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Published in:
Belgian Journal of Linguistics

DOI:
10.1075/bjl.00072.gab

Publication date:
2022

Document Version
Publisher's PDF, also known as Version of record

A corpus-based study of 'Away gestures' across four signed languages

DGS, LSC, LSFB and PJM

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This paper presents a study of four recurrent gestures: sweeping away, holding away, brushing away and throwing away. These forms have so far only been studied for spoken languages and are said to form the 'family of Away gestures', which is semantically motivated by the effect of actions of removing or keeping away of things. Our corpus-based study aims to investigate these forms in four sign languages: Catalan, French Belgian, German, and Polish. We select and study a data sample that lasts approximately three hours. Our findings reveal the frequency, functions, and the lexicalisation status of the forms across the four studied languages.

Keywords: sign language, recurrent gestures, away-family, multimodality, corpus linguistics, German Sign Language (DGS), French Belgian Sign Language (LSFB), Catalan Sign Language (LSC), Polish Sign Language (PJM)

1. Introduction

Over the past years, research on gestures in spoken languages (SpLs) has shown that they are not isolated items, but that some of them are related in terms of form, meaning and motivation. That is, "gestures may constitute larger coherent groups, structural islands, which are based on common aspects of form and meaning" (Bressem and Müller 2014, 1592). The notion of gestures as forming 'gesture families', distinguished on the basis of similar motivation and both articulatory and semantic characteristics of its members, was put forward by Kendon (2004):

> When we refer to families of gestures we refer to groupings of gestural expressions that have in common one or more kinesic or formational characteristics. [...]

https://doi.org/10.1075/bjl.00072.gab
Belgian Journal of Linguistics Volume 36 (2022), pp. 73–107. ISSN 0774-5141 | E-ISSN 1569-9676

> Within each family, the different forms that may be recognized, in most cases are distinguished in terms of the different movement patterns that are employed. Each family not only shares in a distinct set of kinesic features but each is also distinct in its semantic themes. The forms within these families, distinguished as they are kinesically, also tend to differ semantically although, within a given family, all forms share in a common semantic theme. (Kendon 2004, 227)

Following this claim, researchers have identified several gesture families, among which the most well-known are the Open Hand Supine Family (also known as Palm Up Open Hand (Kendon 2004; Müller 2004)) and the Open Hand Prone Family (Kendon 2004).

Members of the first family come with the shared semantic themes of 'offering' and 'receiving' (Kendon 2004; Müller 2004). They are based on basic actions of "giving, showing, offering an object by presenting it on the open hand", which serve as the derivational basis for all members of the family and are used to present an "abstract, discursive object as a concrete, manipulable entity" (Müller 2004, 233). The shared articulatory schema for the members of this family includes showing the palm of the hand while the hands produce a movement (forward, backward, lateral, or upward) or stay still in the neutral space. Members of this family have received a considerable amount of scholarly attention for both SpLs and signed languages (SLs). Palm Up Open Hand gestures have been thoroughly studied in Danish Sign Language (DTS) (Engberg-Pedersen 2002), American Sign Language (ASL) (Conlin, Hagstrom, and Neidle 2003), New Zealand Sign Language (NZSL) (McKee and Wallingford 2011), and Sign Language of the Netherlands (NGT) (van Loon 2012). Small-scale studies of these forms have also been carried out for German Sign Language (DGS) (Volk 2016), Russian Sign Language (RSL) (Bauer 2019) and Polish Sign Language (PJM) (Kuder 2022). Preliminary comparative corpus-based studies in French Belgian Sign Language (LSFB) and Catalan Sign Language (LSC) were also undertaken (Gabarró-López 2020), as well as analyses exploring the origin and relations of the gesture in signed and spoken communication (Cooperrider, Abner, and Goldin-Meadow 2018; Lepeut and Shaw 2022).

Both Calbris (2003) and Kendon (2004) state that one of the main functions of the members of the second mentioned family, the Open Hand Prone Family, is negation. These gestures are used "in contexts where something is being denied, negated, interrupted, or stopped, whether explicitly or by implication [and] share the semantic theme of stopping or interrupting a line of action that is in progress [or express] active physical refusal" (Kendon 2004, 248–249). The shared articulatory scheme of those gestures includes the palms of the hands facing away from the speaker's body and manifests itself in the movement of the hands that resembles "cutting something through, knocking something away or sweeping away

irregularities on a surface" (Kendon 2004, 263). Studying gestures used among the speaking communities in Naples and in the UK, Kendon identifies two members of this family: the vertical palm and the horizontal palm. The semantics that lie at the bottom of the vertical palm include "an intention to halt [...] a current line of action" (Kendon 2004, 251), while the horizontal palm meaning is more along the line of "some line of action [...] is being suspended, interrupted or cut off" (Kendon 2004, 255).

2. Background

2.1 The family of Away gestures

Building on the research described above, Bressem and Müller (2014) identify and describe the family of Away gestures as used by German speakers: "This family is semantically motivated by the effect of actions of removing or keeping away of things" (Bressem and Müller 2014, 1596). The shared articulatory feature between the four gestures constituting this family is the movement of the hand(s) during the gesture production. When it comes to the underlying semantics of these manual actions, they are "bound together by the themes of rejection, refusal, negative assessment, and negation" (Bressem and Müller 2014, 1596), which are all connected to the semantics of the underlying action scheme – the movement away from the body presupposes that "something that was present has been moved away or that something wanting to intrude has been or is being kept away from intrusion [and] the effect of the action is that the space around the body is empty" (Bressem and Müller 2014, 1596). The members of the family are labelled and defined as follows:

- Sweeping away: this can be a one-handed or a two-handed gesture in which the hand(s) is/are open, and the palm(s) is/are facing downwards. It is articulated with a decisive horizontal movement from the space in front of the body towards the sides, as shown in Figure 1.[1]

1. Definitions here are based on SpL data compiled by Bressem and Müller (2014). In order to avoid copyright issues with using the images from their article here and since our article is only concerned with SL data, our pictures are taken from the DGS, LSC, LSFB and PJM corpora instead.

