for the hypernyms ‘sick’ (a), ‘work’ (b), and ‘heat’ (c) in LGG in 2005

Besides referring to WORK, wiping the sweat off the forehead is also integrated as part of a compound to express its more literal meaning, ‘heat’. Over the years, the signs involved in that combination varied between shaking the shirt, in 2005 (in Figure 121a), flapping the hands, in 2006 (in Figure 121b), and using both of them, in 2017 (in Figure 121c).

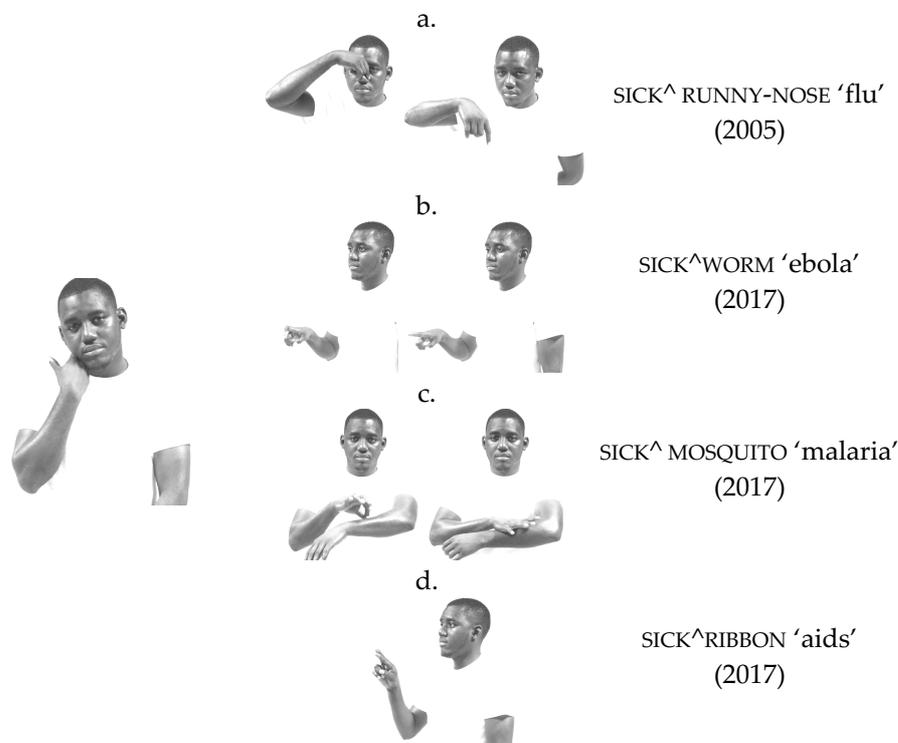




**Figure 121.** Signs combining with wiping the sweat off the forehead in LGG for 'heat' in 2005 (a), in 2006 (b), and in 2017 (c)

***Compounds with SICK***

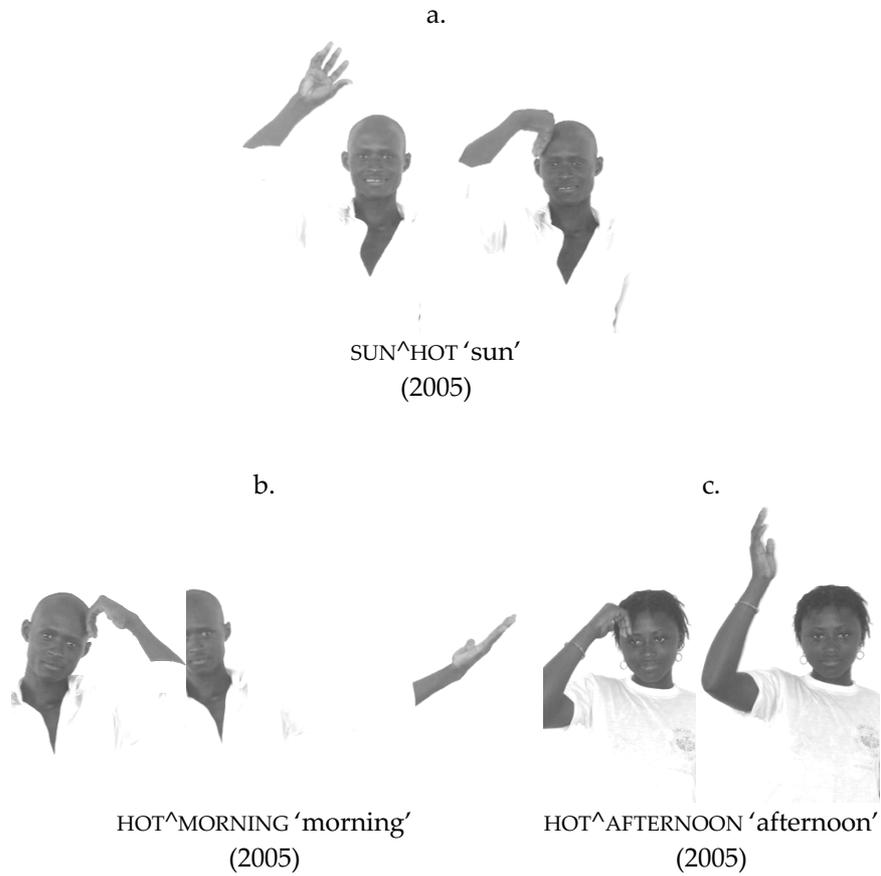
The sign SICK occurs in the 2006 collection to mean the state of being affected by some illness. Still, it had been specifying different kinds of diseases through compounding since 2005. As part of a compound, it typically precedes the cause, a symptom or the symbol of a disease, as in SICK^MOSQUITO 'malaria', in Figure 122a, SICK^WORM 'ebola', in Figure 122b, SICK^NAUSEOUS 'colera', SICK^RUNNY-NOSE 'flu', in Figure 122c, and SICK^RIBBON 'aids', in Figure 122d.



**Figure 122.** Signs combining with SICK in LGG for 'flu' (a), 'ebola' (b), 'malaria' (c), and 'aids' (d)

***Compounds with FEVER (or HOT)***

In 2005, besides the sign FEVER, this form expressed the additional meaning of 'hot' to designate SUN^HOT 'sun', in Figure 123a. Based on this concept, it was combined with signs for different periods of the day in the compounds HOT^MORNING 'morning', in Figure 123b, and HOT^AFTERNOON 'afternoon', in Figure 123c. The sign pointing to the sun for daytime with a movement upwards referred also to 'sunrise', and with a movement downwards to HOT^SUNSET 'sunset'.



**Figure 123.** Sign compounds with HOT in LGG for 'sun' (a), 'morning' (b), and 'afternoon' (c)

Otherwise, it occurred in 2006, in FEVER^MOSQUITO 'malaria', which was replaced by SICK^MOSQUITO 'malaria' in 2017. Curiously, also, in 2017, 'fever' was further specified by turning it into a compound in FEVER^VERY-HOT, in Figure 124.



**Figure 124.** Sign compound with FEVER in LGG for 'fever'

In brief, feeling the forehead with the back of the fingers refers to the heat of one's body, in 'fever', but also to the heat of the environment, from the sun.

### *Compounds with WORK*

The third hypernym came into the LGG lexicon, from the gestural form wiping the sweat off the forehead, as the sign WORK and as part of the compound SWEAT^HEAT 'heat'.

As shown in Table 15, it was only in the 2017 dictionary that WORK became a more general term classifying different professions. At this point, most professions characterised by their most current activity or object were preceded by WORK.

The first row of Table 15 demonstrates how, in 2005, the first occupations documented in LGG were 'teacher' and 'doctor', the only ones in the data marked for gender. In 2006, the collection included professional activities consisting of simple descriptions of their typical actions. In 2017, there were also professional activities that do not rely on WORK, but combine, instead, the object and the activity. The last row of Table 15, with the grey shade, shows how work became used as a hypernym.

**Table 15.** Types of compounds for professional activities in LGG with different combinations over the years, including with WORK to designate the class of professions in 2017, in grey shade

Motivation	Compound	Meaning	
gender^activity	MAN / WOMAN^WRITE	<i>Teacher</i>	2005
gender^object	MAN / WOMAN^SYRINGE	<i>Doctor</i>	
object^activity	SHOE^FIX	<i>Shoemaker</i>	2006
	SHOE^POLISH	<i>Shoe polisher</i>	
	SHAPE^SCULPT	<i>Sculptor</i>	
	BOOK^CUT	<i>Paper cutter</i>	2017
	CAR^FIX	<i>Mechanic</i>	
	WATER^FIX	<i>Plumber</i>	
	PLANT^CUT	<i>Gardener</i>	
	FISH^CAST-NET	<i>Fisherman</i>	
class^activity	WORK^WASH-FLOOR	<i>Maid</i>	
	WORK^WASH-CLOTHES	<i>Laundress</i>	
	WORK^CHOP-TREES	<i>Lumberjack</i>	
	WORK^PLOUGH	<i>Farmer</i>	
	WORK^DEAL	<i>Business person</i>	
class^object	WORK^NEWSPAPER	<i>Journalist</i>	
class^object^activity	WORK^CLOTHES^SEW	<i>Sewer</i>	

Not so often, professions are designated by the object or the activity alone, as CARPENTER, in 2006, and REPORTER, BRICKLAYER, SALESPERSON and FASHION-MODEL by their usual activities, in 2017. Another strategy is to describe the typical clothing, as in LAWYER. Importantly, in the latest dictionary, signers distinguish the sign for the general class of professions from the verb 'to work', by turning it into a compound as well, in Figure 125.



**Figure 125.** Compound for 'to work' in LGG

To conclude, the gestures for SICK, FEVER and WORK, which had straightforward incorporations into LGG, were generalised as lexical items to encompass semantic classes. The first labelled diseases, the second day periods, and the third professions, by preceding signs of the same class in compounds. Compounding was the only process deployed in this sign-family type. Here, the hypernym signs did not undergo any derivational modification. In a different way, other sign types may trigger derivation as well, like those described next.

#### 4.5.2.2 *Sign families of thumb(s) up, palm(s) up, and GO-AWAY*

In this second group of sign families deriving from polysemous gestures, compounding is still the most favoured process, especially in the *thumb-up* family. However, derivation also occurs in all three clusters. Table 16a shows how the *thumb(s) up* is polysemous in the first two years and then modifies through derivation. As compounds, this item combines with other signs to express distinct evaluative concepts, as seen in the 2005 and 2017 columns. The *palm(s)-up* form is also the source of derivation and compounding to convey different wh-questions (in the last column), as shown in Table 16b. Finally, Table 16c demonstrates how, in the 2006 column, GO-AWAY extends semantically

through derivation, while in the last column, it relies instead on compounding.

**Table 16.** Sign families of GOOD (a), WHAT/WHY (b), and GO-AWAY (c) in LGG, expanding from gestures through the signs collected in 2005, 2006 and 2017; the white boxes correspond to the gesture sources and their sign counterparts, the light grey boxes to compounds; and the dark grey boxes to derivatives; the straight lines indicate equivalent forms

a.

Gesture	2005	2006	2017
<i>thumb(s) up</i>	YES	GOOD	
	THINK^GOOD 'know' (1 handed)		THINK^GOOD 'understand'
	THINK^GOOD 'learn' (2 handed)		
		BAD	BETTER
			IMPORTANT
			SUCCEED
			GOOD^MORNING 'good morning'
			GOOD^AFTERNOON 'good afternoon'
			GOOD^NIGHT 'good night'
			CHEST1^GOOD 'all good?'
			CHEST2^GOOD 'health'

			FACE1^GOOD 'beautiful'
			FACE2^GOOD 'important person'
			BEHAVIOUR^GOOD 'well behaved'
			GOOD^BAD 'bad behaviour'

b.

Gesture	2005	2006	2017
<i>palm(s) up</i>			WHAT
			WHY
			WHAT^THERE 'where'
			SIGN-NAME^WHAT 'who'

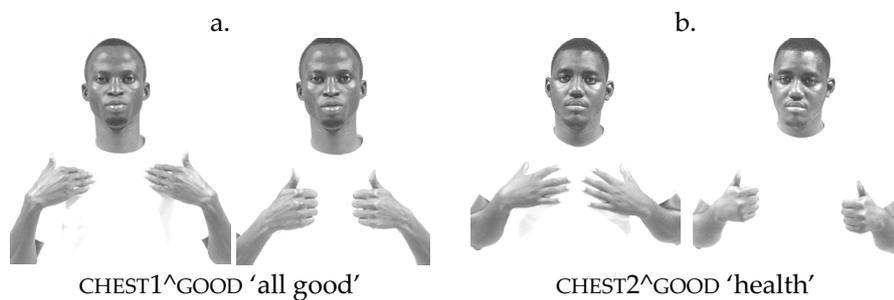
c.

Gesture	2005	2006	2017
<i>go away</i>	GO-AWAY	LEAVE	WAVE^GO-AWAY 'goodbye'
		JANUARY	FINISH^GO^COME 'class break'

### *Sign family of thumb(s) up*

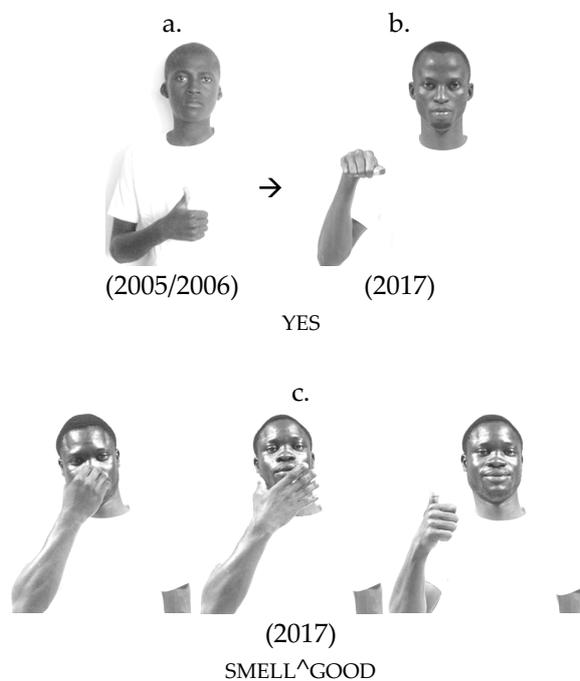
The first sign family described here is based on the *thumb(s) up* as one of the most polysemous gestures collected in Bissau. As described in Chapter 3, it is used for 'please', 'beg', 'thank you', 'sorry' and 'all good'. For these meanings, only the latter was turned into a sign as part of a compound, in Figure 126a. To refer to the related concept of 'health', the original form was modified in the handshape for CHEST, in Figure 126b. Apart from 'all good', the remaining expressions of

salutation also rely on good, in GOOD^MORNING, GOOD^AFTERNOON, and GOOD^NIGHT. However, I recall that these are likely borrowed from LGP, at least in terms of the signs for parts of the day. The *thumb up* corresponds instead to a widespread form that occurs in both LGP and as a gesture in Bissau.



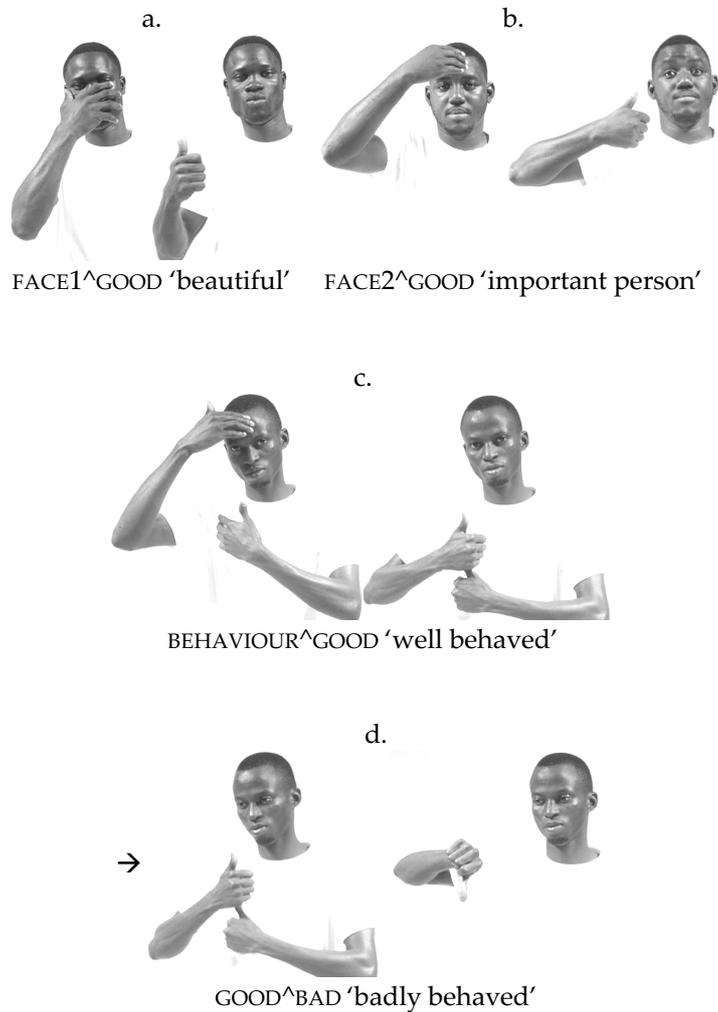
**Figure 126.** Signs combined with GOOD in LGG for 'all good' (a) and 'health' (b) in 2017

In the first two collections of LGG signs, in 2005 and 2006, GOOD as a single sign was glossed as 'yes', in Figure 127a. This form was, however, replaced by a different sign in 2017, in Figure 127b. Also in 2005, a few verbs combined with the *thumb(s) up*, such as THINK^GOOD 'know (of knowledge)', with one hand, and 'learn', with two hands, and SEE^GOOD 'know (a particular person, place or thing)'. By 2017, the *thumb(s) up* had been dropped in all three concepts, but it was added in SMELL^GOOD.



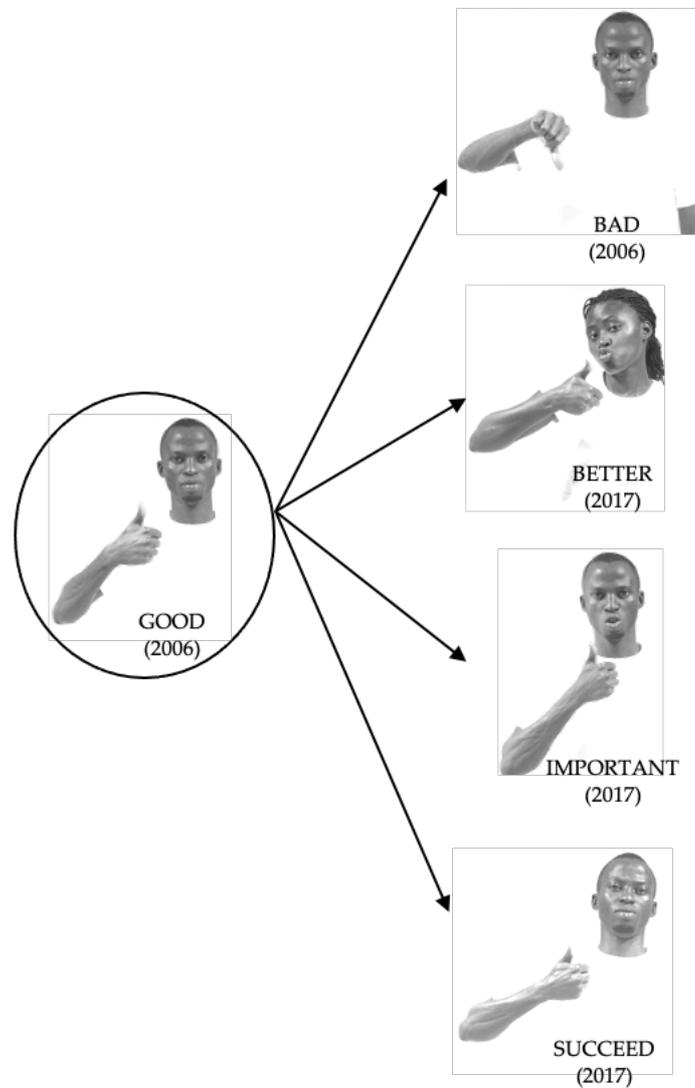
**Figure 127.** Signs with the *thumb(s) up* in LGG, for ‘yes’ in 2005 and 2006 (a), and 2017 (b), and ‘smell good’ in 2017 (c)

A few adjectives were combined with the *thumb(s) up* as well. The compound FACE1^GOOD ‘beautiful’ remained identical throughout the years, in Figure 128a. Others were added only in the latest dictionary, such as FACE2^GOOD ‘important person’, where the handshape changed slightly in FACE and the facial expression was produced differently in GOOD, in Figure 128b. Interestingly, BEHAVIOUR^GOOD ‘well behaved’, in Figure 128c, was modified to GOOD^BAD ‘badly behaved’, in Figure 128d.



**Figure 128.** Signs combined with GOOD in LGG as adjective-like for 'beautiful' (a), 'important person' (b), 'well behaved' (c), and 'badly behaved' (d), all collected in 2017

Besides these compounds involving GOOD, the *thumb(s) up* can modify its movement and be combined with different facial expressions to contrast meanings and grammatical categories, as shown in Figure 129.

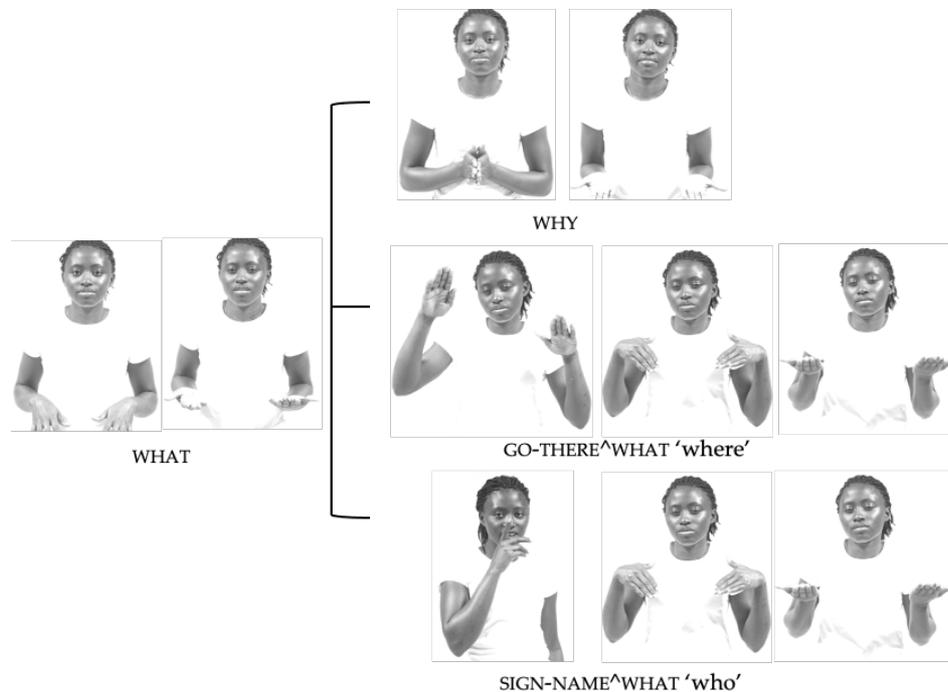


**Figure 129.** Signs deriving from GOOD in LGG for different grammatical categories, modifying in movement and facial expression

*Sign family of palm(s) up*

The second sign family is also based on a polysemous gesture. The *palm(s) up* encompasses different meanings in Bissau: 'what', 'why',

'where', and 'how', as shown in Figure 130. Although the one-handed variant is also used as a gesture, deaf LGG signers adopt both two-handed variants. They turn their hands for 'what' and clap their palms before turning them for 'why'. To distinguish these from other wh-questions, signers combine the *palms up* in different compounds for 'who' and 'where'.

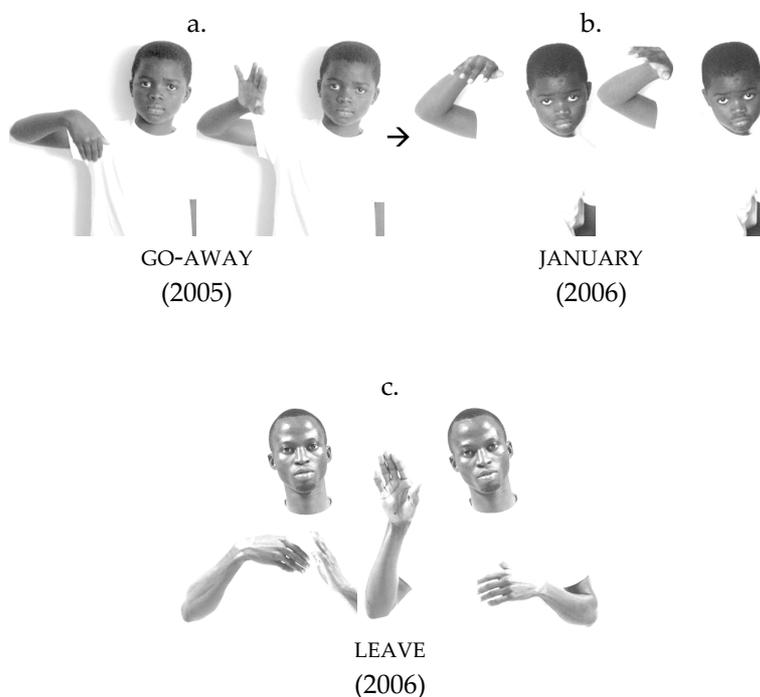


**Figure 130.** Family of signs deriving from the *palms up* in LGG, including the signs for 'what', 'why', 'where', and 'who', all collected in 2017

### *Sign family of GO-AWAY*

The third and final sign family in this group involves another gesture presenting some polysemy in Bissau. As a gesture, *go away* is

associated with both 'escape' and 'steal'. As a sign, GO-AWAY was integrated into LGG as early as 2005, in Figure 131a. In the collection of the following year, a form modifying its usual place of articulation was recorded for 'January', meaning '(when the old year) goes away', in Figure 131b. In the latest dictionary, such a form is again modified by adding a base hand to designate 'to leave', in Figure 131c.

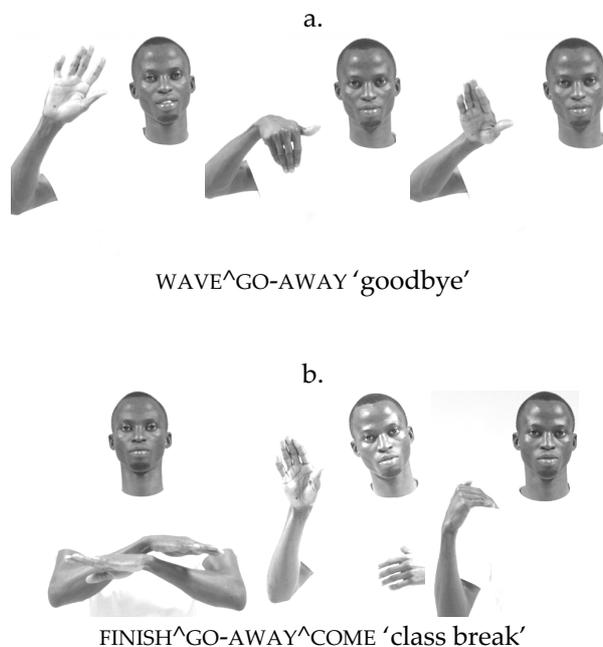


**Figure 131.** Signs deriving from GO-AWAY (a), namely JANUARY (b), and LEAVE (c) in LGG

As January refers to the 'going away' of the old year, so do all other months rely on polysemy. Thus, in due order, from the second month of a Guinean year onwards, there is the 'carnival' period, the 'warm' weather, the 'cashew' season, the 'rainy' period, 'foli fruit' season,

'corn' season, 'hard rain' period, 'peanut' season, 'school' year starting period, catching 'fish' season, and partying holidays with 'champagne'.

Since the earliest LGG collections, the sign for 'goodbye' has been expressed by waving. Later, in 2017, it was combined with GO-AWAY, in Figure 132a, to distinguish it from a similar waving for 'hello'. At this same stage, another compound was formed for 'class break' involving GO-AWAY, in Figure 132b.



**Figure 132.** Signs combining with GO-AWAY in LGG for 'goodbye' (a), and 'class break' (b) in 2017

These three examples of polysemous gesture sources show how they can extend through derivation and compounding to encompass related meanings. Of all three, the *palms up* was the most productive in

terms of the size of its family of signs in the first decade of LGG collection. As a gesture, it was also the most polysemous form.

#### 4.5.2.3 *Sign family of the height specifier*

The third group in this cluster corresponds to the sign family expanding from the height specifier for human referents, which is expressed as a gesture in Bissau by a closed fist with different heights. The data is first described by the more literal senses of signs specifying the actual height. Then it focuses on age-related signs. In the end, I show how the height specifier for non-human referents was integrated into the LGG lexicon.

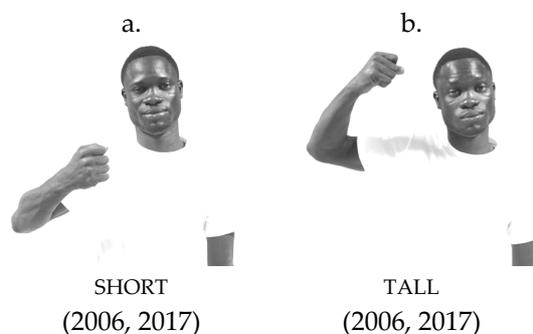
The signs expressing people's height are equally produced with the fist and delimited between the hand and the ground. Such a handshape could be interpreted as a human head. It is used as a gesture in Bissau, especially for children and male adults. Table 17 illustrates how such a gesture is adopted as a sign, in the 2005 column, to represent three age groups. The 2006 column shows derivational extensions referring to actual height and plural marking. Finally, in 2017, besides modifying to express a verbal form, it combines with different signs to clarify age groups and kin members, especially those involving the shorter height specifier in CHILD.

**Table 17.** Sign family of the height specifier in LGG, expanding from gesture through the signs collected in 2005, 2006 and 2017; the white boxes correspond to the gesture source and their sign counterparts, the light grey boxes to compounds; and the dark grey boxes to derivatives; the straight lines indicate equivalent forms and the dotted lines equal meanings with form modifications

Gesture	2005	2006	2017
<i>height specifier</i>	ADULT		MAN <sup>^</sup> HEIGHT 'adult'
	TEENAGER		SNOTTY-NOSE <sup>^</sup> HEIGHT 'teenager'
	CHILD		SNOTTY-NOSE <sup>^</sup> CHILD 'child'
		TALL	BIRTH <sup>^</sup> BORN <sup>^</sup> CHILD 'offspring'
		SHORT	MAN <sup>^</sup> WOMAN <sup>^</sup> CHILD 'family'
		CHILDREN	MAN <sup>^</sup> S <sup>^</sup> CHILD 'nephew'
			WOMAN <sup>^</sup> S <sup>^</sup> CHILD 'niece'
			GROW-UP
			TEN <sup>^</sup> GROW-UP 'age'

### *Height-related adjectives*

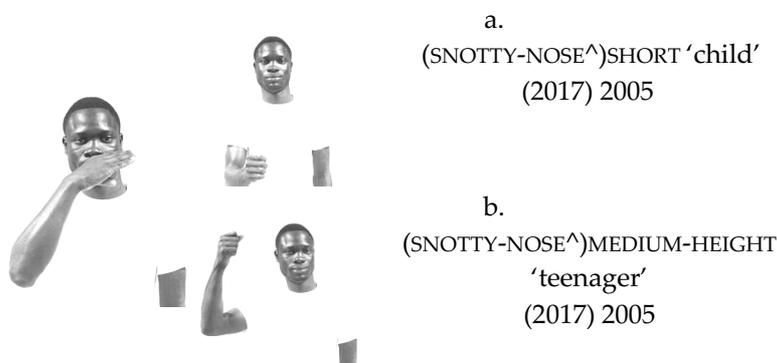
Initially, in 2006, the same polysemous forms referred to different heights and the corresponding age groups in LGG. It was only later, during the 2017 collection, that such polysemy was distinguished by particular facial expressions in SHORT, in Figure 133a, and TALL, in Figure 133b.

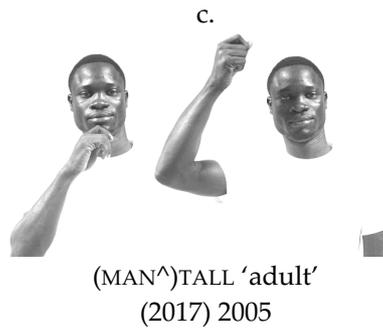


**Figure 133.** Signs deriving from the height specifier in LGG for ‘short’ (a) and ‘tall’ (b) collected in 2006, and showing distinct facial expressions in 2017

*Specifying age*

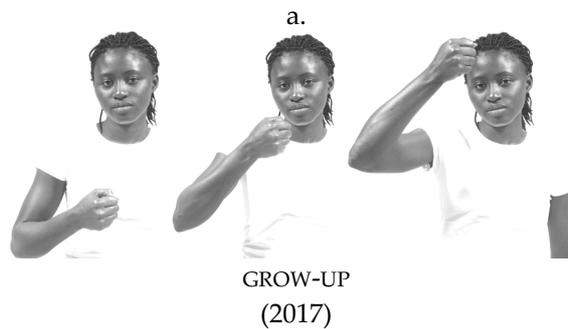
With the intent to set apart such polysemous forms, different age groups were also specified later through compounding. In this way, the height levels for ‘child’ and ‘teenager’ collected in 2005 were both combined with SNOTTY-NOSE, IN 2017, respectively, in Figures 134a and 134b. Similarly, the highest height specifier, was registered in 2005 as ADULT. As a gesture, it was often accompanied in Creole by *omi garandi*, meaning ‘big man’, which comes to be represented by the corresponding compound MAN^HEIGHT ‘adult’, in 2017, in Figure 134c.

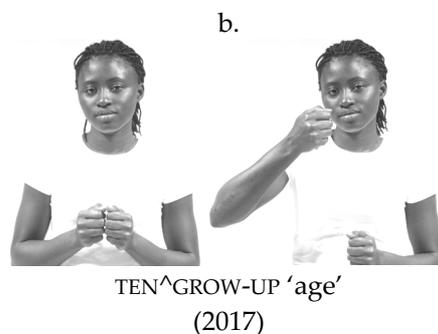




**Figure 134.** Signs combining with the height specifier in LGG for different age groups of people, namely for 'child' (a), 'teenager' (b), and 'adult' (c)

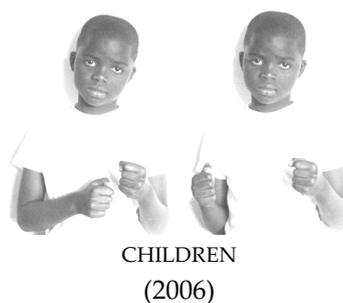
The height specifier generalises semantically by coming to mean 'to grow up' with a continuous movement upward, from the lower to the higher position found in gestures, in Figure 135a. This same concept of growing up signifies 'age' if preceded by TEN in a compound, in Figure 135b.





**Figure 135.** Desemanticisation of the height specifier in LGG in the signs for 'grow up' (a) and 'age' (b)

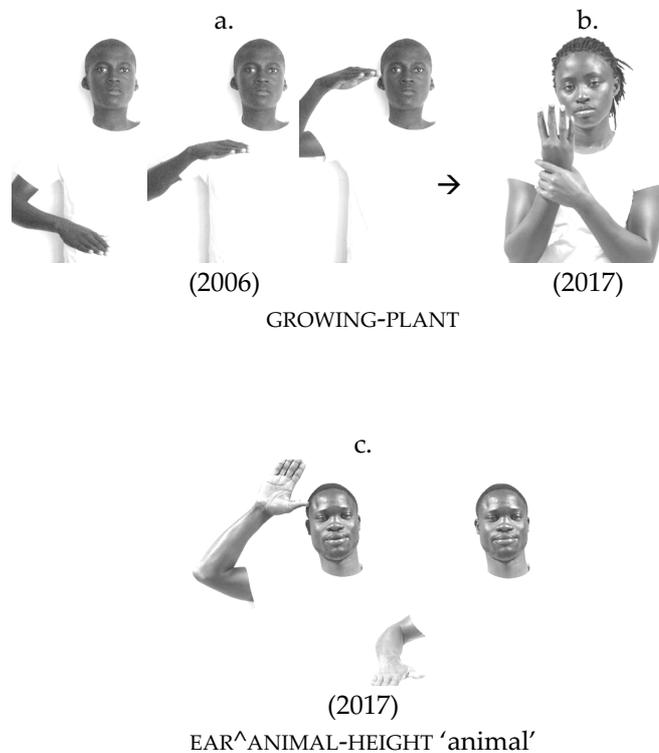
In addition, to inflect for plural in CHILDREN, the lower height designating 'child' is reduplicated with both hands in the 2006 collection, in Figure 136, and by movement with one hand in the latest dictionary. Finally, CHILD is further specified through compounding to designate kin terms, BIRTH<sup>^</sup>CHILD 'offspring', and (gender<sup>^</sup>)S<sup>^</sup>CHILD 'nephew/niece'.



**Figure 136.** Inflection of the height specifier for plural in LGG in the sign for 'children'

*Specifying non-humans*

The height specifier for non-human referents is used for plants in the 2006 collection, in Figure 137a. However, the sign is replaced later, in 2017, by an entity handshake, i.e., the hand represents the shape of the plant, in Figure 137b. It is also at this stage that the sign for ‘animal’ is collected. In the latest dictionary, such a concept is expressed by the compound EAR^ANIMAL-HEIGHT, in Figure 137c.



**Figure 137.** Signs deriving from the non-human height specifier in LGG, namely for ‘growing plant’ in 2006 (a), replaced by a different sign in 2017 (b), and for ‘animal’ (c)

In sum, the height specifier produced with the fist for human referents unfolds into various signs to designate different concepts while distinguishing grammatical categories. The use of particular facial expressions contrasts the adjectives *SHORT* and *TALL*. The verb *GROW-UP* is specified with a movement. The plural in *CHILDREN* is expressed by reduplication. Finally, different age groups (*CHILD*, *TEENAGER* and *ADULT*) – and kinship members (*OFFSPRING* and *NEPHEW/NIECE*) – are clarified through compounding. The height specifier for non-human referents is not as productive. Nonetheless, it occurs initially in the designation of plants and later in that of animals.

Within the family of signs rooted in the height specifier, two signs mark semantic classes, such as *SNOTTY-NOSE* for an underage person and *EAR^ANIMAL-HEIGHT* for animal type. Such signs function as hypernyms as described previously in the first group.

#### 4.5.2.4 *Sign families of meaningful body locations: CHIEF, CRAZY, FRIEND, and TALK*

The fourth type of sign families focuses on specific body locations. Here, four locations on the body, carrying their meanings, make good root candidates and, thus, derivation more effective. This is true for all four locations, where the shoulders are associated with responsibility, the forehead with cognition, the heart with feelings, and the mouth with communication. I recall that the fact that primary forms are gestural, i.e., used by hearing people, implies a conceptualisation that is not necessarily limited to the manual modality, but instead results from cognitively-motivated metaphors.