Figure 1. The first and last phase of the SWEEP-AWAY gesture articulation. Stills from the LSFB Corpus

– Holding away: this can be a one-handed or a two-handed gesture in which the hand(s) is/are open and in a vertical position, resulting in the palm(s) facing and moving away in front of the speaker's body, as depicted in Figure 2.

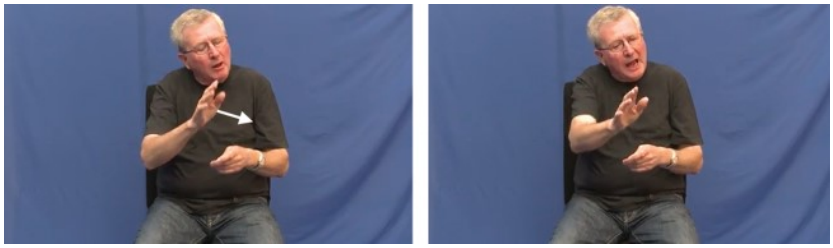

Figure 2. The first and last phase of the HOLD-AWAY gesture articulation. Stills from the DGS Corpus

– Brushing away: this is frequently articulated as a one-handed lax flat form. The speaker's palm faces their body, and the wrist is twisted with an outward movement, as illustrated in Figure 3 (for a two-handed form).

Figure 3. The first and last phase of the BRUSH-AWAY gesture articulation. Stills from the LSC Corpus

– Throwing away: this is frequently articulated as a one-handed (less frequently as a two handed) lax flat form. The speaker's palm is oriented away from their body and the wrist is bent making a movement downwards, as can be seen in Figure 4.

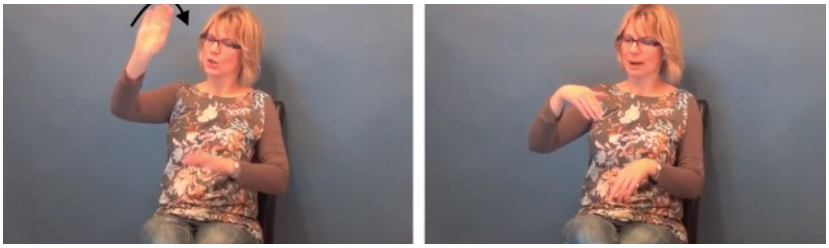

Figure 4. The first and last phase of the THROW-AWAY gesture articulation. Stills from the PJM Corpus

All of these are described as recurrent gestures. Recurrent gestures are not translatable into words or phrases, like emblems or quotable gestures, but show a stable form-meaning relation, which "recurs in different contexts-of-use over different speakers in a particular speech community" (Ladewig 2014, 1559). That is, recurrent gestures go through processes of conventionalisation (Bressem, Stein, and Wegener 2017), which make them good candidates for studying the emergence of signs from gestures (Bressem and Müller 2014).

These four gestures have attracted relatively little scholarly attention so far. Aside from the above-mentioned study of spoken German, the presence of all four gestures is also reported in Indonesian (Siahaan 2021). Sweeping and holding away gestures have been identified and described for Savosavo, a Papuan language spoken in the Solomon Islands in the Southwest Pacific (Bressem, Stein, and Wegener 2017, 178). Throwing, holding, and sweeping away have been identified and described for spoken French (Calbris 2003, 2011) and there is ongoing research of the role of throwing away in SpL discourse (Francis, Grosz, and Patel-Grosz 2022). As for SLs, Harrison (2018) compares some examples of wiping away gestures in spoken French with examples in French Sign Language (LSF), showing that some of the functions are found in the two languages of different modalities.[2] Furthermore, he claims that the status of wiping away forms in LSF

2. Although the wiping gesture is not described by Bressem and Müller (2014) for spoken German, it looks similar to Away forms. Harrison (2018, 160) defines it as a gesture originating in "the everyday action of using the open palm to remove or eliminate something from a surface, such as unwanted marks and stains". Some of its occurrences look like forms of sweeping away or holding away.

is two-fold: they are both found in the lexicon as conventionalised tokens or they can function as purely gestural forms, "[forming] a natural bond [...] in interaction" (Harrison 2018, 185). From a corpus-based perspective, Kuder (2022) compares the use of THROW-AWAY[3] forms in PJM, DGS and RSL and finds both differences and similarities in terms of frequency and function. However, to the best of our knowledge, all four Away forms together have not yet been thoroughly studied for any of the SLs of the world.