Table 18 shows how these meaningful body locations unfold across the three dictionaries, represented in the different columns for LGG signs. In Table 18a, signs expanding from the gestural source for ‘chief’ reveal a higher preference for compounding, especially in the 2017 collection.

The sign family rooted on the forehead, which includes CRAZY, in Table 18b, is quite balanced between derivation and compounding, as demonstrated by the 2017 column as well. In contrast, the 2017 data shows additionally that the sign family stemming from the chest, which includes FRIEND, in Table 18c, and the family of TALK, in Table 18d, expand in derivation only.

**Table 18.** Sign families of CHIEF (a), CRAZY (b), FRIEND (c), and TALK (d) in LGG, expanding from gestures through the signs collected in 2005, 2006 and 2017; the white boxes correspond to the gesture sources and their sign counterparts, the light grey boxes to compounds, and the dark grey boxes to derivatives; the straight lines indicate equivalent forms and the dotted lines equal meanings with form modifications

a.

Gesture	2005	2006	2017
<i>chief</i>	CHIEF^TIE 'president'	OF-ALL^CHIEF 'president'	CHIEF^OF-ALL 'president'
		SALUTE^CHIEF 'police'	CHIEF^SHIELD 'police'
			CHIEF^BERET 'soldier'
			EAT^CHIEF 'glutton'
			DIRECTOR
			RESPONSIBLE
			FAMOUS
			SHOULDERS

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CHIEF^TIE^TRAVEL/ SYRINGE/ EDUCATION/ SHIELD/ PULL-EARTH/ LAND/ SCALE 'minister of foreign affairs/ health/ education/ internal affairs/ natural resources/ agriculture/ justice		
CHIEF^SIRENE 'government'	CHIEF^SIRENE^FIRST/SECOND 'prime/ vice-prime minister'	

b.

2005	2006	2017	
	CRAZY	HEAD^CONFUSION 'confusion'	DOUBT
			WORRIED
	THINK	THINK^GOOD 'understand'	THINK^NOTHING 'unintelligent'
THINK^GOOD 'know' (1 handed)		KNOW	KNOW-ALREADY (2 handed)
THINK^WHERE 'forget'			LEARN^THROW- BACK 'forget'
THINK^GOOD 'learn' (2 handed)		LEARN	LEARN^FIXATE 'remember'
		STUDENT	LEARN^DRAW 'Visual Education'
		TEACH	WORLD^LEARN 'Social Education'
		IDEA	OPINION
		HISTORY	SLEEP^DREAM 'dream'

c.

Gesture	2005	2006	2017
<i>friend</i>			FRIEND
			FRIENDSHIP
			HEART
			HEARTBEAT
			LIKE
			WANT
			MISS
			HEART^ONE 'favourite'

d.

Gesture	2005	2006	2017
<i>talk</i>	TALK		CHAT
			EXPLAIN
			SHOUT
			ASK
			CARTOON

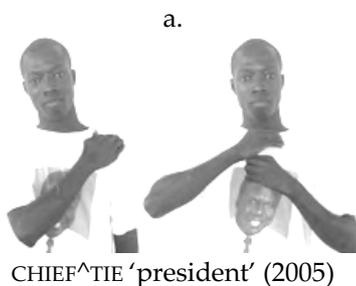
I recall that the gestures for 'talk' and 'chief' show slight variation in their forms, namely in handedness, that are integrated into LGG for related meanings. These primary forms represent the meaningful body location where the corresponding sign families are rooted. In a different way, the gesture for 'crazy' also varies in handedness while

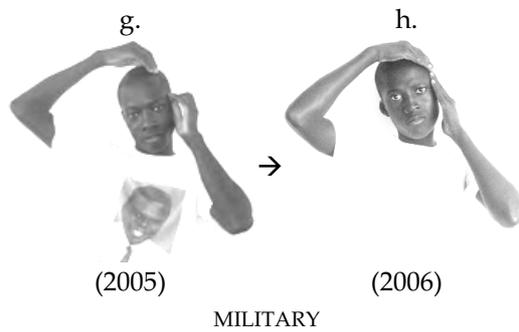
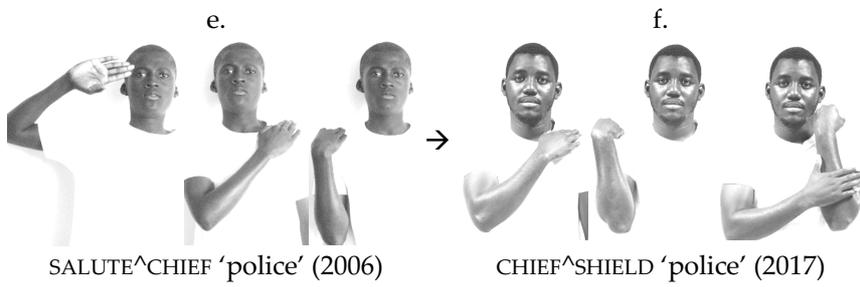
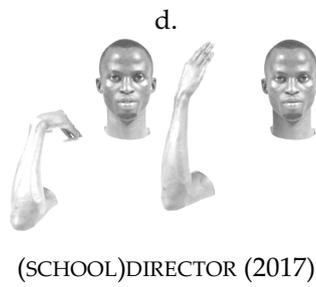
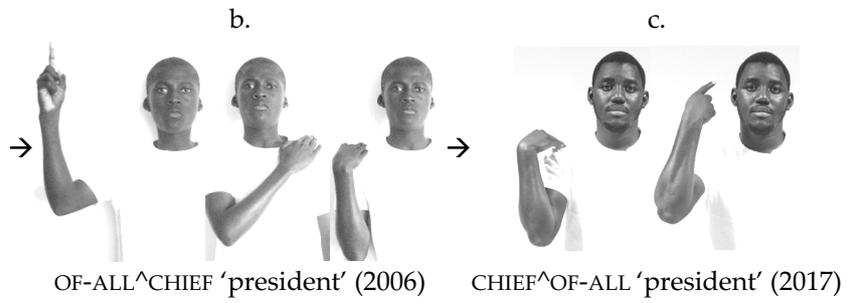
showing polysemy. In contrast, the gesture for 'friend' presented a high agreement in its form and meaning. As signs, these two items integrate larger families of signs rooted in specific body locations.

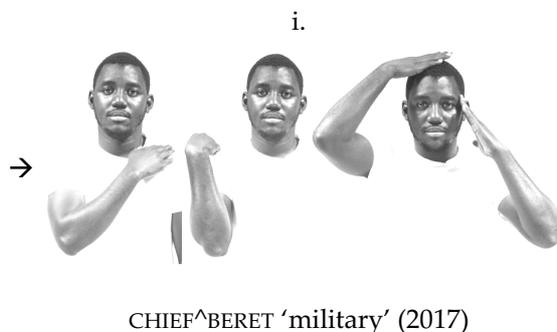
### *Sign family of CHIEF*

The metaphorical gesture produced on the shoulder, implying 'responsibility', results in a whole set of signs contrasting with each other to designate concepts related to the notion of 'high rank'. As the gesture showed different forms, so will signs deriving from such a notion at this body location use those variants.

In 2005, it was used only in CHIEF^TIE 'president' with one hand touching each shoulder at a time, in Figure 138a. In the 2006 collection, the second member of that compound was replaced with OF-ALL, in Figure 138b, and a new compound was constituted in CHIEF^SALUTE 'police', in Figure 138e. In the 2017 dictionary, 'president' was expressed by the same compound, but the hand was now moving upwards from one shoulder alone, in Figure 138c. This had also been observed as a gestural variant. This same form was used as a single sign to mean '(school) director', in Figure 138d. Although at this time, the second compound member in 'police' had been replaced as well with SHIELD, in Figure 138f, the two-shoulder form was kept and extended to CHIEF^BERET 'military', in Figures 138g, 138h, and 138i.

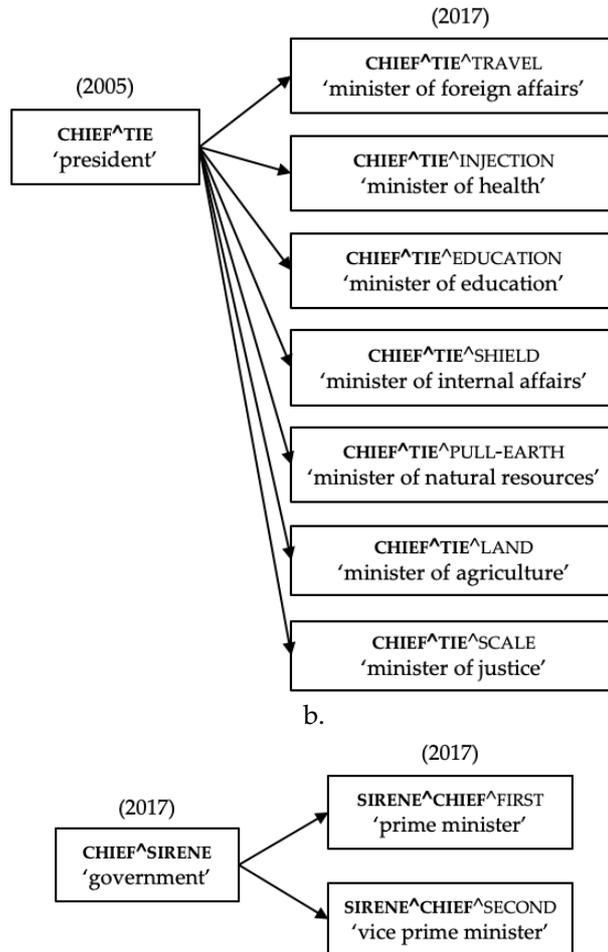






**Figure 138.** Signs combining with the shoulder for 'chief' in LGG, namely for 'president' in 2005 (a), 2006 (b), and 2017 (c), 'director' (d), 'police' in 2006 (e), and 2017 (f), and 'military' in 2005 (g), 2006 (h), and 2017 (i)

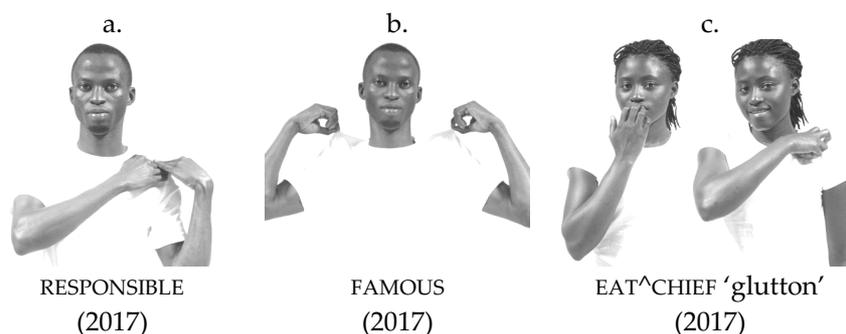
Later, signs for governmental structures were formed overwhelmingly by compounding. In particular, the designation for the different ministers was always preceded by the combination of the sign expressing the notion of 'high rank' or 'responsibility' produced on the shoulder and TIE, as the first compound, collected in 2005 for 'president', as shown in Figure 139a. In a slightly different combination, signers create the compound CHIEF^SIRENE 'government', which will precede FIRST in 'prime minister' and SECOND in vice prime-minister, in Figure 139b.



**Figure 139. Compounds expanding from other compounds with CHIEF in LGG, namely CHIEF^TIE 'president' from 2005 (a), and CHIEF^SIRENE 'government' (b), all from 2017**

Deaf signers recreated the remaining contrasting forms. One of the gestural variants with the two hands on one shoulder comes to signify 'responsible', in Figure 140a, as collected for the 2017 dictionary. The other two, FAMOUS, in Figure 140b, and EAT^CHIEF 'glutton', in Figure

140c, are novel forms. Although signers modify the gestural sources, these two new forms seem to keep the semantics rooted on the shoulder for the notion of ‘high rank’, even if metaphorically.



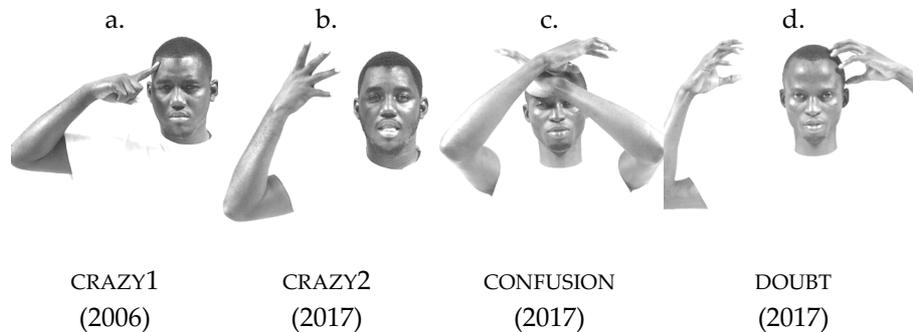
**Figure 140.** Signs deriving from the shoulder for ‘chief’ in LGG, namely for ‘responsible’ (a), ‘famous’ (b), and ‘glutton’ (c)

### *Sign family for cognition on the forehead, including CRAZY*

The forehead is a particularly fertile ground to create signs for mind-related concepts. This family of signs rooted primarily on the side of the forehead is observed as the gesture *crazy* and very likely as a more literal mental activity, *think*. In LGG, the corresponding signs were recorded only in 2006. At the first collection, however, there were already three compounds based on THINK: THINK^GOOD ‘know’, if one-handed, and ‘learn’, if two-handed, and THINK^WHERE ‘forget’. In 2017, the sign KNOW was no longer produced as a compound but contrasted instead with THINK by slightly modifying its movement. At this stage, the 16 new signs relied more on derivation than on compounding, as shown in Table 18b.

Looking first at the signs deriving from CRAZY, i.e., the visual-manual representation of the concept of ‘unsteady thoughts’, they take not

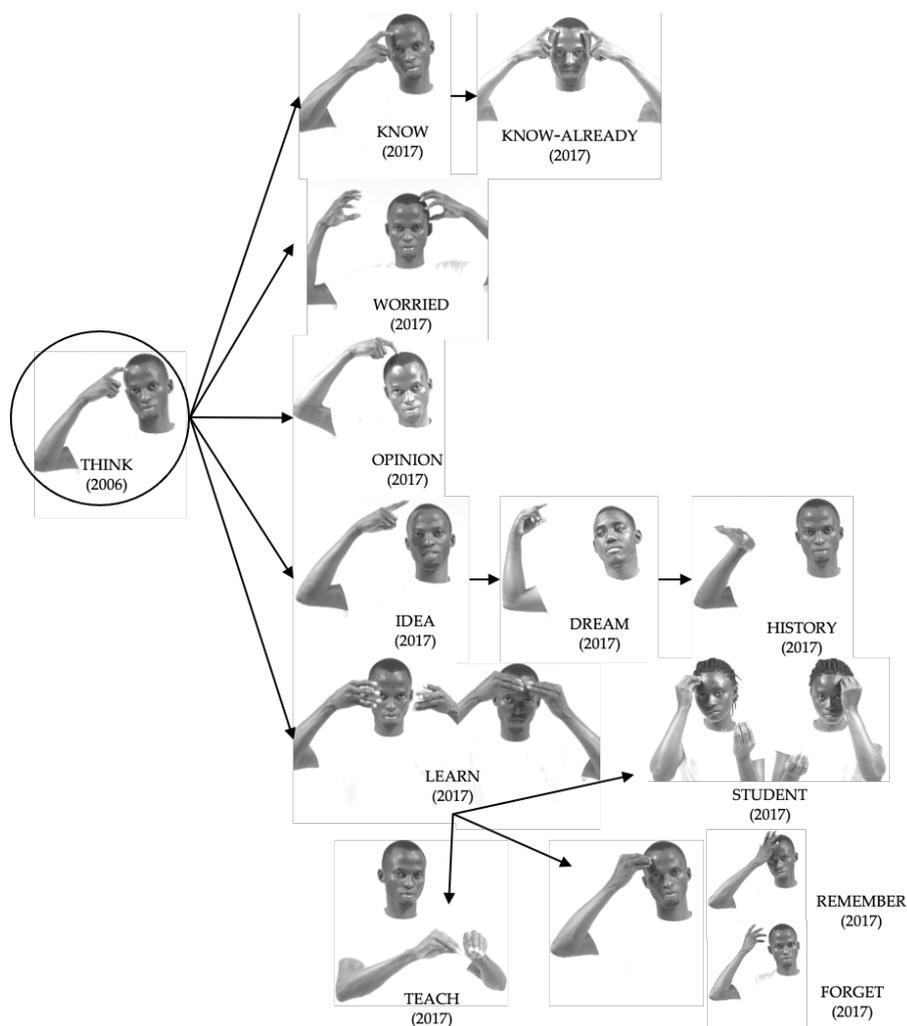
only the temple(s) as the base location but also a circular or alternating movement as the fundamental minimal units to convey such an idea, in Figures 141a and 141b. Here, both CONFUSION, in Figure 141c, which is expressed by a compound (HEAD^MESSY), and DOUBT, in Figure 141d, are two-handed signs. I recall that, as a gesture, *crazy* was alternatively produced with two hands.



**Figure 141.** Signs related to ‘unsteady thoughts’ in LGG: CRAZY1 (a), CRAZY2 (b), CONFUSION (c), and DOUBT (d)

As expected, the sign THINK or, semiotically speaking, the indexation of the head as the abstract source of thought, gives rise to a variety of form contrasts, as shown in Figure 142. The movement changes by reduplication in KNOW, extension in IDEA and intensification of contact in WORRIED, which is further marked by a facial expression. The concept of having thoughts coming out of one’s mind is contrasted by different movements directed away from the temple. It is represented by an index projecting upwards in IDEA, swirling in DREAM and a palm undulating away in HISTORY. Handedness establishes a contrast between KNOW and KNOW-ALREADY, and in LEARN as a single sign and as part of a compound in REMEMBER and FORGET.

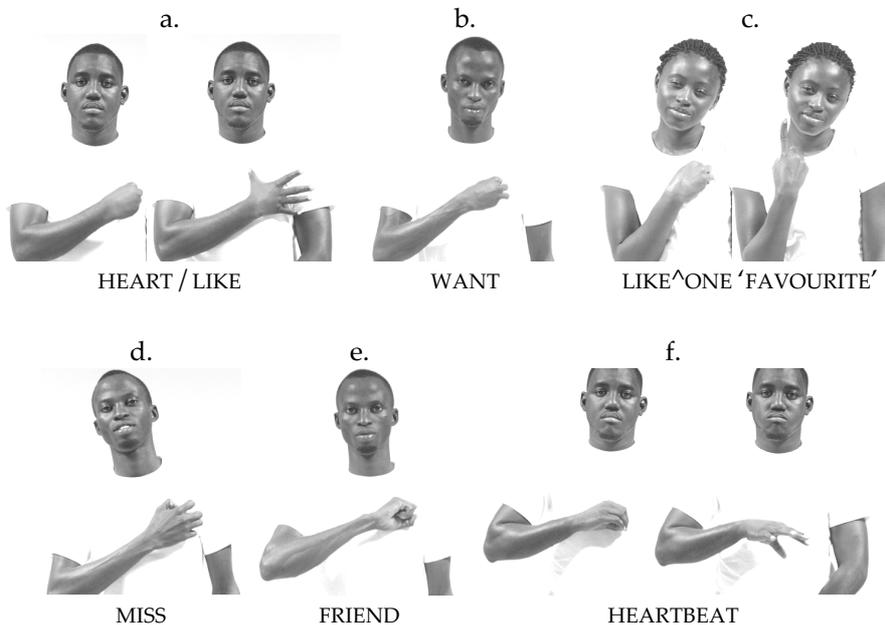
Additionally, *STUDENT* presents an alternate motion contrasting with the simultaneous movement of both hands in *LEARN*. This sign metaphorically represents the idea of ‘feeding the mind with knowledge’. Thus, the opposite action implies ‘feeding the mind of others’. For that reason, *TEACH* takes the same handshape but directs the movement outwards instead of to one’s forehead.