This paper aims to fill this gap by presenting the first corpus-based comparative study of Away gestures in four European SLs: DGS, LSC, LSFB, and PJM. These four languages were chosen due to the fact that naturalistic corpus data were available to the authors. The first author is a fluent signer and a researcher of LSC and LSFB, and the second author is skilled in conducting empirical research on DGS and PJM. Our research is motivated by the fact that forms that are referred to as 'recurrent gestures' in SpLs (like the above-mentioned members of the Palm Up Open Hand family or Stretched Index Finger forms) are present in and described for SLs, being among the most frequently used manual forms. When their use in SLs is compared to their use in co-speech gesture, it exhibits both differences and similarities (e.g., Cooperrider, Abner, and Goldin-Meadow 2018; Fenlon et al. 2019; Ferrara 2020; Lepeut 2020). Hence, these papers provide evidence of the fact that both spoken and signed languages are multimodal and that no clear-cut division can be drawn between some of the manual forms produced by speakers and signers. Put in other words, signers and speakers are 'living languagers' who have the same anatomical resources available and may use them to their full potential in face-to-face interaction while signing or speaking (Kendon 2014). Following these claims, the present study aims to address the following research questions:

- How often are Away forms used across the four SL samples?
- Which functions do Away forms express in SL discourse? Are they similar to or different from what has been reported for SpLs?
- Is the nature of Away forms gestural or conventionalised across the four SL samples?

Based on the previous studies about Away forms in both SpLs and SLs, we hypothesise that most of the functions of all four Away forms in DGS, LSC, LSFB and PJM will be associated with negation.

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3. According to the conventions of the SL literature, ID-glosses (i.e., words which are consistently used to identify signs throughout the corpus, regardless of their meaning in the context) are written in capital letters (Johnston 2019). We follow this convention when we present our results and discuss them in Sections 4 and 5. ID-glosses which are made up of more than one word are separated by hyphens.

Beyond the benefits that addressing these research questions may have for SL typology, this paper will eventually contribute to a new model of language that "accommodate[s] language as a mode of action, rather than treating it as an abstract, quasi-static social institution" (Kendon 2014, 12). Instead of "[r]elying largely on written examples and samples – rarely from spontaneous productions – and [only] on Indo-European languages" as formal approaches have traditionally done, cross-linguistic and cross-modal research using (naturalistic) interactional and multimodal data needs to be conducted (Gabarró-López and Meurant 2022, 170). Not only can this type of study shed light on how signers and speakers "do language" (Kendon 2014, 13) but also on how their communicative semiotic practices compare, which is something we know very little about (Ferrara and Hodge 2018; Müller 2018).

2.2 Overview of the languages and data sources

The four SLs under study are visual-spatial languages used by the Deaf communities in the respective countries or regions.

2.2.1 *German Sign Language (DGS)*

DGS (*Deutsche Gebärdensprache*) is used in Germany, Luxembourg and in the German-speaking region of Belgium. It is said to be used by at least 200,000 people in Germany, of whom about 80,000 are deaf (as stated by the German Federal Association of the Deaf; Paulus 2020). DGS officially dates back to 1778, when the first school for the deaf in Germany was established in Leipzig (Perniss 2007) but was recognised as a fully-fledged language only in 2002 by the means of Disability Equality Act.

Data for the German part of the present study were drawn from the Public DGS Corpus, which is the outcome of the DGS-Korpus project – a long-term (2009–2023) project run at the University of Hamburg (Jahn et al. 2018). Between 2010 and 2012, 560 hours of DGS signing were collected (Nishio et al. 2010). The raw video data, metadata, and annotations were stored in the iLex software, an annotation tool and lexical database that was designed as a multi-user application for annotation and lemmatisation of SL data at the University of Hamburg (Hanke and Storz 2008). Basic annotation of DGS files includes translation into German, lemmatisation, and annotation of mouthings and mouth gestures (Jahn et al. 2018, 83). In 2015 a subset of about 50 hours was made available as the Public DGS Corpus at <https://www.sign-lang.uni-hamburg.de/meinedgs/ling/start_en.html> (Konrad et al. 2020). It contains almost 400 episodes covering 18 different elicitation tasks ranging from experience reports of Deaf individuals to discussions, story retellings and jokes (Nishio et al. 2010).

2.2.2 *Catalan Sign Language (LSC)*

LSC (*llengua de signes catalana*) is used in Catalonia, the north-eastern autonomous region of Spain. The term to name this language was coined in 1988 to denote a different SL from that of the rest of Spain.[4] In 2007, Spanish Parliament passed a law in which Spanish Sign Language (LSE, *lengua de signos española*) and LSC were recognised even though they are not official languages. The Catalan Statute of Autonomy of 2006 also includes the right to use LSC, which is further reinforced by the bill approved by Catalan Parliament in 2010 to regulate the use of LSC in the areas of public life (Quer 2010). The linguistic situation of the Deaf Community differs from that of the hearing in that there is not a situation of bilingualism between LSC and LSE: signers living in Catalonia only use LSC together with written/spoken Catalan and Spanish (Barberà 2012).[5] LSC has three different varieties: west, central, and coastal, although some authors, such as Frigola (2010), distinguish a fourth variety, which is the one used in Menorca (Balearic Islands).

In 2014, the LSC Corpus project started, from which we extracted a sample for the present paper. The LSC Corpus (Institut d'Estudis Catalans, forthcoming) contains 42 informants who were recorded at their deaf club in six different places of Catalonia. Three pairs of signers from each location participated in the study. These pairs belonged to different age groups (namely 18–29, 30–49 and 50–80) and were made up of a man and a woman in order to achieve a balance in terms of age and gender (Barberà, Quer, and Frigola 2015). Each pair of signers performed 8 different tasks, guided by a deaf moderator, in order to elicit different discourse types (i.e., argumentative, explicative, descriptive and narrative) in a dialogical setting (Barberà, Quer, and Frigola 2015).