**Figure 142.** Signs deriving from *THINK* representing mind-related concepts in LGG

*Sign family for feelings on the heart, including FRIEND*

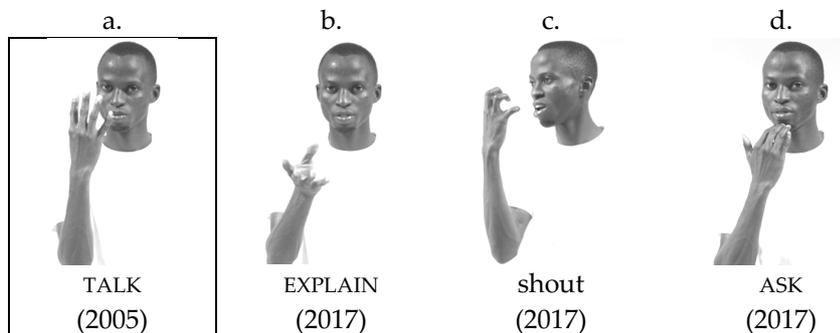
The heart is typically associated with feelings. In the 2017 dictionary, signers touch the location of the heart with different handshapes and movements. For the sign HEART, the tips of the finger-bunch tap the chest once, and then the open palm lies on the chest. It is distinguished from LIKE which uses tapping twice instead, in Figure 143a. The sign WANT is limited to that first tapping, in Figure 143b, while ‘favourite’ is designated by the compound LIKE^ONE, in Figure 143c. With a different handshape, MISS involves a slight circular movement of a small claw on the heart, in Figure 143d. Included in this family of signs is FRIEND, with the fist tapping the heart, in Figure 143e. Finally, instead of touching the body location symbolising emotions, the HEARTBEAT sign is produced with a movement outwards, in Figure 143f.

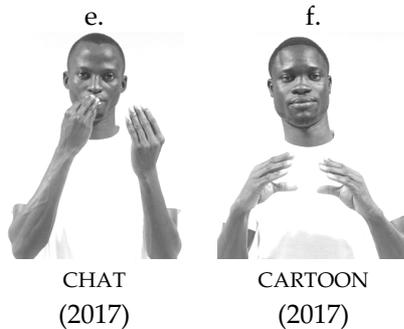


**Figure 143.** Signs deriving from the heart representing communication-related concepts in LGG: HEART / LIKE (a), WANT (b), LIKE^ONE ‘favourite’ (c), MISS (d), FRIEND (e), and HEARTBEAT (f)

*Sign family of TALK*

In the case of TALK, produced from the mouth, as if emitting abstract content, signers selected the one-handed form, in Figure 144a, as early as 2005 from the available gestural variants. In this first dictionary, the two-handed form was also collected, but to express a different meaning, 'chat', in Figure 144e. By 2017, TALK had extended only by derivation, whether by modifying the movement in EXPLAIN, in Figure 144b, changing the handshape and the intensity of the movement in SHOUT slightly, in Figure 144c, and then as if pulling a response from the interlocutor in ASK, in Figure 144d. In 2017, signers brought the sign CHAT to the neutral space to designate two puppets talking to each other in CARTOON, in Figure 144f, similar to what occurred with KISS in 2017, where the hands represent two mouths.





**Figure 144.** Signs deriving from TALK (a) representing communication-related concepts in LGG with one hand: EXPLAIN (b), SHOUT (c), ASK (d), and with two hands: CHAT (e), and CARTOON (f)

The four meaningful locations illustrated here, where abstract concepts are rooted, show how both derivation and compounding extend into larger families of signs. Importantly, in these cases, the place of articulation serves as a basis for a conceptual schema to take shape. Along this schema, modifications in movement, handshape, orientation and facial expression convey the necessary contrasts to encode different – but related – concepts. Meaningful body parts frequently stand for roots that extend through derivation, as is the case with thought, communication and feelings-related signs. Still, compounding is also quite productive, especially in signs referring to high-ranking positions stemming from the shoulder.

#### 4.5.2.5 *Sign families of specific handshapes: cutting tool and claw(s)*

Similar to the meaningful body locations presented previously, the fifth and last group of sign families describes handshapes serving as roots. Examples of these are handshapes that depict cutting tools, in Table 19a, and claw(s), in Table 19b, where the gestures for ‘kill’ and ‘witchcraft’ are included. Here, the columns for the years in which the

three dictionaries were collected show how those handshapes expand through derivation and compounding. Importantly, even when combining with other signs, the handshapes present derivational modifications.

**Table 19.** Sign families of *cutting-tool* (a) and *claw* (b) handshapes in LGG, expanding from the gestures used in Bissau through the signs collected in 2005, 2006 and 2017

a.

Gesture	2005	2006	2017
<i>kill</i>	KILL / DIE		
	KILL <sup>^</sup> EAT 'meat'		
<i>cutting tool</i>	FISH	KNIFE	CAKE
	PINEAPPLE	MANIOC	CUT <sup>^</sup> OPEN-TURN 'manioc'
	BUTTER	CUCUMBER	CUT <sup>^</sup> OPEN 'dried fish'
	CUT <sup>^</sup> EAT 'papaya'	CARROT	CUT <sup>^</sup> EAT 'passion fruit'
	CUT <sup>^</sup> CRY 'onion'	CUT-TREE	BOOK <sup>^</sup> CUT 'paper cutter'
		CUT <sup>^</sup> STICKY 'okra'	
		CUT <sup>^</sup> STICKY 'jackfruit'	
		CUT <sup>^</sup> EAT 'breadfruit'	
		CUT-ARM <sup>^</sup> SPILL 'blood'	

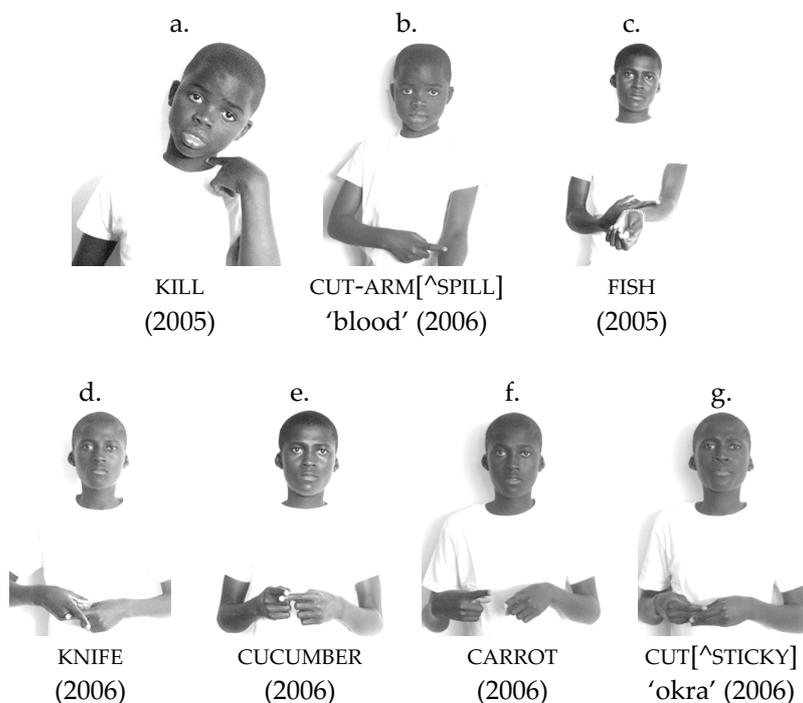
b.

Gesture	2005	2006	2017
<i>witchcraft</i>			WITCHCRAFT / DEVIL
	KILL <sup>^</sup> EAT 'meat'		
<i>claw(s)</i>	PANTHER	SPORTING / GREEN	BEAR
	CLAWS <sup>^</sup> MANE 'lion'		MANE <sup>^</sup> CLAWS 'lion'
	CLAW <sup>^</sup> WHISKERS 'cat'	CLAWS <sup>^</sup> TEETH 'crocodile'	LIZARD

### *Sign families of cutting-tool handshapes*

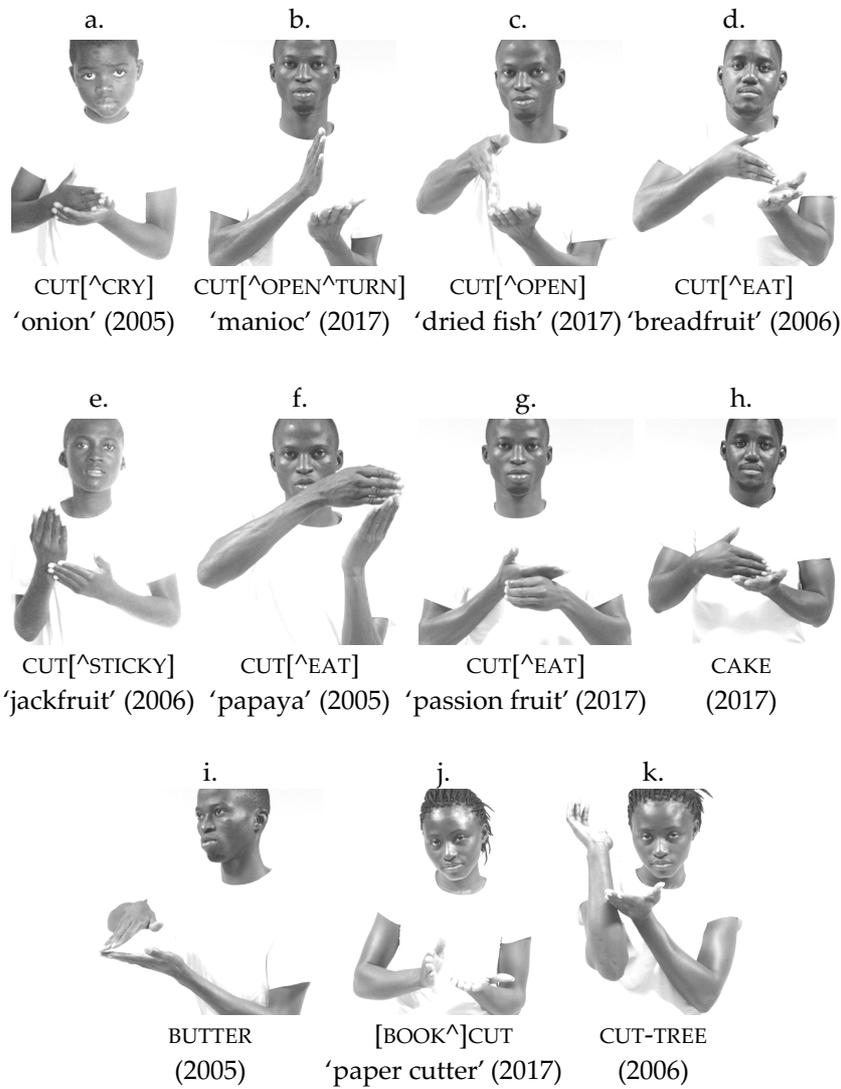
The first type of handshape represents cutting tools by representing them with the hand(s) or finger(s). This cluster is especially productive with the whole hand and the index finger.

The index finger can stand for the knife in body parts to exemplify contrasts in signs of this sort. Here, 'cutting the neck' commonly extends semantically to 'kill', in Figure 145a, as was the case of the gesture used in Bissau also for 'die', 'witchcraft', 'crook', and 'steal'. The index finger also represents a knife on the arm for 'blood', in Figure 145b, and 'fish', in Figure 145c. In the cases where both index fingers interact with each other, the type of motion appears to be contrastive enough, as shown in Figures 145d, 145e, and 145f. Otherwise, it can resort to compounding, as for 'okra', in Figure 145g.



**Figure 145.** Signs representing a cutting tool with ✎ in LGG, for 'kill' (a), 'blood' (b), 'fish' (c), 'knife' (d), 'cucumber' (e), 'carrot' (f), and 'okra' (g)

The ambiguity arises when both palms interact with each other in a way that the type of motion is not sufficient to distinguish the signs from one another. For that reason, they tend to combine with other signs specifying their meaning in compounds, in Figures 146a to 146f, even when the base hand adopts a different handshape, in Figure 146g. This is not the case when the movement is quite distinctive, such as 'slicing' a cake, in Figure 146h, and 'buttering' bread, in Figure 146i, or the non-dominant hand takes an identifiable shape, like in CUT-TREE, in Figure 146j.



**Figure 146.** Signs representing a cutting tool with  $\text{✂}$  in LGG, for 'onion' (a), 'manioc' (b), 'dried fish' (c), 'breadfruit' (d), 'jackfruit' (e), 'papaya' (f), 'passion fruit' (g), 'cake' (h), 'butter' (i), 'paper cutter' (j), and 'cutting a tree' (k)

### *Sign families of claw(s) and wings*

In this second cluster, I focus mainly on the *claw(s)* handshape. It was relevant to analyse the *wings* form as well to illustrate how animal terms based on these two gesture sources unfold over time in LGG. As gestures in Bissau, *claw(s)* and *wings* occur both as responses to 'witchcraft'. However, the first form is much more conventionalised and is thus the one integrated into the signed lexicon.

To depict animals, people intuitively use parts of their bodies to represent parts of animals' bodies. Although in the gesture elicitation sessions, the depictions aimed to reproduce parts of some monster, they were available as animal parts: the hands replacing claws and the arms representing the wings. Importantly, the polysemy in *claws* is kept in the LGG sign for 'witchcraft', and occurs as well in *wings* for 'red'.

Table 20 shows how, from those gestures at hand, signers expanded the lexicon of animals over the years. Worth noting is that *claw(s)* were expanded equally by derivation, modifying, for instance, location or movement. In a different way, the sign WINGS was preferentially combined with other signs for semantic specification. In addition, it was eventually assigned to the generic category for 'bird'. Overall, for animals, compounds involved mainly the combination of physical characteristics. On top of these, they could be combined with a typical action of the animal.

**Table 20.** Expansion sequence of signs for animals based on *claw(s)* and *wings*, expanding from the gestures used in Bissau through the signs collected in 2005, 2006 and 2017

Gesture	2005	2006	2017
 <i>claw(s)</i>	PANTHER CLAWS[^MANE] 'lion' 	 CLAWS[^TEETH] 'crocodile'	LIZARD  BEAR
	CLAW[^WHISK- ERS] 'cat'	BIRD WINGS[^GRAB] 'eagle' WINGS[^STING] 'ray'	WINGS[^NECK] 'pigeon' WINGS [^EYES^BEAK] 'owl'
 <i>wings</i>	WINGS[^BEAK] 'hen' / 'rooster' [SMELL^]WINGS 'fly'		

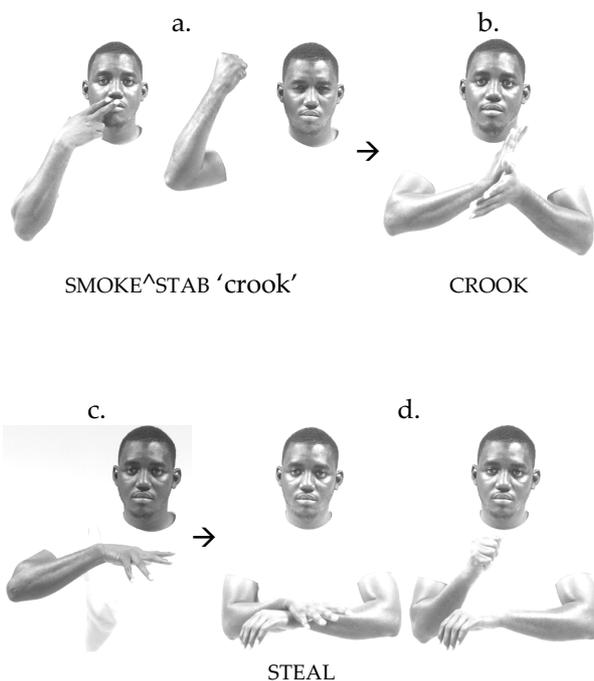
Most animal signs in LGG (39 of 63) are represented by mapping salient non-human physical features on the signer's body. In the personification of bigger animals, enactment, in which *wings* and *claw(s)* are included, is the most common strategy. In contrast, entity handshapes are preferably used for smaller animals.

All families of signs described in this subsection demonstrate how productive signs-from-gestures can be. Though overall, compounding seems to be the most productive process to expand a new lexicon, derivation is favoured in certain roots, such as specific handshapes and body locations. Importantly, all such signs are kept in the lexicon in their original form and used to build new lexemes. There are, however, some exceptions that are covered next.

4.5.3 Creating new signs to replace signs-from-gestures in sensitive concepts

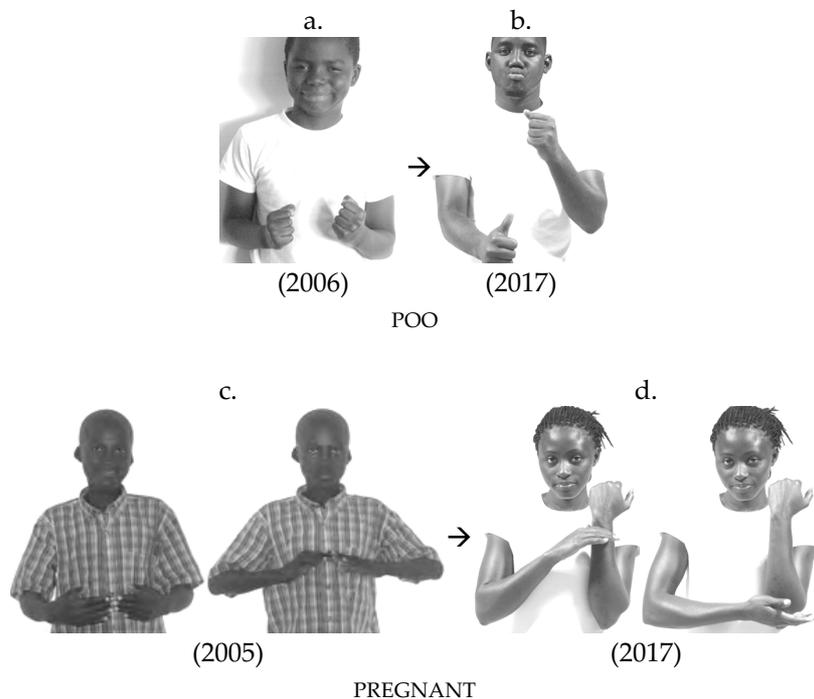
While the previous subsection demonstrated how gesture sources have impacted the growing lexicon of LGG, they can also be intentionally replaced. In this way, signs are created from scratch instead of being recreated based on pre-existing forms. Especially in more sensitive concepts based on gestures, deaf people create new signs expressly to avoid transparency that enables them to be understood by the hearing.

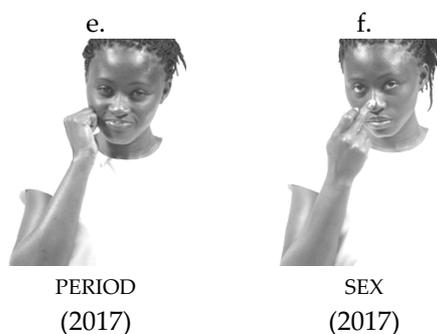
For instance, the compound SMOKE^STAB 'crook' cooccurs with a new abstract sign, in Figure 147a. Also, the widely known stylised form for 'steal' coexists with a snapping movement as if snatching a wristwatch, in Figure 147b.