2.2.3 *French Belgian Sign Language (LSFB)*

LSFB (*langue des signes de Belgique francophone*) is used in Wallonia (the Southern region of Belgium). It is also used in Brussels, where it co-exists with

4. According to Frigola (2010), the difference between the two languages started to be noted in a national theatre event that took place in 1978 in which Spanish deaf people in the audience sometimes struggled in understanding Catalan deaf actors (Frigola 2010). Although LSC and LSE are mutually intelligible, it is estimated that the similarity between their lexicons oscillates between 59% and 70% (Parkhurst and Parkhurst 1998 as cited in Gras Ferrer 2006).

5. Deaf LSC signers use mouthings in Catalan or Spanish. Since using Catalan was forbidden in schools during the Francoist dictatorship, most Deaf people who attended school before the 1980s only had access to Spanish and to this day use mouthings in this language. Younger generations use more Catalan mouthings, even though the choice of Catalan or Spanish remains an issue of personal preference.

Flemish Sign Language (VGT, *Vlaamse Gebarentaal*), the SL of Flanders (the Northern region of the country). These two SLs have a common predecessor, namely Belgian Sign Language, which existed before the federalisation of the country in 1970. Then, the National Deaf Association split into two institutions, which since then have organised their own activities resulting in less and less frequent contacts between deaf signers from the northern and southern regions (Meurant et al. 2013). LSFB was recognised by decree of the Parliament of the French Community of Belgium in 2003. It has seven principal variants: four from the region of Brussels (Berchem-Sainte-Agathe, Bruxelles-Ville, Uccle and Woluwé), one from Liège, one from Ghlin and one from Bouge; which correspond with the places where the first schools for the deaf were established (Sonnemans and Haesenne 2009).

LSFB has a reference corpus (Meurant 2015), accessible via <https://www.corpus-lsfb.be/>, which contains 150 hours of video data produced by 100 signers. Deaf signers came in pairs to the studio based at the University of Namur. Their conversations were guided by a deaf moderator in order to elicit a wide range of discourse types, namely argumentations, narrations, descriptions, explanations and metalinguistic productions (there is a total of 19 different tasks, except for older signers for whom the number of tasks was reduced). The selection of participants was based on the different regions where LSFB is used, seeking a balance in terms of gender (57% women and 43% men) and age (i.e., the following age groups were represented: 18–25, 26–45, 46–65 and 66 and older).

2.2.4 *Polish Sign Language (PJM)*

PJM (*polski język migowy*) is an endangered language used by the Deaf community in Poland and the main vessel of Deaf culture in the country. PJM officially dates back to 1817 (Tomaszewski and Piekot 2015), when the first school for the deaf was established in Warsaw. PJM is said to be related to French Sign Language (LSF) and American Sign Language (ASL) (Świdziński 2018). The exact number of users is not easy to establish but is estimated to exceed 50,000 (Świdziński 2014).

PJM first became a research interest of linguists in the 1990s (Farris 1994). An informal research group established at the University of Warsaw started growing and in 2010 a Section for Sign Linguistics (SSL) was distinguished in the structures of the Faculty of Polish Studies as the first academic institution scientifically studying PJM.

Data for the Polish part of the present study were drawn from the PJM Corpus, created by the SSL team between 2010 and 2020 (Rutkowski et al. 2017). During the project's development recordings, conversations from 150 Deaf PJM signers from all over the country were elicited. The group of informants was bal-

anced with respect to age, place of origin and gender. All the recordings taken together are approximately 565 hours in length. The elicitation scenario contained approximately 24 tasks that the informants were asked to complete in a face-to-face conversation context (Kuder et al. 2022). The elicitation materials used in the PJM Corpus project were designed in close collaboration with the DGS Corpus team (Nishio et al. 2010). All the collected data was backed up, stored on the University of Warsaw servers, and annotated in the iLex software (Hanke and Storz 2008). During the annotation process, a team of Deaf and hearing annotators distinguished 687,971 sign tokens (which were grouped into 15,384 sign types) and inserted 1,340,536 additional tags. In a later stage, 67,698 PJM utterances were translated into written Polish (Kuder et al. 2022). This places the PJM Corpus among the most extensive archives of this type worldwide. In 2020, after the first phase of the project creation was finished, a significant part of the corpus material (recorded videos with embedded written Polish translations) was made publicly available as the Open Repository of the PJM Corpus, at <www.korpuspjm.uw.edu.pl/en> (Wójcicka et al. 2020).

3. Method

This section is devoted to the description of the four data samples which were selected (3.1), the annotation procedure (3.2) and the taxonomy of the functions of identified gestures (3.3). In the latter sub-section, we also present the pilot study and the inter-annotator agreement test which were conducted prior to the beginning of the functional annotation.

3.1 Data samples

For the purposes of the present study, we extracted comparable data samples from all four corpora described above. From each repository we inspected the signing of 6 pairs of informants. All inspected texts were dialogical and balanced in terms of duration. From the DGS, LSC and LSFB corpora, we extracted texts in which the informants talked about their personal experiences as deaf people, shared their opinions about a given historical event or had a discussion about an issue presented by the moderator. The texts extracted from the PJM Corpus included two types of elicitation tasks. In the first one, both informants had to work together to arrange two meetings by using calendar sheets presented to them. In the second one, participants were shown unusual warning and prohibition signs and were asked to work together to try to come up with possible explanations of their meaning. The shortest dialogue lasts 5 mins and 39 sec, and all

four samples taken together last 2 hrs 45 mins and 52 sec. The overview of the samples from all four repositories is presented in the Appendix (see Tables 8–11).

3.2 Annotation

The selected samples were annotated in the ELAN software (Crasborn and Sloetjes 2008). All the files chosen for the study had previously received a basic annotation (Johnston 2019), which means that they were segmented, ID-glossed, and translated (to different extents) into the national language of the country in which they were created (only the DGS files were additionally translated into written English). Building on this basic annotation, an annotation template was created in order to single out and describe all occurrences of the four manual forms targeted in the present study. The template included five annotation tiers, an overview of which is presented in Table 1.

Table 1. Presentation of the created ELAN annotation template

Tier's name	Tier's purpose	Controlled vocabulary
Type_Away	Identifying the type of Away form.	SWEEP – sweeping away BRUSH – brushing away HOLD – holding away THROW – throwing away
Hands_Away	Describing whether Away forms were produced with one or both hands.	1H – one-handed occurrence 2H – two-handed occurrence
Status_Away	Distinguishing whether Away forms were produced as gestures or as lexicalised forms.	GEST – gestural occurrence LEX – lexicalised occurrence
Functions_Away	Describing the function of Away forms in the given context.	See Section 3.3 for an overview.
Comment	Adding relevant information to Away forms.	N/A (open vocabulary)

The first round of annotation consisted in the initial screening of the chosen files in order to single out all occurrences of the four Away forms. The LSC and LSFB files were inspected by the first author and the PJM and DGS files were inspected by the second author. During this round of annotation, we identified the type of manual activity, the number of hands used during the production and the status of the occurrence. The status was decided on the basis of the pre-

existing corpus annotations. If a given occurrence was annotated with a lexical ID-gloss, the tag 'LEX' was used, if the occurrence was annotated as a gesture, the tag 'GEST' was inserted.

After this round was completed, the files were swapped between the researchers for double checking and ensuring consistency in annotation. As some of the forms we came across during the initial data screening were ambiguous, this step was needed in order to make sure that the same forms were annotated through all files and that the same criteria were used. We followed the definitions created by Bressem and Müller (2014) for the four Away gestures, adding some room for the variation observed in SLs:

- Sweeping away: cases in which the palms were not completely facing downwards or were almost in vertical position were included as long as a decisive outward movement was produced (cases with an arch or a circular movement were excluded).
- Holding away: cases in which the hand(s) was/were moving towards the signer's body were excluded; only cases with at least a very slight forward movement and without any wrist movement at the end of the production were annotated.
- Brushing away: cases with both an outward and inward movement produced together with a rapid twist of the wrist were annotated.
- Throwing away: cases of a phatic gesture attracting the interlocutor's attention were excluded, as their underlying semantics is not related to the Away family.[6] Only cases with a clear downward movement were annotated.

Once all the files were cross-checked and agreement was reached regarding which forms to include in and exclude from the study, we moved into the functional annotation of all identified occurrences.

3.3 Taxonomy of functions

Our taxonomy of functions was created based on existing literature on the topic for SpLs (Bressem and Müller 2014, 2017; Bressem, Stein, and Wegener 2017) and

6. Bressem, Stein, and Wegener (2017, 202) mention the fact that in Savosavo "gestures resembling the form of the throwing away gestures turned out to be gestures of beckoning rather than throwing away". Due to the fact that they are not semantically related to the Away family, these were not included in the cited study of Away gestures. Phatic gestures attracting interlocutor's attention used by signers fall in the same category: their form might appear similar to throwing away, but the aim of using the beckoning gestures is to move things or ideas close(r) to the body, while the aim of using the Away forms is to keep ideas or object far from the speaker's/signer's body.

a pilot study of the functions of THROW-AWAY in SLs (Kuder 2022). The taxonomy contains 20 functions, which are summed up, defined, and paraphrased (for additional clarity) in Table 2.

Table 2. Taxonomy of functions for the annotation of Away forms

Function	Definition	Paraphrase
Annoyance	Showing irritation or impatience about what is being signed	'Leave me alone'
Appeasement	Ending a disagreement or conflict, trying to reconcile two or more parties	'Calm down' / 'Easy' / 'There, there'
Completion	Marking the end of an event or action. Sometimes, the sign is used to connect the two parts of a sentence/chunks of discourse.	'That's it' / 'When that was finished, something else happened'
Contrast	Marking the difference between two or more things	'But' / 'On the contrary'
(Self-)Correction	Marking that what was said is not accurate and will be replaced/corrected	'Let me start again' / 'No, I'm/you're wrong' / 'That's not right'
Disagreement	Lack of agreement with the interlocutor	'I don't agree with you'
Exclusion	Putting aside a part of the topic (e.g., part of the group) or preventing someone/something from entering	'This is not part of the group' / 'You are not welcome (here)'
Exhaustive quantification	A token that covers all elements of a given category	'All of it, without exception'
Insertion	Introducing a parenthesis in the discourse	'On a different note' / 'Let me add, that' / 'Anyway'
Interruption	Stopping the interlocutor's discourse or ongoing action, trying to cut in	'Wait' / 'Stop'
Lack of interest / dismissal	Not willing to put one's attention into something, not wanting to be involved in something	'I don't care' / 'That's not interesting/not important'
Negation	A token that changes the polarity of the clause or a negative answer/comment on what is being signed	'Not' / 'No'
Negative assessment	Expresses the signer's negative stance towards what they just signed	'That is [bad; awful; unacceptable; exhausting etc.]' / 'This bothers me'