**Figure 147.** Signs for sensitive concepts deriving from gestures for 'crook' (a), and 'steal' (c), recreated to avoid transparency in CROOK (b), and STEAL (d) in LGG, all collected in 2017

Some LGG signs collected over time were eventually replaced (37 of 209). These replacements were of different kinds. For instance, more iconic signs were occasionally dropped in favour of entity handshapes, as in POO, in Figures 148a and 148b. A good example of iconicity camouflaging is PREGNANT, articulated on the forearm, in Figures 148c and 148d. Probably taking advantage of an emerging pattern, other signs semantically related to ‘pregnant’ are rearranged in that same location, like ABORTION and even BIRTH. These were not documented in the 2017 dictionary but were instead observed on later field trips. Other signs seem to have been created to conceal the iconic motivation by altering its location. These are the cases of PERIOD, based on the washing enactment, but articulated on the cheek, in Figure 148e, and SEX, articulated on the nose, in Figure 148f.





**Figure 148.** Signs created for sensitive concepts to avoid transparency in POO in 2006 (a), and in 2017 (b), in PREGNANT in 2005 (c), and 2017 (d), in PERIOD (e), and SEX (f) in LGG

The only signs-from-gestures that were replaced by new – more abstract – signs in the twelve-year collection span concerned taboo concepts. Besides the few cases deriving from gestures, namely CROOK and STEAL, other sensitive terms that were tendentially more iconic were later replaced by new signs, involving entity handshapes, like POO and PREGNANT, and produced on a location different from the original iconic one, as in PERIOD and SEX. In such cases, the lexical replacement made the sign less easy to interpret by hearing people.

#### 4.6 Lexical expansion through grammaticalisation: the case of ‘hit’

The third and last analysis of the lexical expansion of LGG signs looks at the grammaticalisation of the gesture source for ‘hit’. I first review the literature on the grammaticalisation of gestures-to-signs, and, specifically, on the grammaticalisation of ‘hit’ in both signed and spoken languages (§4.6.1). The analysis is described by tracing the semantic

and grammatical extensions of the snapping finger from its more literal senses to the range of grammatical functions it expresses (§4.6.2).

#### 4.6.1 Background

As seen in the previous two sections (§4.4 and §4.5), lexicalisation is the synchronic adoption of new items into the lexicon (Brinton & Traugott 2005, 20, 96). This integration originates in productive word formation processes, like derivation and compounding (*ibid.*, 33, 91). While compounding and derivation drive lexicalisation, *i.e.*, the (re)creation of new lexemes, these can additionally extend to different grammatical functions. Therefore, in certain linguistic contexts, lexical items can acquire grammatical functions, which may extend subsequently into new functions (Hopper & Traugott 2003, 1). A central question in this thesis is how such grammaticalisation occurs from the earliest stages of a language. I first review literature on the grammaticalisation of gestures-to-signs (in §4.6.1.1). Then, I examine existing studies on the grammaticalisation of ‘hit’ in both spoken and signed languages (in §4.6.1.2).

##### 4.6.1.1 *Grammaticalisation of gestures-to-signs*

Gestures may either lexicalise or grammaticalise. The grammaticalisation can occur after a previous lexicalisation (route 1: gesture > lexical morpheme > grammatical morpheme) or directly from gestures (route 2: gesture > grammatical morpheme) (Wilcox 2004, 48–49). Grammaticalisation necessarily implies semantic generalisation (Coppola 2020, 370). This is especially the case with frequent items (Bybee 2012, 72). For instance, the gesture used to specify height in the Yucatán Peninsula lexicalises into YMSLs as CHILD, OFFSPRING and GROW, while simultaneously grammaticalising as a person classifier. Such expansion into different grammatical functions may or may not keep formational proximity to the original gesture (Safar 2020a, 67, 101–102).

#### 4.6.1.2 Grammaticalisation of 'hit'

The grammaticalisation of 'hit' or 'beat' is a very illustrative example of a similar behaviour crosslinguistically. It occurs in both spoken and signed languages. In sign languages, it has been shown to derive from a gesture, as is the case in LGG. Morgan mentions briefly that besides meaning 'to beat', in general, or with a stick, the gestural finger snap also grammaticalises in Kenyan Sign Language as an emphatic, to express, for instance, 'very hot' (2022, 284). Such intensification is observed in Libras as well (*My mother tried hard to communicate with me.*) and as a comparative marker in LSN (Martins & Machado 2024).

With a different form but signifying equally 'to beat', it also represents a comparative marker in LSE. Costello (2015, 195–196) classifies it as an auxiliary verb with spatial agreement, comparing elements that can be nominal (*My sister's got more money than me.*), adjectival (*Ioar is clumsier than Jeison.*) or verbal (*I smoke more than you.*). He further observes that it covers only human referents. In a more detailed description, Wilbur and colleagues (2018) focus on the ASL BEAT as a comparative marker for degrees of both quantity and quality. They add that such a transitive verb inflecting spatially for agreement with subject and object has a lexical origin in the sense of competition (*Trump beat Clinton [in the election]*) (ibid., 65).

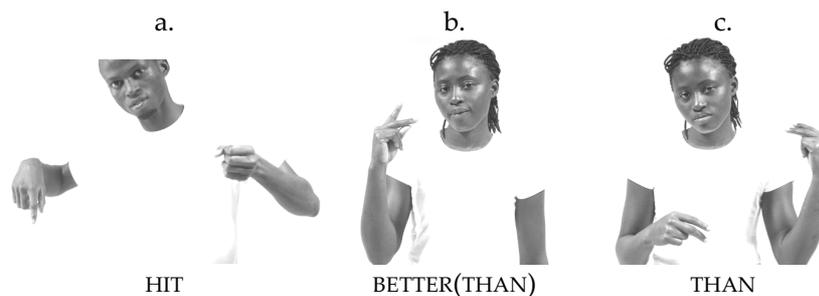
The comparative marker based on the notion of 'beat' fits into the *exceed*-type verbal constructions documented in spoken languages, meaning 'to defeat' or 'to surpass' (Heine & Kuteva 2002, 123–127). The development of the polysemy of 'beat' or 'hit' was traced in children acquiring Mandarin back to the physical action verb extending progressively to metaphorical senses (Chen & Wang 2020). In Mandarin, it can have abstract meanings such as 'defeat', 'punish' or 'opposition' (Gao 2001, 163, 165). These semantic extensions of 'beat' have also been attested in Swedish for 'defeat' (*Bill beat Harry at tennis*) and 'punish'

(Viberg 2016, 186, 193). Similarly, it can extend semantically as an intensifier in Catalan (*He drinks a lot.*) (Ramos 2015, 143).

Having reviewed the literature, I wonder how the snapping finger for ‘hit’ is built up in LGG. In the following subsection, I describe the analysis of its grammaticalisation based on the 53 sentences that were collected in 2022.

#### 4.6.2 Lexical expansion of HIT in LGG by grammaticalising it as a comparative marker and an emphatic

In the following subsection, I focus on the grammaticalisation of a particular sign-from-gesture. I describe the special case of HIT whose semantic elasticity manifests in different grammatical structures. As a gesture in Bissau, it was uniformly produced with the sense of ‘hit’, indicating a high conventionalisation of such a form. As a sign, it is first recorded in the 2017 dictionary with three senses and slightly different forms, as shown in Figure 149.

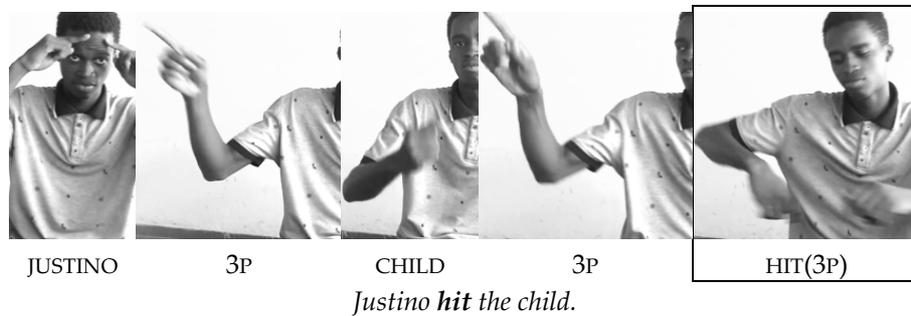


**Figure 149.** Signs deriving from the gesture ‘hit’ in LGG collected in 2017: HIT (a), BETTER(THAN) (b), and THAN (c)

To understand the different uses of this form as a sign in discursive contexts, deaf people were asked to give examples of its use in common LGG utterances. As a result, 53 sentences involving HIT were produced by eleven deaf adults. In analysing the sentences, I categorised the different meanings and grammatical functions of the signs deriving from the gestural etymon. I observed that the primary meaning of 'beating someone up' was kept and extended to a non-physical sense of 'beating someone at something'. Taking this competition-related sense as a semantic source, it became used as a grammatical particle to convey the notion of 'against' between two parties. In addition, it is explored to express comparison degrees, namely the comparative and the superlative. Finally, it is used as an emphatic intensifier.

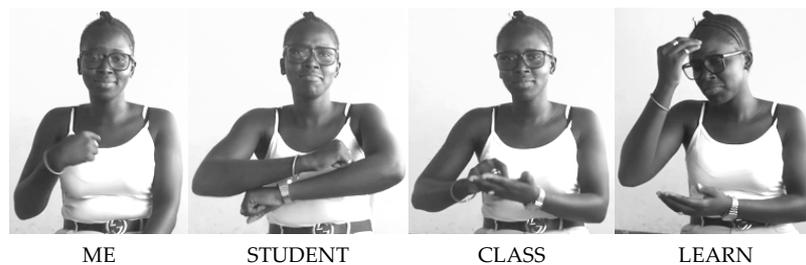
#### 4.6.2.1 *Primary meaning*

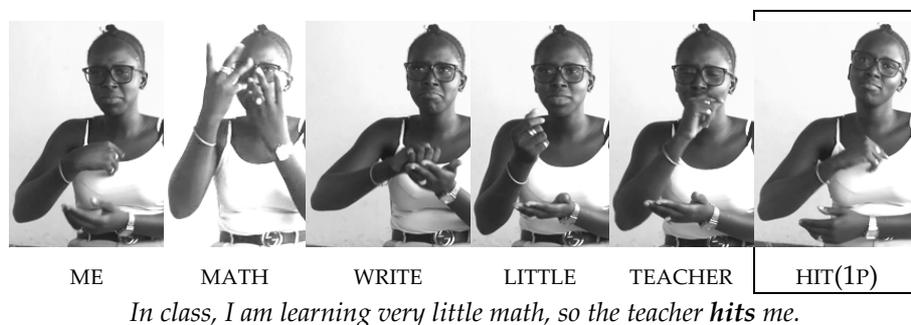
Local hearing people explained that HIT often cooccurs with the expression in Creole *na sutai*, meaning '(someone) hits (somebody else)', which can be uttered as a threat. As an etymology, deaf people suggest that the original action consists of grabbing someone with one hand while hitting them with a stick with the other hand. This primary sense conveyed by the gestural form of 'hitting physically' is maintained in the two-handed variant, referring to the original action of grabbing someone with one hand and beating her up with the other, in Figure 150.



**Figure 150.** Example of 'hit' in the two-handed asymmetric variant in a discursive context in LGG

As a verb-like sign, it selects a human subject and an animate object. Thus, in LGG, it may inflect for person, redirecting to the direct object, which, in Figure 151, is herself, i.e., the first person. I recall that the one-handed variant produced by this signer corresponds to the most frequent form used as a gesture.

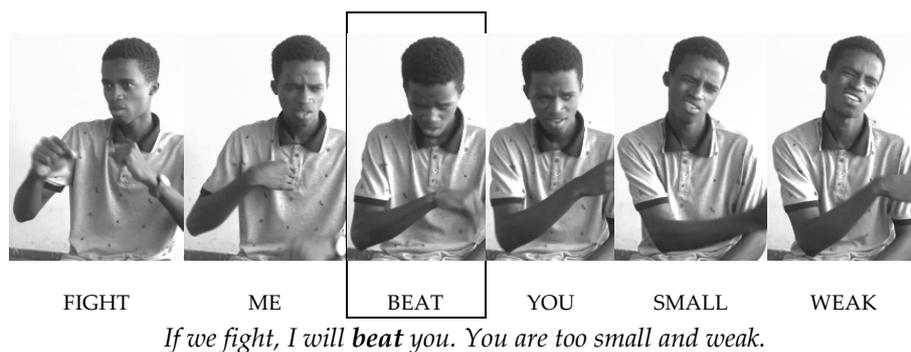




**Figure 151.** Example of ‘hit’ in the one-handed variant inflected for the first person in a discursive context in LGG

#### 4.6.2.2 Semantic extension

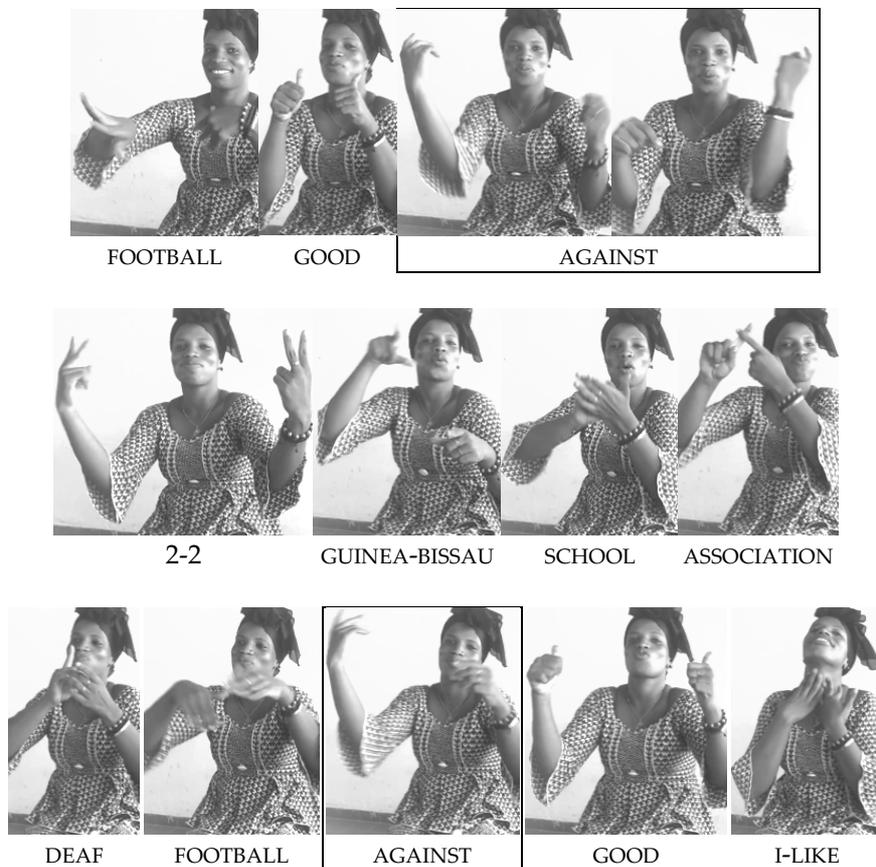
The sense of this sign can also expand metaphorically to signify not the physical confrontation per se, but the stronger party. For instance, in Figure 152, the deaf signer warns somebody else that if they fight, he will defeat him. This sense would correspond to the English expression ‘beat someone at something’.



**Figure 152.** Example of the semantic extension for ‘beat’ in a discursive context in LGG

4.6.2.3 Grammatical functions

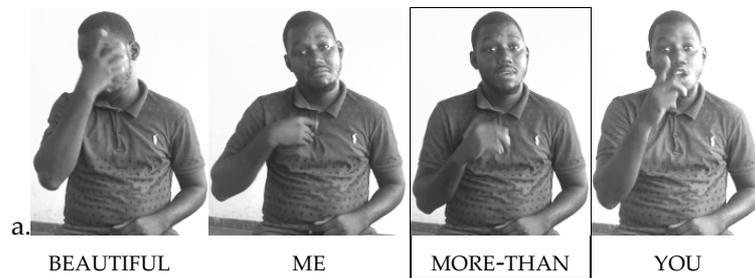
Still in a semantic association with the opponent sides, the sign may modify its grammatical function to become a preposition-like particle for ‘against’. In the example in Figure 153, the sign indicates an opposition between two parties in a football match. Importantly, this particular sign is always produced with two hands snapping in turns. Such a form variant was also observed as a gesture in Bissau.



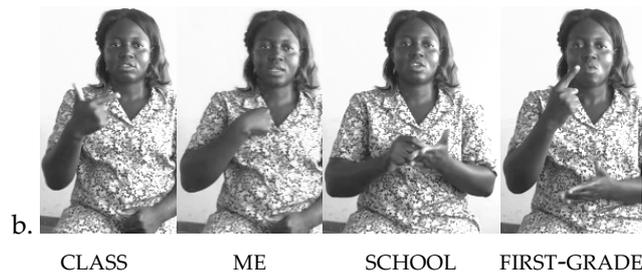
*It was a good football match against each other. It was 2-2, the deaf school against the deaf association of Guinea-Bissau. It was a good football match against each other. I liked it.*

**Figure 153.** Example of the opposition marker for ‘against’ in a discursive context in LGG

This sign also expands to function as a grammatical particle in comparisons, namely to establish the comparative degree. As such, it may cooccur with adjective-like signs, in Figure 154a, or quantifiers, in Figure 154b, to signify MORE-THAN.



*I am **more** beautiful **than** you.*

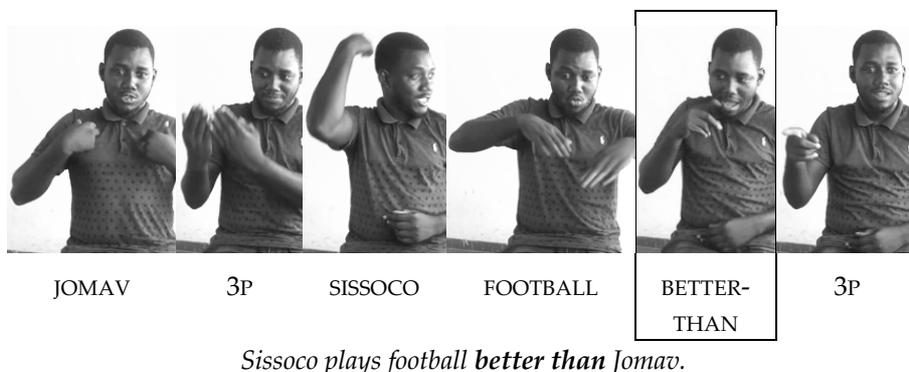




*My first-grade class has few students. Nanina's pre-school class has **more** students **than** mine.*

**Figure 154.** Example of the comparative marker for 'more than' with adjective-like signs (a) and quantifiers (b) in a discursive context in LGG

Similarly, when cooccurring with verb-like signs, it may signify 'better than'. In Figure 155, the signer jokingly names the signs of the football players by referring to a former president of Guinea-Bissau, Jomav, and the president elected at that time, Sissoco.



**Figure 155.** Example of the comparative marker for ‘better than’ with a verb-like sign in a discursive context in LGG

Apart from the comparative degree, where two parties are weighed against each other, the same sign can indicate the superlative degree. Here, it can apply to an adjective, as in CLEAN ‘the most’, in Figure 156a, or to a noun, as in BENFICA ‘the best’, in Figure 156b. As noted, the latter example omits the adjective while implying the notion of ‘good’.

a.