Table 2. *(continued)*

Function	Definition	Paraphrase
Positive assessment	Expresses the signer's positive or neutral stance towards what they just signed	'That is [okay, like this, etc.]' / 'Don't worry about that'
Powerlessness	Showing that the signer or somebody else is unable to deal with something	'I don't know what to do with this' / 'I can't do anything about it'
Rejection / refusal	Not wanting to pursue a topic of conversation, dropping a topic (one's own or the interlocutor's utterance) or refusing to talk about something	'I don't want to talk about that'
Removal / getting rid of	Putting aside physical things or objects	A lexical sign conveying the meaning of putting something away.
Stopping	Preventing somebody from starting an action	'Don't start' / 'Wait' / 'Hold on'
Turn/topic ending	Concluding a turn or a topic or not wanting to sign more	'I don't have anything else to say about this' / 'My turn is over'
Other	When none of the previous functions applies	N/A

Before starting the annotation of functions in the four samples, we decided to carry out an inter-annotator agreement test to see if the taxonomy was robust enough to be consistently applied to a data sample by different annotators. A DGS file was chosen as only the DGS Corpus (out of four studied corpora) has English ID-glosses and translations embedded in its files, which makes it accessible to both authors. DGS is also the only language in the sample that none of us is fluent in, which makes us equal when analysing the data.

The selected file was DGS_goe_08, which features two informants abbreviated as goe_08_A and goe_08_B (see Appendix 1 for an overview of the sampled files and the signers involved). Twenty forms belonging to the Away family had been identified in the first stage of annotation and we individually assigned a function to each token. Afterwards, Cohen's kappa (which is a measure for inter-rater reliability) was calculated at 0.471, which constitutes a moderate agreement (Landis and Koch 1977, 165). In order to improve this level of agreement, we re-discussed the taxonomy and refined the definitions and paraphrases. After that, another annotation trial was performed. The file selected this time was DGS_fra_06, featuring fra_06_A and fra_06_B. Twenty-six forms of the Away family had been identified in the first stage of the annotation process. After assign-

ing the functions individually to each token, Cohen's kappa rose to 0.620. As the nature of the study is exploratory, not experimental, the achieved level of substantial agreement (Landis and Koch 1977, 165) was judged as satisfactory here, so we proceeded to annotate all the files. Again, the first author analysed the LSC and LSFB data and the second author the DGS and PJM data.

4. Results

This section is divided into three parts. For the four Away forms, their frequency (4.1), functions (4.2) and degree of lexicalisation (4.3) are described across the four SL samples. We also provide some examples of the most frequent functions for the reader's convenience, and also list the ID-glosses of those forms that do not fit into the taxonomy of functions.

4.1 Frequency of the Away forms across SL samples

Figure 5 shows the distribution of the four Away forms across the four SLs in the analysed samples. In decreasing order, 148 tokens were identified in DGS (i.e., 3 tokens per 100 signs), 131 in LSC (2/100), 106 in PJM (2/100) and 82 in LSFB (2/100). Although the four forms – SWEEP, BRUSH, HOLD and THROW – were found in the four samples, the number of tokens of each form varies across SLs. The most frequent form in DGS, LSFB and PJM is THROW. Conversely, THROW is the least frequent form in LSC, where SWEEP has the highest number of tokens.

The number of Away forms across all four SLs does not seem to be influenced by the inspected text types. Even though PJM data were slightly different in character as compared to DGS, LSC and LSFB texts (see Section 3.1), the total number of Away forms in the PJM sample is similar to the other three samples. Furthermore, the four SLs show different distributions of the four forms, which also indicates that the text type may not be a factor of variation in this respect.

There are four cases in DGS and two in LSC which were annotated as 'mixed forms', that is, they combine the handshape of two Away forms. The presence of mixed forms is not surprising in light of what the literature reports about recurrent gestures in SpLs. Bressem, Stein, and Wegener (2017, 200) point out that "two recurrent gestures can be fused to build a complex gesture [...] combining or blending the meaning of the two simple gestures". We observe one case of fusion between SWEEP and PALM-UP and three cases of fusion between BRUSH and THROW in DGS (see an example in Figure 6). In LSC, SWEEP connects to BRUSH once and BRUSH once connects to THROW. This number of occur-

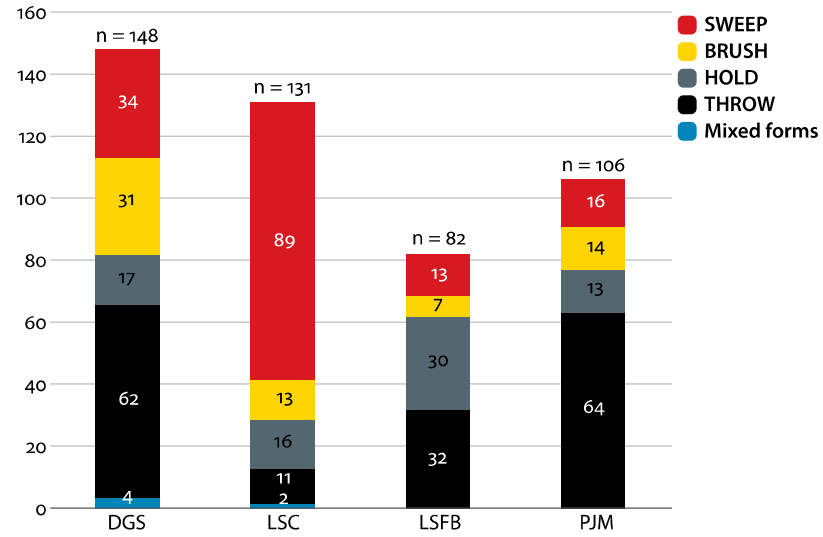


Figure 5. Distribution of Away forms across the four SLs

rences is not enough to allow for meaningful generalisations about the nature of mixed gestures, so future research focused specifically on such forms would be informative.