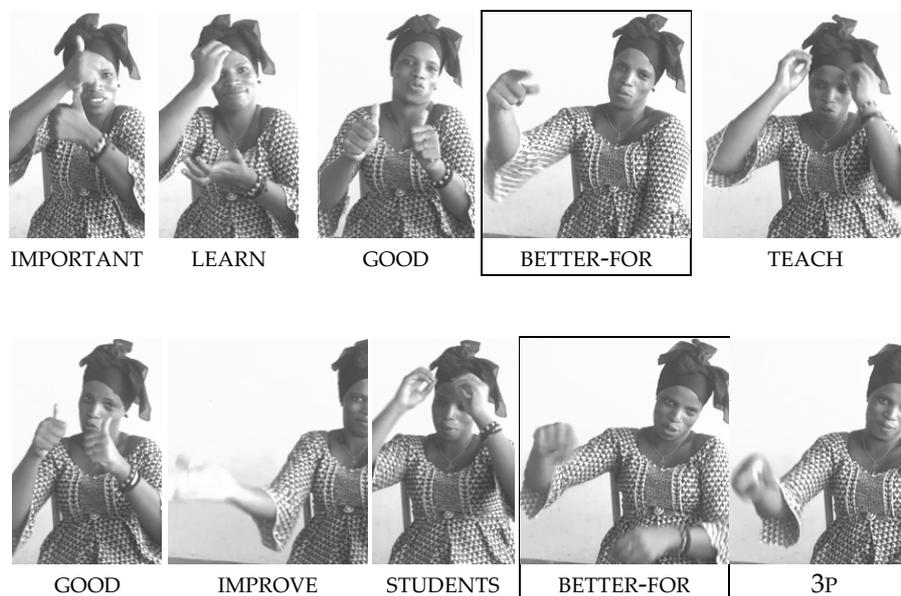
b.



**Figure 156.** Examples of superlative markers with an explicit adjective sign, such as CLEAN (a), and with an implicit adjective for the notion of ‘good’ (b) in discursive contexts in LGG

An interesting use of this sign is more generic in the sense that it is no longer referring to a specific person or characteristic but to a more abstract situation. In the example in Figure 157, the signer comments on the importance of children being well taught as the ‘best one can do’ for them.





**Figure 157.** Example of the comparative marker for ‘better for’ in a discursive context in LGG

Finally, it has acquired the function of an adverb-like emphatic intensifier of, in the example in Figure 158, noun-like signs referring to physical features. It appears to be an extension of the superlative degree.





**Figure 158.** Example of the emphatic intensifier for ‘very (good)’ in a discursive context in LGG

This subsection illustrates instances of grammaticalisation of one gestural etymon. The data showed that such a highly conventionalised gesture in the local community maintained the original meaning and expanded it semantically as ‘beat someone at something’, in LGG. Moreover, signers explored it grammatically to establish oppositions, as the prepositional-like sign for ‘against’, to mark degrees in comparisons (e.g., for ‘better’ and ‘best’), and emphatic intensifications.

Overall, many gestures incorporated into the LGG lexicon generate further lexical expansion. This occurs with the grammaticalisation of HIT, the development of colour and kinship terms, and various gesture sources being modified by derivation and combined in compounding to form families of signs.

#### **4.7 Summary of results: the expansion of semantic fields, sign families and grammatical functions in LGG**

After describing different ways that the LGG lexicon has expanded over the initial years of its emergence, this section presents a summary

of the findings. This chapter looks at the signs deriving from a set of gestures collected in Bissau and how they serve as the basis for lexical expansion in LGG. To understand how LGG signs expand over time, I analyse hierarchies in kinship and colour terms, the morphological development of families of signs through derivation and compounding, and the grammaticalisation of HIT.

#### 4.7.1 Lexical expansion of kinship and colour terms in LGG

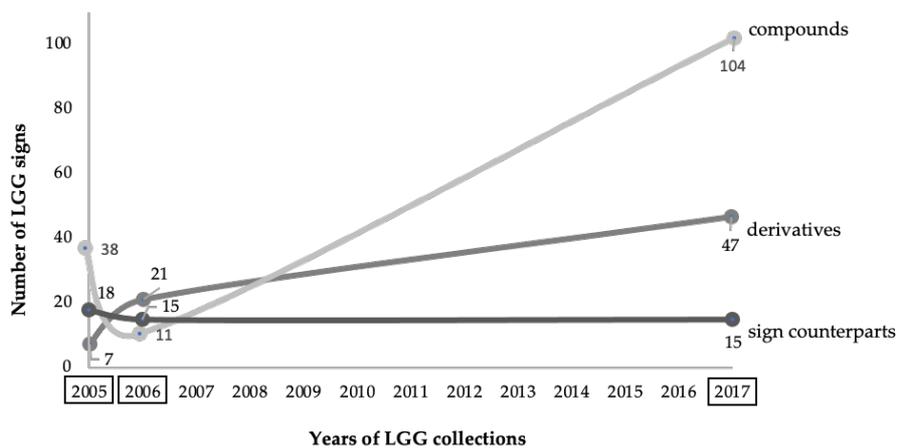
Regarding the implicational hierarchies, diachronic records of LGG emergence demonstrate how kinship and colour terms are sequentially organised in this new language. In both cases, it becomes clear that such semantic fields expand from gestures-to-signs following a universally expected order. Still, while family members are designated in LGG mostly by combinations of those signs-from-gestures, colours other than WHITE and BLACK rely instead on metaphoric associations with colourful items. In particular, deaf signers in Bissau use football-related imagery to refer to more basic colours within the initial stages of lexical development.

#### 4.7.2 Lexical expansion of sign families in LGG

Figure 159 shows how sign counterparts and their corresponding derivatives and compounds have developed across the three dictionaries. Sign counterparts of gestures used in Bissau were mainly (33 of 48) recorded in the first few years of deaf schooling, in 2005 and 2006. However, a little less than a third of those lexical counterparts appear only later in 2017, like HIT, LIE and WITCHCRAFT. This may be because many signs were overlooked during the collection moments. As such, it is hard to know if it was because they were not used yet as signs

(even if they have gestural sources) or if they didn't come up in the sessions for referring to more abstract concepts.

Overall, Figure 159 presents compounding as the most productive process during the first decade of LGG emergence. Many compounds (104 of 153) are constituted later, manifesting a need to specify the sign's meaning further or eventually distinguish it from similar forms. This contrasts with a much lower – though increasing – number of derivation cases (75 out of a total of 286 signs).

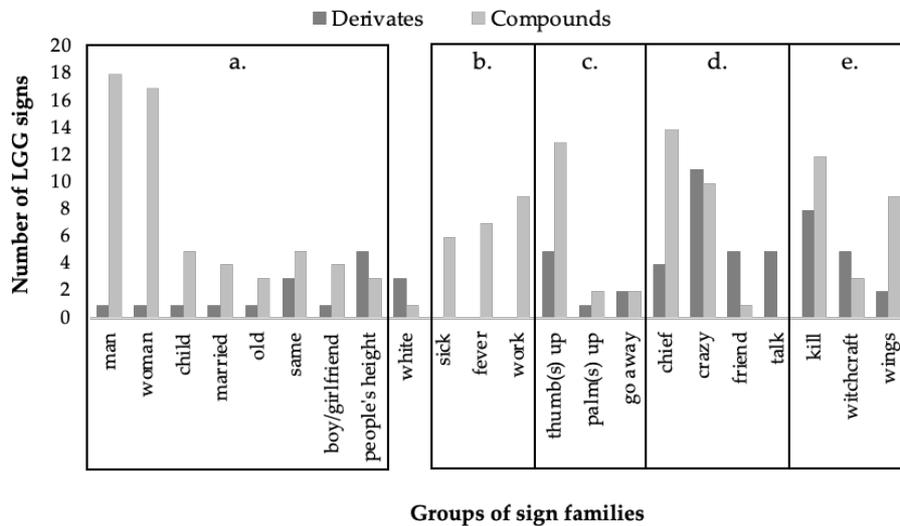


**Figure 159.** Diachronic integration of sign counterparts of gestures used in Bissau and the expansion of their corresponding derivatives and compounds in LGG from 2005 to 2017

When zooming in on the different groups of sign families expanding from signs-from-gestures, I find that morphological processes of compounding and derivation show distinct preferences depending on the type of signs they are expanding from. Figure 160b to 160e displays the groups of families of signs described in subsection 4.5.2. The sign family stemming from the height specifier is included in Figure 160a,

clustering sign families related to people, mostly in kinship terms. Accordingly, colours deriving from WHITE appear in Figure 160 only for reference.

Looking more closely at Figure 160a, it becomes clear that lexical items for kinds of people, including kin members, favour mainly combinations with each other or other signs. This is especially true with gender and age designations. In addition, Figure 160b makes it obvious how compounding is the sole strategy of hypernyms. Compounding is also highly expressive in signs rooted on the *thumb(s)-up* gesture (with 13 compounds and five derivatives), in Figure 160c, and on the shoulder for 'chief' (with 14 compounds and four derivatives), in Figure 160d. In contrast, derivation is a frequent mechanism in signs-from-gestures rooted in the remaining meaningful body locations, such as the forehead for thought-related concepts (with 11 derivatives and ten compounds), also in Figure 160d, and meaning-carrier handshapes, like cutting tool, which include 'kill' (with eight derivatives and 12 compounds), in Figure 160e.



**Figure 160.** Lexical expansion through derivation and compounding per group of LGG sign families, namely of kinds of people (a), hypernyms (b), polysemous gesture sources (c), meaningful body locations (d), and specific handshapes (e)

As seen in the previous chapter, all the gestures collected in Bissau are adopted as signs. However, only about half of them expand into families of signs. Importantly, they are all preserved over time except for a few items that signers replaced to prevent them from being understood by hearing people.

#### 4.7.3 Lexical expansion of 'hit' in LGG through grammaticalisation

Parallel to the diachronic systematisation of such lexical expansion, the LGG lexicon extends through grammaticalisation. The range of grammatical functions of the sign-from-gesture HIT was analysed synchronically. The original meaning of 'hit' extended semantically to a comparative marker, as recorded in the 2017 dictionary. Likely after some

time, as collected in the additional videos in 2022, comparative structures enlarged their range and eventually became emphatic.

In sum, during the first years of LGG emergence, the lexical stock rooted in the gestures collected in Bissau developed sequentially in kinship and colour terms, according to universal expectations. In addition, the diachronic analysis of lexical expansion demonstrated that compounding is the most productive process of lexical expansion, especially in particular semantic fields. Finally, although limited to one case, the sign-from-gesture HIT showed the possibilities of grammaticalising into different functions in a short period.

#### **4.8 Discussion**

When looking at the processes driving lexical expansion in LGG over time, it becomes clear that polysemy occurs consistently over time and that both compounding and derivation are quite productive along the way.

##### 4.8.1 Lexical expansion of kinship and colour terms in LGG

Both semantic fields described in this analysis – kinship and colour terms – validate their corresponding diachronic sequences as universal. The analysis further shows that the earliest stage in semantic stratification stems from gestures.

As previewed by Goddard and Wierzbicka (2013, 50–51), ‘man’, ‘woman’ and ‘child’ constitute lexical universals, which, in Bissau, are expressed by a gestural triad from which kinship terms expand. They extend by polysemy to ‘father’, ‘mother’ and ‘offspring’, and then by taking advantage of other gestural sources to refer to ‘sibling’ and ‘grandparent’. This aligns with the idea suggested by Woodward

(1978, 128) that, at least, the former four terms are the basis for kinship lexical structuring.

In the 2017 LGG collection, created at most 14 years after the first larger concentration of deaf people, new kinship terms, apart from the sign FATHER^MOTHER^CHILD 'family', refer to more distant family relationships. These are composed mainly of combinations of gender distinctions and newly created signs from metaphoric and abstract associations, or manual letters. The latter strategy is found in other macro-community sign languages, like KSL, and also in UgSL for collateral kin members (Wilkinson 2009, 273, 285).

The fact that we can trace the diachronic sequencing of kinship terms in LGG corroborates, on one hand, the universality of the implicational hierarchy in this semantic field, and, on the other hand, a more precise timing of the activated strategies to represent kin members. From the description presented here, it becomes evident that LGG signs for closer family relations collected during the first couple of years of language emergence derive from common gestures used in Bissau. Within the following decade, and as expected, terms were created for more distant family ties.

Similar to kinship terms, the lexical sequence for colours in LGG expands from a gestural base as well. The gesture for 'white' used in Bissau, which consists of rubbing a typically dark skin, quickly gets distinguished in its articulation as a sign from 'black'. According to the universally established hierarchy, the colour terms that come after the gestural source are related to football references. From the mechanisms behind the creation of colour signs, it is possible to deduce the order in which they were created and, in this way, demonstrate that LGG signs conform to the implicational hierarchy claimed by Berlin and Kay (1969). Thus, 'white' and 'black' would naturally be succeeded by 'red'

as demonstrated by Providence Island Sign Language (Woodward 1989, 151).

Ambiguities arise in the following three colours in line. Kay argues that 'green' and 'blue' are set apart only after coexisting with 'yellow' (1975, 260). Data from LGG shows that the initial motivation for 'green' is similar to 'red', pointing to the possibility that it was created around the same time. Nonetheless, during the first decade of language emergence, 'green' was replaced by a sign whose motivation was closer to 'blue', as if moving towards a "grue" symbiosis rather than away from it (*ibid.*). Moreover, according to the motivation type, 'yellow' is singled out as a colour in the 2006 collection, for depicting a famous football player instead of a particular football club. LGG signers used this same logic to represent countries, in 2006 and 2017, though, in the latest collection, 'brown' was also created according to such a motivation. This sequence validates the stages – at least until stage VI – as described by Kay (1975, 260). In 2017, the remaining colours from stage VII resort to both the morphological derivation from 'white' and polysemy related to coloured objects. Again, in this stage, the type of sign formation in LGG suggests that PINK precedes PURPLE and ORANGE comes before GREY.

The LGG data on colours collected over the years shows how the sequence is organised diachronically at the hands of a fast-growing deaf community. Similar to the kinship hierarchy, colours also derive from a gestural source, though limited to the first two signs. The following five colour signs are original creations based on football imagery, and the last four colours rely on different strategies. Within the distinct types of representation mechanisms, it is possible to infer the order in which colour terms were created. While this conforms to a universal hierarchy, it also reveals a curious disposition of 'green' and 'blue' to become similar in their forms after coexisting with yellow.

#### 4.8.2 Lexical expansion of sign families in LGG

When looking at families of signs, it becomes evident that they manifest different preferences for derivation or compounding. Compounding presupposes the conventionalisation of lexical items, and derivation implies the conventionalisation of meaningful phonomorphemes. That said, conventional gestures collected in Bissau are ready to be picked up by signers who integrate them into the lexicon, combine them with each other and with other signs created in the meantime. In this way, deaf signers benefit from the first resilient property of language, i.e., a set of stable gestures, as claimed by Goldin-Meadow (2002, 347). However, at such an early stage of language emergence, only some of the phonomorphemes are reanalysed as meaningful enough to be combined with other formational units to derive new signs. Again, this demonstrates another resilient property of language in the building up of paradigms rooted in smaller form-meaning units (*ibid.*).

With such an initial stock in hand, establishing contrasts between the items, like distinguishing between CHILD and ADULT, was the natural step that followed (*ibid.*, 348). Lepic and Padden argue that iconicity makes the recognition of paradigms easier (2017, 497). Also, Johnston and Schembri had already suggested that iconicity promotes the combination of meaningful components (1999, 125).

That said, specific body locations or handshapes carrying certain concepts are treated as morphological roots from where families of signs expand. Signs within these families are contrasted with each other by modifying the minimal units of signs, designated as *phonomorphemes* (Johnston & Schembri 1999, 118), *ion-morphs* (Fernald & Napoli 2000, 36–37) or *form-meaning units* (van der Kooij et al. 2023).

This is well illustrated by the lexical expansion of TALK in LGG, similar to what was demonstrated by Lepic and Occhino in ASL (2018, 156).

In this line of thought, the gesture for ‘crazy’ is readily included in a family of signs rooted in the semantics of mental activity expressed by the forehead as seen in ASL (Lepic 2015, 155–156) and IPSL (Zeshan 2000, 30).

The same occurs with entity handshapes forming lexical families, which in the LGG set studied here occurs with the *claw* handshape and those representing cutting tools.

Significantly, grammatical categories can also be determined by derivational processes. For instance, the *thumb(s) up* meaning ‘good’ is modified in LGG to express the comparative degree BETTER, a related adjective IMPORTANT, and the verb-like SUCCEED. In the same way as described by Frishberg and Gough for ASL, a reverse movement also signifies a semantic opposition in BAD (2000 [1973], 105–106). Also, the height-specifier turns into the verb-like sign GROW by relying on the upward movement to highlight the action, as suggested by Abner and colleagues (2019, 233). In contrast, the static forms for CHILD / SHORT and ADULT / TALL are distinguished only by a more specific facial expression in the adjective-like signs. Not unlike what was suggested by Meir (2012, 85), these distinctions coexist with multifunctional signs, like SICK that can be adjective, noun or verb-like.

Besides derivational processes, polysemy can be distinguished by mouthing, as also observed in NGT (Quer et al. 2017, 35), and in noun-verb pairs in *Österreichische Gebärdensprache*, ÖGS (Hunger 2006, 83) and Auslan (Johnston 2001, 240–241). In the LGG development of gestures into signs, a distinction with mouthing occurred only between the pairs MAN / FATHER and WOMAN / MOTHER, namely in the kinship term.

Guevara and Scalise claim that compounding is a very productive strategy, especially in new languages (2009, 101). It is often used to disambiguate related meanings and grammatical categories in sign

languages, as is the case in ASL (Supalla & Clark 2015, 194) and ABSL (Tkachman & Sandler 2015, 33). One way of clarifying more ambiguous signs is turning them into hypernyms and combining them with different signs to refer to their hyponyms, like the LGG signs SICK and WORK. These are used respectively in compounds for distinct diseases and professions. In a similar way, the sign-from-gesture CHIEF is employed to distinguish different high-ranking positions, as is *palm(s) up* combined with other signs to disambiguate the wh-question.

Some LGG lexical clusters analysed here conform to Downing's claim that novel compounds consistently activate specific relationships according to their semantic motivations (1977, 831). LGG signs for animals involve references to their appearance, such as *claw(s)* and *wings*. Also, LGG signs for people, whether kin members or of professions, are combined with gender. Gender and age are used recurrently in other sign languages, such as ASL (Vercellotti & Mortensen 2012, 561), IPSL (Zeshan 2000, 85), LaSiBo (Tano 2016, 199), ABSL (Meir et al. 2010, 319), YMSLs (Safar 2020a, 66), and Libras (Figueiredo-Silva & Sell 2011, 36, 38).

In addition, similar to what has been observed in emerging signed systems in San Juan Quiahije, in Mexico (Hou 2016, 164), and Amami Island, in Japan (Osugi et al. 1999, 104), food items are typically represented by the way they are prepared, especially by the way they are cut, as in Nicaragua (Morford & Kegl 2004, 373). Thus, unsurprisingly, depicting cutting movements for specific food items is very productive in LGG.

Over time, very few LGG signs resort to combinations with finger-spelled letters, different from other sign languages, such as ASL (Padden 1998, 53, 91), probably due to less regular contact with the written language. In a different way, more socially sensitive terms in gestures-to-signs tend to be replaced, as predicted by Bower (2019, 51). The

creation of new signs to mask the iconic motivation of sensitive concepts, as observed in only a few items in LGG, has been scarcely documented in sign languages. Still, in Hong Kong Sign Language, Wei and colleagues (2018) studied euphemistic expressions of sex-related signs.

#### 4.8.3 Lexical expansion of 'hit' in LGG through grammaticalisation

Overall, when a sign becomes part of different combinations, it desemanticises, as observed by Heine and Kuteva (2008, 148–149, 157). Such semantic generalisation also occurs in the grammaticalisation of signs, as suggested by Coppola (2020, 370). This is the case of HIT in LGG as an intensifier, similar to KSL (Morgan 2022, 284) and Libras (Martins & Machado 2024). As part of a comparative construction, it occurs equally in LSN and with the same meaning but in a different form in ASL (Wilbur et al. 2018) and LSE (Costello 2015, 195–196).

## 5 DISCUSSION AND CONCLUSION

*Language emergence describes moments in historical time,  
when non-linguistic systems become linguistic.*

(Brentari & Golden-Meadow 2017, 1)

### 5.1 Introduction

This thesis has focused on the description of a rising deaf community and the study of the emerging sign language of Guinea-Bissau. To understand the circumstances of LGG emergence, I began by describing how the deaf community got established in the first two decades since they gathered in a school setting. The fact that LGG emergence has been documented from a very early stage is unique. Taking advantage of that data and a set of gestural sources, the study has tracked the rapid lexical growth of LGG in the early years of its emergence.

The two-part studies address two main questions. First, I have described the deaf community to answer the question: In which sociolinguistic context has LGG been emerging? Then, the linguistic analyses were based on the question: How does a signed lexicon emerge and expand from gestures? This second research question was further partitioned into two more specific questions. First, I compared gestures used in Bissau and their sign counterparts to see how they were integrated into the lexicon. Then, I relied on the diachronic record of LGG to observe the nature and extent of lexical expansion from gestural sources.

Besides providing an important contribution to the history of deaf communities by capturing the very beginning of one school-based macro-community (in §5.2), the analysis of the emerging sign language of Guinea-Bissau in this thesis makes relevant contributions to the

fields of gesture studies (in §5.3) and sign linguistics (in §5.4). Of course, while much more is to be investigated in the future (see §5.5), this book has brought a fundamental record of the real-time emergence of both a deaf community and a sign language.

## **5.2 Main contributions: deaf history**

The sociolinguistic description in Chapter 2 documents the early establishment of a highly organised deaf community. While creating plenty of opportunities to develop LGG, deaf signers have matured a deep sense of pride in their language and their community. Here, the social stratification of gender roles makes those interaction opportunities mostly available to deaf men.

Based on formal and informal interviews, documentary records obtained in Bissau's original locations, online research, compilations of various types of data, and event reconstructions, I painted a picture of the context in which LGG arose. This resulted in a comprehensive description of the (up)rise of a deaf community. The fact that Guinea-Bissau does not have a medically-oriented approach to deafness opened the doors to a free-signing environment for deaf people in educational settings. Outside those school spaces, deaf people have created numerous other meeting locations. In these regular gatherings, it is striking how deaf people cultivate the need to raise awareness among hearing families and neighbours about their community and language. This deep-rooted pride seems to have encouraged their integration into the wider society.

Such a detailed account of a very young deaf macro-community is a fundamental contribution not only to the knowledge of how a deaf community is progressively established in its early years, but also for

faithfully providing the real-time context in which its language has been emerging. By consciously maintaining LGG very much autochthonous in its initial years, the first generation of deaf signers has been shaping a new language – as we speak – that redesigns what is known about emerging sign languages.

### **5.3 Main contributions: gesture studies (and their relation to sign linguistics)**

Chapter 3 addressed the first specific question: What are the routes incorporating conventional gestures into LGG? From the elicited set of concepts expressed as conventional gestures, I found three incorporation routes: (1) one gesture being directly incorporated as one sign, (2) the incorporation of a few gesture variants as a few LGG signs, and (3) the incorporation of many gestures entangled in networks of overlapping forms and meanings as many signs. In particular, I had asked what exactly occurs in the form and meaning of gestures, ready to be picked up by signers, when integrated into an emerging sign language. When comparing the collected data, I saw that all gestures were adopted as signs with no significant modifications in both form and meaning. I further observed that form variants and gestures with different motivations were recruited for related meanings that were semantically defined when entering the lexicon.

This particular research brings three important contributions. First, methodological approaches innovate gesture studies by collecting the data in small groups and including deaf people as experts on gesture use (§5.3.1). Second, it identifies three pathways for incorporating gestures (§5.3.2). Third, the analysis of lexical expansion demonstrates that the semantic domain of kinship is more prone to rely on gestures than the one of colours (§5.3.3).

### 5.3.1 Innovative methods: using small groups and relying on deaf people

The methods used in Chapter 3 innovate gesture studies by asking about gesture use in small groups to observe response convergence and by enquiring about deaf people's experience with gestures. It further innovates the analysis of gesture networks by intersecting polysemy and synonymy.

While it is quite common to rely on interviews and questionnaires to understand gesture use better, doing elicitation in small groups is not typically practised in this area of study. Far from being naturalistic collections, the fact that people are questioned in small groups creates a context where they are put at ease to confirm gesture use for specific concepts. Thus, given their familiarity with each other, participants react comfortably to one another in agreement or disagreement. I found this method to be very fruitful for understanding gesture use, and I believe that including it in gesture elicitation methods would be an added value to the field.

I found that even though group size varied, if there was a composition of at least four members – i.e., all hearing teachers or all deaf young people – then it allowed enough familiarity to have everyone participating at ease, as claimed in the literature about focus groups in general (Acocella 2011, 1127). As such, gestures elicited with several groups of four participants, of both hearing (five groups) and deaf people (ten groups), clearly showed the agreement in gesture use, i.e., how much gestures were conventionalised, or how much they varied in Bissau. Also, the fact that there was a consistent diversity in responses within and across groups shows that participants were not highly influenced by each other (ibid., 1134), contradicting the tendency to copy each other's gestures (Kimbara 2008). In the end, responses were

occasionally different within and across groups, reflecting a close-to-real sense of the extent of gesture conventionalisation in Bissau.

Considering West Africa as a particularly fertile region in gestural interactions (Nyst 2010a; Nyst et al. 2012), it is to be expected that local deaf people are especially knowledgeable about and experienced with visible bodily actions (Kendon 2015). In this way, observations by deaf people reflect pragmatic aspects of the everyday functioning of gestures within intuitive communicative practices. While the fact that participants knew LGG might have skewed the data collection on gestures, this same factor may have instead raised participants' awareness of gesture use, and, especially, of the differences between gestures and signs.

The expertise of deaf participants, as key beneficiaries of gesture use by their hearing peers, reveals an extra awareness of metalinguistic aspects. In the small group elicitation sessions, they were able to provide additional information on gesture frequency, gender preferences, original motivations, and manners of use. Thus, I found that working with deaf people revealed an added value to the understanding of gesture use, a fact that has not been very well appreciated in the field of gesture studies.

### 5.3.2 Semantic-based routes of gesture-to-sign integration

The study of gesture incorporation into the emerging LGG, in Chapter 3, uncovers three different pathways. These routes show that gesture integration into a signed lexicon is not always direct, i.e., a gesture can also be adopted as a sign by undergoing some semantic specialisation.

The semantic-based analysis applied to the gesture-to-sign integration in Bissau contributes to the understanding of what happens in less

linear incorporation processes. By looking at the contact points between gesture use and the emergence of LGG lexicon, the role of synonymy and polysemy was brought to light. The intersection between synonymy and polysemy within less linear integration paths revealed a general preference of signers for more conventionalised gestures in both form and meaning. Moreover, yearning to expand their signed lexicon, signers make the most of available gesture variants, in both form and motivation, specifying them in meaning when adopting them as signs.

Besides acknowledging polysemy and synonymy in gestures, as others have, this study shows evidence that frequency is the primary criterion to select form-meaning pairs. Also, the fact that, similar to LGG, tangles of related meanings around the notions of 'death' and 'closeness' were observed by Coppola (2020) indicates that there are some concepts more prone to polysemy and synonymy, i.e., to co-lexification, than others.

### 5.3.3 Gesture as a starting capital in semantic hierarchies

Conventional gestures are fundamental in mediating communication between hearing and deaf people. The fact that they are recruited as a starting capital in LGG attests to such importance. They constitute an initial stock and also represent the primary basis for lexical expansion, both semantically and morphologically, as described in Chapter 4.

When gestures represent the communicative interface between deaf and hearing people, they gain linguistic weight. Accordingly, the present study demonstrates the formational and semantic stability of conventional gestures preceding their incorporation as signs. Such stable gestures have been argued to be at the basis of sign language creation by relying on a set of resilient properties (c.f., Goldin-Meadow 2002).

This thesis shows that the influence of an initial gestural foundation on the development of a new sign language is far from a simplistic issue. Looking, in particular, at the lexical expansion of semantic fields, deaf signers pull out gestures of multimodal interactions to different extents depending on the topic.

Similarities between LGG and other African sign languages, such as AdaSL (Nyst 2007, 98–101) and LaSiBo (Tano 2016, 182–207), in the formation of kinship terms based on gestures, demonstrate how fundamental gestures are in the sociocultural exchange of such concepts from one modality to the other. Here, there are gestures drawn from similar environments and therefore converging on similarly salient ways of representing objects and actions.

In contrast, colour terms in LGG are supported in gestures in the first two colours of the hierarchy alone. While WHITE and BLACK stem from gestures (as well as RED and GREEN to some extent, since they are motivated by the *wings* and *claws* elicited as gestures within the concept of ‘witchcraft’), the remaining colours are created by deaf people, based on their own life experiences, independent of multimodal interactions with their hearing peers. Further, LGG signers choose unique motivations for basic colour terms based on football imagery, which is a reference source for colour not found in any other sign language studied so far (c.f., Zeshan & Sagara 2016). Overall, the data conforms to the expected hierarchy for this semantic field, as proposed by Berlin and Kay (1975), by adding information on the diachronic emergence of colour terms.

I can then conclude that language emerges out of two driving forces. The first one relies on what is inherited from a progressively shared world, while the second one is powered by universal tendencies that drive language development.

#### **5.4 Main contributions: sign linguistics**

Having uncovered in Chapter 3 how gesture sources provide the basis for lexical expansion, I pose the second specific question: How does lexical structure unfold over time in the sign language emerging in Bissau? I further broke down this search into three more specific linguistic phenomena.

I first inquired how signs-from-gestures expand during the first years of language emergence in the semantic domains of kinship and colours. In kinship and colour hierarchies, I found that core terms were based on existing gestures. However, while the former relied mainly on gesture sources, colour signs were instead mainly inspired by football imagery, which is one of several pieces of evidence illustrating the influence of male domains on LGG.

I then investigated morphological pathways of sign formation as I questioned what the developmental trajectories of derivation and compounding are in families of signs-from-gestures. I found that compounding is especially favoured at a point following an early period of lexical expansion. Derivation was also very productive over time, particularly in families of signs based on specific body locations and hand-shapes. Lastly, I focused on one instance of grammaticalisation emerging from the original stock of signs-from-gestures. I queried which grammatical functions extend from the conventional gesture for 'hit' in LGG. Over time, this conventional gesture 'hit' takes on the grammatical functions of a comparative marker and an emphatic. In the following section, I discuss the main contributions.

This specific research makes three relevant contributions. First, it reveals a male dominance in sign creation inspired by football imagery (§5.4.1). Second, the analysis of families of signs finds that compounding is a very productive process. It further contributes to a repertoire of phonomorphological roots in specific body locations and

handshapes (§5.4.2). Thirdly, it shows how the grammaticalisation of ‘hit’ extends as a comparative marker and an emphatic (§5.4.3).

#### 5.4.1 Gendered signing

The description of the hierarchy for colour signs, in Chapter 4, reflects a male dominance in communication spaces, shaping LGG’s emergence, as it is based on football references. Even if it does not exclude women, talking about football has been typically a preferred topic by men (Alegi 2010, 119). This seems to be a particularly productive domain for new lexicon in LGG, not only in extending colour terms, as just mentioned, but for country name signs as well.

In the sequential emergence of the initial colour terms, the most basic ones – after the two more basic based on gestures - depict the jerseys of the three leading football clubs in Portugal, the preferred league in Guinea-Bissau, as suggested by Bitchala and Caetano (2023, 11). At the same time, signs for countries are assigned based on the sign names for famous football players from the respective countries, and sometimes, with polysemy, such as ‘Brazil’ also for ‘yellow’.

Interactional patterns in West African countries seem to be similarly divided by gender as a consequence of social segregation rather than educational choices. Guinea-Bissau reflects such social partition at the linguistic level. In addition to the variation in narrative structure described in Morgado (2024), it is also reflected in the lexicon. Like in Malian SL, the semantic domain of toponyms is characterised by football-based motivations. As such, LGG and LaSiMa present a new case of gendered patterns in sign languages, i.e., as cases of sign language lexicons with iconic patterning that reflects, at least in part, a male-centric history of emergence and use.

#### 5.4.2 Early expansion of sign families

The description of the emergence and expansion of a signed lexicon grounded on a gestural stock presented in this thesis is unique. Almost no other sign language has been documented from such an early juncture, and with a specific focus on gestural roots. The account here is supported by a diachronic record of signs covering the first two decades of language emergence. Out of the set of signs-from-gestures, I found that three-fourths of them extend semantically through compounding or derivation, and half of them give rise to large families of signs, containing both compounds and derivatives.

Diachronic records of LGG show how sign families rooted in gestures develop in an early stage. Overall, compounding is the most productive mechanism of lexical growth, though derivation is also progressively activated over time. When being recruited from gestural sources as signs, certain forms are more likely to combine in compounding, while others will tendentially modify in derivation. Good examples of such forms are the signs for 'work' and 'sick', combining with other signs to designate their hyponyms, i.e., kinds of professional activities and diseases. Otherwise, certain areas are systematically expressed by the semantic relationships between compound members. For instance, the expansion of people-related terms will consistently combine with the sign for 'man', 'woman', the height specifier, or 'child'.

In addition, this thesis documents, for the first time, the early expansion of paradigms based on phonomorphemes in a sign language. In particular, it tracks the diachronic growth of body-based locations, such as the forehead for cognition-related terms, the heart for feelings, and the mouth for communication. Similarly, it follows the development of specific handshapes, like those representing cutting tools and claws, in LGG over time, mainly through derivational processes.

### 5.4.3 Grammaticalisation of 'hit'

The analysis of the expansion of the LGG lexicon also reveals how it grows by extending into grammatical functions. The most striking case of grammaticalisation from a conventional gesture in LGG is the one based on the snapping fingers for 'hit'. Besides representing a highly conventionalised gesture in Bissau, it is documented in the latest dictionary as 'hit', and as a comparative marker in 'than' and 'better'.

The fact that signers, in the case of HIT, integrated a highly conventional gesture directly into the lexicon in form and meaning, corroborates its lexicalisation before its grammatical extensions, as argued by Le Guen and colleagues (2020, 331–332). This particular grammaticalisation process indicates that it can emerge quite early in a new language.

To further explore the grammatical functions deriving from the gesture for 'hit', I collected 48 sentences from eleven deaf people, since paper dictionaries are limited to isolated lexical items. Some sentences include the verb-like sign for 'beating someone up', directly integrated from the conventional gesture, and its semantic extension to a more abstract sense of 'beating someone at something'.

The remaining sentences highlight how grammatical functions unfold. From the more abstract sense of competition between two parties, it turns into a grammatical particle to signify 'against', and also to express comparative degrees. Finally, it is used as an emphatic intensifier. The emergence of comparative and emphatic markers in LGG in such an early stage of lexical development coincides with recurring patterns found in other signed and spoken languages.

### 5.5 Future directions

There are many possible extensions of the information and research presented in this thesis. Looking ahead, it is crucial to look at different age groups of LGG to document further the establishment and growth of this new sign language. Generations of deaf children and young teenagers are being formed at this very moment in Guinea-Bissau, providing the necessary cohorts to study language change. Comparisons with a second cohort could begin at any time to better assess developing structures and look for innovative uses of sign language by younger signers.

The collection of conventional gestures in Bissau based on Nyst's work on West African gestures and their sign counterparts (2010a, 2013a, 2015) opens the door to pursue the documentation of a *gesturebund* in West Africa. In addition, as significant as the collection of signs in the three LGG dictionaries is, it is essential to examine the morphosyntactic behaviour of LGG in discursive contexts, where it will be possible to find different cases of grammaticalisation.

To deepen the understanding of a deaf community on the rise, it is necessary to know more about what moves the organisational dynamics in such initial stages. Only in this way will it be possible to provide the context for studying variation in LGG. This also draws attention to the demand for exploring sign language use in the rest of the country, where deaf people seem to gather in smaller numbers and where different varieties of LGG are likely to be found.

### 5.6 Concluding remarks

The deaf people of Bissau have developed great pride in the local origins of their sign language. In language use, gatherings seem to be

male-dominated, resulting in football references for colour and country signs. Overall, deaf signers make the most out of gesture sources, integrating directly most conventionalised form-meaning pairs and adjusting in form and meaning adopted signs from cooccurring gestures. Signers also use those gesture sources to expand the lexicon, whether as the basis of semantic fields or families of signed compounds and derivatives.

Reflecting on the sum of what has been learned in this thesis, we may be tempted to see the activation of universal mechanisms of language emergence, like in semantic hierarchies and the rapid lexical expansion, with the first generation of LGG signers. Notably, one cannot deny the contact of LGG signers with LGP, written Portuguese, spoken (and written) creole, and several local spoken languages. So, even if LGG exhibits a largely autochthonous lexicon, those language contacts may leave structural traces that do not appear in lexical choices.

The formation of a new sign language may be additionally influenced by regular gesture-based interactions and an increasingly shared world. Essentially, gestures as the interface between language modalities are likely to serve as a bridge between deaf people and the surrounding spoken languages. In this way, they represent a starting capital that is especially rich in West Africa, indicating that language is created out of everything and everywhere.



**APPENDIX 1: Chronology of school-based sign languages**

**Sign languages of the world that have emerged in schools**, in each column by continent – Europe, Americas (North, Central and South), Asia, Africa, Oceania, and the transcontinental region of the Middle East. Chronology is displayed from most recent to oldest, by decades. Dates based mainly on the Ethnologue (Eberhard et al. 2022) and the Glottolog (Hammarström et al. 2025) are expressly omitted because they are not always exact. As in Figure 4, the sign languages of Guinea-Bissau, Nicaragua and Israel are in bold.