Figure 6. An example of a mixed form (BRUSH + THROW). Stills from the DGS Corpus

When it comes to the number of hands involved in the articulation of each form, two-handed forms are preferred for SWEEP in all four language samples. BRUSH, HOLD and THROW are most frequently articulated with one hand and this preference is consistent throughout language samples (as shown in Figure 7).

4.2 Functions

All the functions previously described in the literature on SpLs (Bressem and Müller 2014, 2017; Bressem, Stein, and Wegener 2017) and in the pilot study of

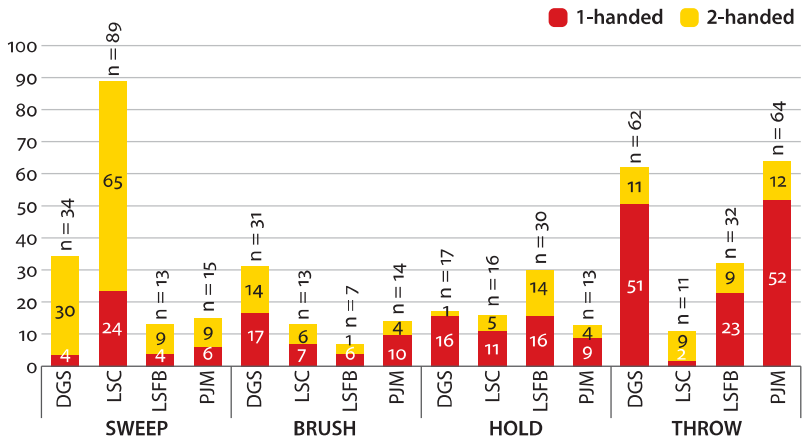


Figure 7. Frequency of 1- and 2-handed occurrences of the four inspected forms

THROW-AWAY in PJM, DGS and RSL (Kuder 2022) were found in at least one of the SLs studied in this paper (see Table 3).

Table 3. Overview of functions of Away forms in DGS, LSC, LSFB and PJM

Functions	DGS				LSC				LSFB				PJM				
	SWEEP	BRUSH	HOLD	THROW	SWEEP	BRUSH	HOLD	THROW	SWEEP	BRUSH	HOLD	THROW	SWEEP	BRUSH	HOLD	THROW	SUM
Annoyance	0	0	0	1	0	0	0	0	0	1	0	5	0	0	0	0	7
Appeasement	0	0	0	2	0	0	0	0	0	0	2	1	0	0	0	3	8
Completion	6	1	0	1	66	4	0	0	6	0	0	0	3	1	0	1	89
Contrast	0	0	0	3	0	1	5	0	0	0	6	0	0	0	0	0	15
(Self-)Correction	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	4
Disagreement	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	4
Exclusion	1	1	2	3	0	2	0	0	0	1	1	0	0	0	3	0	14
Exhaustive quantification	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	3
Insertion	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Interruption	0	1	3	0	0	0	3	0	0	0	0	0	0	0	1	0	8
Lack of interest / dismissal	0	2	0	9	0	0	0	0	0	1	0	11	0	0	0	3	26
Negation	20	9	0	1	14	2	0	0	4	0	0	0	9	0	0	3	62
Negative assessment	1	1	0	16	2	0	0	0	0	0	2	1	0	0	0	25	48
Positive assessment	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	3

Table 3. *(continued)*

Functions	DGS				LSC				LSFB				PJM				
	SWEEP	BRUSH	HOLD	THROW	SWEEP	BRUSH	HOLD	THROW	SWEEP	BRUSH	HOLD	THROW	SWEEP	BRUSH	HOLD	THROW	SUM
Powerlessness	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
Rejection / refusal	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	3	8
Removal / getting rid of	1	1	0	4	0	0	0	0	0	0	5	4	0	6	0	1	22
Stopping	0	0	1	0	0	0	6	0	0	0	1	0	0	0	3	0	11
Turn/topic ending	0	0	0	1	7	0	0	0	2	0	0	0	0	0	0	3	13
Other	5	14	11	15	0	1	2	11	0	4	13	10	2	2	5	18	113
SUM	34	31	17	62	89	13	16	11	13	7	30	32	15	14	13	64	461

Following existing literature on the use of the Away forms in SpLs and SLs (see Section 2.1), we hypothesised that the underlying semantics of these four forms in the four languages under study would be associated with rejection, refusal, negative assessment, and negation. This turned out to be partially true. Negative functions that were most commonly associated with the Away forms in our study were negation (62 cases), negative assessment (48 cases), lack of interest (26 cases) and removal (22 cases).