	Europe	Americas	Asia	Africa	Oceania	Middle East
2010				São Tomé & Príncipe	Solomon Islands	
			Bhutanese Laos	<b>Guinea-Bissau</b>		
2000			Tibetan			
			Cambodian	Cape Verde Somali	Papua New Guinea	
1990		Honduran Salvadoran	Maldivian	Rwandan Malian Mauritania		
				Angolan Gabonese Burundi	Samoan	Kurdish Qatari
				Niger Sudanese		
1980				Lesotho Congolesse (D.R.) Gambian		Afghan Emirati
		<b>Nicaraguan</b> Panamanian		Central African Senegal Chadian		
		Bolivian		Togo Benin Cameroon		
			Georgian	Côte d'Ivoire Congolesse (Rep.) Namibian		Syrian
1970				Mauritian		
		Dominican	Armenian Azerbaijani Nepali Mongolian	Malawian Guinean Sierra Leone Tanzanian Mozambican		Yemeni  Jordanian Saudi Arabia
	Albanian			Ugandan Burkina Faso Nigerian		
1960		Paraguayan Guyanese		Liberian		
1950				Kenyan		Iraqi

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	Greek	Greenlandic		Ghanaian		Kuwaiti
	Maltese		Malaysian	Moroccan		Lebanese
			Penang	Ethiopian		
			Singapore	Eritrean		
		Ecuadorian	Thai	Zambian		
	Macedonian	Trinidad & Tob	Hong Kong	Libyan		
		Guatemalan		Zimbabwean		
1940	Bosnian	Haitian				
		Jamaican				
		Costa Rican				
		Venezuelan				
1930		Peruvian	Indonesian			<b>Israeli</b>
						Palestinian
1920		Colombian				Iranian
1910	Romanian	Uruguayan	Sri Lankan	Tunisian		
1900	Slovakian	Puerto Rican	Filipino			
	Turkish	Cuban	Burmese			
	Moldova					
1890	Bulgarian					
	Serbian		Taiwan			
1880	Valencian		Korean			
			Chinese	Algerian		
	Croatian	Argentine	Vietnamese			
1870	Hungarian		Japanese	Egyptian		
1860	Icelandic	Mexican				New Zealand
	Estonian					
	Latvian			South African	Australian	
1850		Brazilian				
	Finnish	Chilean				
1840	Slovenian					
1830	Lithuanian	Quebec	Indo-Pakistani			
	Italian					
1820	Norwegian					
	Portuguese					
	Flemish					
1810	French-Belgia					
	Polish	American				
	Irish					
1800	Swedish					
	Danish					
	Russian					
	Ukrainian					
	Catalan					
1790	Spanish					
	British					
	Dutch					
1780	Czech					
1770	Austrian					
	German					
	Swiss					
1760	French					
	<b>Europe</b>	<b>Americas</b>	<b>Asia</b>	<b>Africa</b>	<b>Oceania</b>	<b>Middle East</b>

**APPENDIX 2: LGG vitality score**

**LGG vitality score according to the UNESCO survey, adapted for sign languages by Webster and Safar (2019)**

SECTION I: Language vitality and endangerment within the reference community

FACTOR	SCORE
<p><b>1a. Overall vitality / endangerment score:</b> <i>Unsafe / vulnerable</i></p>	4
<p><b>1b. Most prominent threat to sign language:</b> <i>Government's indifference.</i></p>	
<p><b>2. Number of sign language users:</b> <i>~1700 deaf people (census 2009)</i></p>	
<p><b>3. Proportion of signers within the reference community:</b> <i>Only less than half, ~800, have access to the meeting places.</i></p>	2
<p><b>4. Generational or age-group language use (emerging sign language):</b> <i>All age groups use the language competently only if they have access to the meeting places and considering that the overall population is very young.</i></p>	5
<p><b>5. Domains of language use:</b> <i>Creole, native languages and Portuguese are used in most social domains and for most functions.</i> <i>The use of the target language was used exceptionally on television broadcasts for a few times in the beginning of the pandemic, but it is very present in deaf schools and community gatherings.</i></p>	4
<p><b>6. New domains, i. e., new media, including broadcast media and the internet:</b> <i>The sign language is sometimes used in new domains for entertainment purposes only.</i></p>	3

<p><b>7. Materials for language spread and education:</b>  <i>There are no video materials available to the community, except for a few informal videos made for entertainment purposes. Video materials and technical equipment to show videos to an audience are inexistent, even in deaf schools, where sign language is part of schooling.</i></p>	<p>0</p>
<p><b>8. Governmental and institutional language attitudes and policies, including official status and use:</b>  <i>Government and institutions do not recognize sign language. Even if it is supported in the education of deaf students, the need to use it as a means of accessing information in general is not recognized by the government yet.</i></p>	<p>0</p>
<p><b>9. Use of the target sign language in deaf education:</b>  <i>There are no particular language policies or guidance implemented in deaf schools, but the target sign language is used widely in an ad hoc way, and attitudes 'on the ground' are positive.</i></p>	<p>3</p>
<p><b>10. Reference community members' attitudes towards their own sign language:</b>  <i>All members that have access to the sign language value it and wish to see it promoted.</i></p>	<p>5</p>
<p><b>11. Type and quality of documentation:</b>  <i>There are two dictionaries. Video recordings exist in varying quality and with varying degree of annotation. The quality of documentation is thus fair.</i></p>	<p>3</p>
<p><b>12. Status of language programs:</b>  <i>Sign language is taught to deaf students without a formal curriculum and short training courses in sign language have been promoted on few occasions only to the teachers of the deaf. Since there is not a formal program, its status is still basic.</i></p>	<p>2</p>

## SECTION II: Linguistic diversity

**(a) External diversity, i.e., linguistic environment:**

**13. In everyday life, a typical deaf member of this community** *would use sign language and encounter written and spoken Creole and Portuguese and several spoken native languages.*

**hearing member of this community** *would encounter written and spoken Creole and Portuguese and several spoken native languages.*

**14. A typical deaf member of this community is fluent, at least partially, in sign language, written, and eventually spoken, Portuguese and Creole.**

**hearing member of this community is fluent, at least partially, in Creole, one spoken native language and Portuguese.**

**15. In the local schools attended by deaf children** *spoken Creole is tolerated, but it is used for instruction, together with Portuguese and sign language, these two are also taught as subjects.*

**16. In the local media** *Portuguese and Creole are represented on TV, print and internet. However, on radio, Creole is the most represented.*

*Sign language never appears on television, but it was used exceptionally for a few times in the beginning of the pandemic.*

*There is no official support and specific resources for the target sign language outside education.*

**(b) Internal diversity in the language:**

**17. This language is characterized by moderate internal (dialectal) diversity** *between different deaf schools.*

**18. A typical member of this reference community is fully or partially fluent in the dialect used by the school group.**

**19. In number of users** *the dialect of Bissau is adopted by the great majority.*

**20. In symbolic status and prestige** *the dialect of Bissau has higher status/prestige than all other dialects because it is used by the majority.*

**21. This sign language is characterized by high stylistic diversity, i.e., a variety of different registers and styles are commonly used in interaction.**



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## Summary

This thesis presents a unique account of the formation of a deaf community in the city of Bissau and the early emergence of its sign language, *Língua Gestual Guineense* (LGG). Documenting this emergence in real time since the early 2000s, the study traces how the community organised itself since the beginning and how signers expanded an emerging lexicon from local gestures.

The absence of a medically oriented approach to deafness enabled the growth of a free-signing deaf community in Guinea-Bissau. Schools and informal meeting places provided spaces for socialisation and awareness-raising, fostering collective pride that encouraged advocacy for LGG and greater social integration for deaf people.

To investigate whether and how LGG arose from a gestural base, this study elicited a repertoire of local gestures representing specific concepts. Methodologically, it is innovative in using small groups of hearing and deaf participants and in drawing on the metalinguistic expertise of deaf signers. The linguistic analysis compared the form and meaning of these gestures with early LGG signs documented in the three existing dictionaries (2005, 2006, and 2017). Results show that gestures entered the LGG lexicon largely unchanged, following three incorporation routes: direct integration of one gesture as one sign, integration of a few gesture variants as a few signs, and integration of many overlapping gestures entangled in form-meaning networks as many signs.

A large number of these signs-from-gestures became the starting capital for LGG's semantic, morphological, and grammatical expansion. Semantically, the development of kinship terms reveals how core family relations are grounded on gesture sources, often in combination, while relations beyond the nuclear family appear later, resorting, for instance, to initialisation. Such a diachronic sequence demonstrates the

early unfolding of an expected typological hierarchy. Similarly, colour terms expanded according to a typological sequence. In addition, the expansion of colour signs reflected sociolinguistic contexts where LGG has been developing, namely in male-dominated interaction spaces through football-based references. Morphologically, about half of the collected gestures expanded into families of signs via compounding and derivation. These processes, tracked in real time during the first two decades of sign language emergence, mirror patterns observed in other sign languages. While compounding proved to be the most productive strategy for lexical expansion—particularly in kinship and hypernyms— derivation was more frequent in signs rooted in meaningful body locations and handshapes. Grammatically, the case of the gesture-to-sign ‘hit’ in LGG is found to be similar to other signed and spoken languages, by extending from a main verb to comparative and emphatic functions.

Overall, this thesis demonstrates how deaf communities draw on surrounding gestures as cultural capital and how these gestural seeds of form and meaning drive lexical expansion, forging a new sign language out of everything and everywhere.

### **Samenvatting**

Dit proefschrift presenteert een uniek verslag van de vorming van een dovensamenleving in de stad Bissau en het ontstaan van haar gebarentaal, de Guinese gebarentaal (LGG). Het onderzoek, dat in realtime is gedocumenteerd sinds het begin van de jaren 2000, laat zien hoe de gemeenschap zich vanaf het begin heeft georganiseerd en hoe de gebaarders een ontluikend lexicon hebben uitgebreid met behulp van *gestures* (horende gebaren).

De afwezigheid van een medische benadering van doofheid in Guinee-Bissau maakte de groei mogelijk van een dovensamenleving die vrij communiceert door middel van gebaren. Scholen en informele ontmoetingsplaatsen boden ruimte voor sociale contacten en bewustwording, waardoor een collectieve trots ontstond die pleitte voor het gebruik van LGG en die een grotere sociale integratie van doven aanmoedigde.

Om te onderzoeken of en hoeverre LGG is ontstaan op basis van *gestures*, is in deze studie een repertoire aan *gestures* gebruikt die specifieke concepten representeren. Methodologisch is het vernieuwend omdat de studie gebruik maakt van kleine groepen horende en dove deelnemers en put uit de metalinguïstische expertise van dove gebaarders. De linguïstische analyse vergeleek de vorm en betekenis van deze lokale gebaren met de eerste LGG-gebaren die zijn gedocumenteerd in de drie bestaande woordenboeken (2005, 2006 en 2017). De resultaten laten zien dat de *gestures* grotendeels onveranderd in het LGG-lexicon terecht zijn gekomen, volgens drie integratieroutes: directe integratie van een *gesture* als LGG-gebaar, integratie van enkele *gesture*-varianten, en integratie van verschillende overlappende *gestures* die verweven zijn in netwerken van vorm en betekenis, als veel gebaren.

Een groot aantal van deze lokale gebaren geïntegreerd in de LGG werd het beginkapitaal voor de semantische, morfologische en grammaticale uitbreiding van de LGG. Semantisch gezien laat de ontwikkeling van verwantschapstermen zien hoe gebaren voor kernfamilierelaties gebaseerd zijn op gestures, vaak in combinatie, terwijl gebaren voor relaties buiten het kerngezin later verschijnen en bijvoorbeeld terugvallen op initialisatie. Deze diachrone opeenvolging toont de vroege ontwikkeling van een verwachte typologische hiërarchie. De termen voor kleuren breidden zich op dezelfde manier uit volgens een typologische hiërarchie. Bovendien weerspiegelt de uitbreiding van kleurgebaren de sociolinguïstische context waarin LGG zich ontwikkelde, namelijk in door mannen gedomineerde interactieruimten, wat gereflecteerd wordt in de vele voetbalverwijzingen. Morfologisch gezien heeft ongeveer de helft van de verzamelde gebaren zich uitgebreid tot gebarenfamilies door middel van samenstelling en afleiding. Deze processen, die in real time gevolgd werden tijdens de eerste twee decennia van het ontstaan van LGG, weerspiegelen patronen die waargenomen werden in andere gebarentalen. Terwijl compositie de meest productieve strategie bleek te zijn voor lexicale uitbreiding - in het bijzonder wanneer deze gerelateerd was aan verwantschap en hyperonymie - kwam afleiding vaker voor bij gebaren die geworteld waren in op het lichaam geplaatste en betekenisvolle handvormen. Grammaticaal gezien blijkt het geval van het gesture voor 'slaan' in LGG vergelijkbaar te zijn met andere gebarentalen en gesproken talen, door de uitbreiding van een hoofdwerkwoord naar vergeleken en bena-drukkende functies.

Globaal gezien laat dit proefschrift zien hoe dove gemeenschappen gestures uit de maatschappij gebruiken als cultureel kapitaal en hoe deze gestures, in vorm en betekenis, de lexicale uitbreiding stimuleren en zo een nieuwe gebarentaal smeden uit alles en overal.

## Resumo

Esta tese apresenta um relato único da formação de uma comunidade surda na cidade de Bissau e da emergência precoce da sua língua gestual, a Língua Gestual Guineense (LGG). Ao documentar esta emergência em tempo real desde o início dos anos 2000, o estudo traça a forma como a comunidade se organizou desde o início e como os gestuantes expandiram um léxico emergente a partir de gestos locais.

A ausência de uma abordagem médica da surdez na Guiné-Bissau permitiu o crescimento de uma comunidade surda comunicando livremente através de gestos. As escolas e os locais de encontro informais proporcionaram espaços de socialização e de sensibilização, fomentando um orgulho coletivo que incentivou a defesa da LGG e uma maior integração social das pessoas surdas.

Para investigar se e como a LGG surgiu a partir de uma base gestual partilhada por ouvintes, este estudo suscitou um repertório de gestos locais representando conceitos específicos. Metodologicamente, é inovador ao utilizar pequenos grupos de participantes ouvintes e surdos e ao recorrer à experiência metalinguística de gestuantes surdos. A análise linguística comparou a forma e o significado desses gestos locais com os primeiros gestos da LGG documentados nos três dicionários existentes (2005, 2006 e 2017). Os resultados mostram que os gestos locais entraram no léxico da LGG em grande parte inalterados, seguindo três rotas de incorporação: integração direta de um gesto local como um gesto da LGG, integração de algumas variantes de gestos locais como alguns gestos da LGG e integração de muitos gestos locais emaranhados em redes de formas e significados sobrepostos como muitos gestos da LGG.

Um grande número destes gestos locais integrados na LGG tornou-se no capital inicial para a expansão semântica, morfológica e gramatical da LGG. Semanticamente, o desenvolvimento dos termos de

parentesco revela como gestos para as relações familiares próximas se baseiam em fontes gestuais de todos, muitas vezes combinadas, enquanto gestos para as relações mais distantes surgem mais tarde, recorrendo, por exemplo, à inicialização. Esta sequência diacrónica demonstra o desenvolvimento precoce de uma hierarquia tipológica expectável. Do mesmo modo, os termos para cores expandiram-se segundo uma sequência tipológica. Além disso, a expansão dos gestos para cores reflete contextos sociolinguísticos em que a LGG se tem vindo a desenvolver, nomeadamente em espaços de interação dominados por homens, patentes em referências futebolísticas. Morfológicamente, cerca de metade dos gestos recolhidos expandiram-se em famílias de gestos através da composição e da derivação. Estes processos, acompanhados em tempo real durante as duas primeiras décadas de emergência da LGG, refletem padrões observados noutras línguas gestuais. Enquanto a composição provou ser a estratégia mais produtiva para a expansão lexical – particularmente quando relacionada com parentesco e hiperonímia – a derivação foi mais frequente em gestos enraizados em localizações corporais e configurações manuais com significado. Gramaticalmente, o caso do gesto local para ‘bater’ foi integrado em LGG de forma semelhante a outras línguas orais e gestuais, estendendo-se de um verbo principal para funções comparativas e enfáticas.

De um modo geral, esta tese demonstra como as comunidades surdas utilizam os gestos circundantes como capital cultural e como estas sementes gestuais de forma e significado impulsionam a expansão lexical, forjando uma nova língua gestual a partir de tudo e de todo o lado.

## Rusumu

Es tesi tene noba fresku di formason di kumunidade di surdus na sidadi di Bissau ku di nasimentu di si lingua gestual dedi sedu, ku ta tchomadu Lingua Gestual Guinensi (LGG). I kunsu fasidu dukumentu djanan dedi kunsada di anus 2000, es studu ta mostra manera ku es kumunidade di surdu sta organisadu dedi kunsada suma kilis ku ta papia ku gestus ku spadja gestus nobus ku kriadu pa kilis ku ta obi.

Sin atenson di medikus na kiston di surdes na Guiné-Bissau, i ta pir-miti omentu di kumunidade di surdu, kumunika di manera libri na gestus. Skolas ku lugar di nkontrus na rua djuda pa tene un spasu di mandjuandadi ku di sensiblisason ku ta tisi sintimentu di orgudju pa tudu i da forsa pa difindi LGG ku un garandi ntegrason di surdus na sosiedadi.

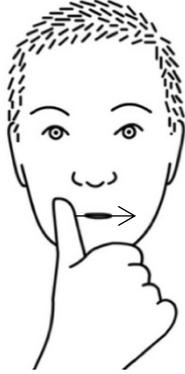
Pa nvestiga si kontra LGG kunsu ku un bas djuntadu ku kilis ku ta obi i kuma ki kunsu, es studu randja un lista ku gestus kriadus pa kilis ku ta obi ku ta fasi perti di sintidu spesifikus. Di manera metodologiku, djunta un grupu pikininu di partisipantis ku ta obi ku surdus i tamba pega na sperienza metalinguistika di kil surdus ku ta papia ku gestus i un kusa nobu. Analis di lingua kompara manera ku sintidu di kil gestus kriadus pa kilis ku ta obi ku purmerus gestus di LGG ku skribidu na tris disionariu ku ten (2005, 2006 i 2017). Rusultadus mostra kuma gestus kriadus pa kilis ku ta obi entra na palabras di LGG, na manga di parti sin muda, na tris kaminhus di entra ô nkorpora: Ntegrason diretu di un gestu kriadu pa kilis ku ta obi suma gestu propi di LGG, ntegrason di alguns variantis di gestus kriadus pa kilis ku ta obi suma utrus gestus di LGG, ntegrason di manga di gestus komplikadus kriadus pa kilis ku ta obi na ridi ku maneras ku sintidus riba di manga di gestus di LGG.

Manga di es gestus kriadus pa kilis ku ta obi ku pudu dentru di LGG bida puntu sentral di kunsada pa spadja sintidu, strutura ku gramatika

di LGG. Na sintidu di palabra, disinvovimentu di termus parentis ta mostra kuma ku gestus di relason di familia ku sta djuntu fundadu na gestus di djintis, manga di bias e ta konbina, kil gestus di utrus relasons ku ka sta djuntu ta bin dipus, si nõ bai djubi na izenplu di kunsada. Es sekuensia diakroniku ta mostra disinvovimentu di un ordi di kada tipu ku ta speradu dedi sedu. Na memu manera, termus pa koris spadjadu kunformu ordi di tipus. Alen di es, kriason di gestus di koris ta mostra kontestu di lingua na sosiedadi nunde ku LGG na disinvovi nel, suma na kaus di nterason nunde ku omis mas tchiu, mas forti na rifiri futbol. Di manera morfologiku, pertu di metadi di gestus ku skirbidu spadja na familia di gestus, pabia di komposison ku di derivason. Es prusesus ta kunpanha purmerus vinti anus di kriason di LGG, ê ta mostra padrons suma di utrus lingua gestual. Nkuantu komposison ta mostra kuma i manera mas prudutivu na spadja gestus - di manera partikular ora ku i tene relason ku parentis ku hiperonimia - dirivason i mas tchiu na gestus ku bin di lokalisason na kurpu ku konfigurason di mons ku sintidu. Na manera di gramatika, kasu di gestus kriadus pa kilis ku ta obi pa 'suta' i pudu na LGG di manera parsidu ku utrus linguas ku ta papiadu tambi ku lingua gestual, ku ta sai di un verbu prinsipal pa fasi funsons di konparason ku di nfatikas na LGG.

Di manera geral, es tesi ta mostra kuma ku kumunidades di surdus ta utiliza gestus di djintis ku dal boltia suma si kultura i kuma ku es simentis di gestus na manera ku na sintidu ta djuda omenta palabras, nventa un lingua gestual nobu ku tudu kusas na tudu ladu.

## Curriculum Vitae



Mariana's sign name

Mariana Martins was born in Lisbon, but she grew up in Angola and Mozambique. She graduated in linguistics in 1998 from the University of Lisbon, where she was introduced to the research of Portuguese Sign Language (LGP). She pursued her academic studies in deaf education, with a focus on culture, bilingualism and writing. She also taught (sign) linguistics at different universities in Lisbon.

In 2002, she started teaching at the Portuguese Deaf Association, namely written Portuguese to deaf adults and sign linguistics to LGP deaf teachers. She co-authored LGP dictionaries, especially aimed at deaf users; the LGP curriculum for deaf students of all school levels at the Ministry of Education; and the LGP adaptation of the Common European Framework of Reference for Languages. She also co-founded a publisher specialised in deaf-related topics, *Surd'Universo*.

With a particular interest in African countries, she has been documenting, since 2005, the emergence of the sign language in Guinea-Bissau. She co-authored two LGG dictionaries and further analysed such an emerging language in her PhD thesis at Leiden University in the Netherlands and in a few publications. She is often involved in projects empowering the deaf communities she works with, promoting deaf education and describing their sign languages.