However, not all functions associated with negation are frequently expressed by Away forms. Annoyance was identified only 7 times, disagreement 4 times, (self-)correction also 4 times, and powerlessness 2 times. Interestingly, the most and the least frequent functions identified in the present study are not associated with negation. The most frequently occurring function was completion with 89 cases across the four languages. The least frequently identified function was insertion, used to introduce a parenthesis in the discourse – only 1 occurrence in the whole dataset. Positive assessment and exhaustive quantification were both present (each one 3 times). The text type may have influenced the use of two functions in PJM, namely negative assessment (25 cases in PJM vs. 18 in DGS, 2 in LSC and 3 in LSFB) and rejection (8 cases in PJM vs. no cases in the other SLs). However, additional data should be analysed to support or refute this observation.

Regardless of the language in which the four forms occur, SWEEP is most frequently associated with completion (because of a very high number of occurrences in LSC) and then negation (for which the numbers of occurrences across the four SLs are more similar). For BRUSH, HOLD and THROW the most commonly occurring function was 'other'. The second most frequent one was negation

for BRUSH, contrast for HOLD, and negative assessment for THROW. In what follows, we present examples illustrating some of the most frequent forms and functions.[7]

In DGS, the most frequently occurring pairing is SWEEP conveying negation (even though THROW is the most frequently occurring Away form). In Example (1), the signer is agreeing with the interlocutor on the fact that they both stay in touch with very few people these days. In the excerpt 'a lot of people' is negated by the means of a sentence-final SWEEP.

(1)

Index$_1$	VIEL	index	index$_1$
Index$_1$	MUCH	index	index$_1$

VIEL	index	NICHT (sweep-away)
MUCH	index	NOT (sweep-away)

'I only have very few people on my contact list, too.'
koe_13_free_conversation: 02.24.080–02.26.580

7. Each example follows the same transcription pattern:

- ID-glosses in the written language of the country in which the corpus was created;
- ID-glosses in English;
- English translation;
- corpus address of the excerpt: file name and timecodes.

When a particular occurrence of the Away forms was annotated in the corpus as a lexical item it is shown in the example as: ID-GLOSS(away-form). When Away forms were annotated in the corpus as gestural items, they are transcribed as AWAY-FORM (gesture). Other symbols and abbreviations used are explained below:

- +++ – repetition of a sign;
- index$_1$ – pointing indicating first person pronoun;
- index – pointing indicating non-first person pronoun;
- PT:PRO1-2H – pointing (PT) indicating first person pronoun (PRO1) articulated with the two hands (2H);
- PT:DET – pointing functioning as a determiner;
- SIGN-NEG – negative form of a given sign;
- / – sentence boundary.

In LSC, the most frequent form is SWEEP expressing completion. In Example (2), the signer is recounting a school memory and how he struggled during his studies. This excerpt also illustrates a token of BRUSH expressing negation.

(2)




DESPRÉS	SWEEP-AWAY(gesture) /	ESTUDIAR+++	BÉ
AFTERWARDS	SWEEP-AWAY(gesture) /	STUDY+++	GOOD




ESTUDIAR /	JA	COMENÇAR	RES(brush-away)
STUDY /	ALREADY	START	NOTHING(brush-away)

'Afterwards, that situation ended. I got better at studying because at the beginning I couldn't do anything.'
CORPUS 00004 KD G 130830: 05.29.187–05.33.527

In LSFB, the most frequent form-function pairing is THROW with lack of interest. In Example (3), the signer is explaining how she behaves with some deaf people who do not belong to the Deaf Community. Interestingly, the same ID-gloss is used twice but its articulation changes, i.e., it is articulated as a HOLD (expressing negative assessment) and as a THROW, respectively.

(3)




AUSSI	PT:DET	ASSEZ-NEG	LAISSER(hold-away) /
ALSO	PT:DET	ENOUGH-NEG	LEAVE(hold-away) /



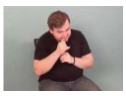
PT:PRO1-2H	FALLOIR	LAISSER(throw-away)
PT:PRO1-2H	MUST	LEAVE(throw-away)

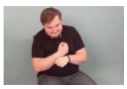
'Besides, if the person isn't very smart, I leave them aside. I don't pay attention to them.'
CLSFB2104A_S045_B: 05.58.657–06.01.347

In PJM the most common pairing is THROW conveying negative assessment. In Example (4) the signer expresses his feelings towards the fact that his interlocutor has pre-made plans with his grandfather and therefore cannot meet with the signer for a cup of coffee.

(4)





DZIADEK	IGNOROWAĆ	NIE-MÓC/	PALM-UP	THROW-AWAY(gesture) /	SZKODA
GRANDPA	IGNORE	CANNOT/	PALM-UP	THROW-AWAY(gesture) /	PITY

'You cannot ignore your grandpa? That's a shame.'
K75BF01-12_07: 08:32:406–08:35:372

The Away forms which were not assigned a function from the taxonomy (i.e., which were annotated as 'other') were identified as lexical signs (see Table 4). Since not all SL signs are iconically motivated and their articulation may be arbitrary, some of them look like the Away forms but their semantics are not related to

negation or refusal (i.e., they show polysemy). Bearing in mind that we are comparing different languages, it is not surprising that there is a lot of variation in the ID-glosses presented below.

Table 4. ID-glosses which were annotated as 'other' with their token counts

Away forms	DGS	LSC	LSFB	PJM
SWEEP	FULLY (1) END (1) STILL (1)			FLAT-SURFACE (2)
BRUSH	BEEN (4) MORE (3) LOST (2) FLY-AWAY (1) RELAXATION (1) BODY (1)	GO (1)	GO (3) LEAVE-PLACE (1)	'AWU' (idiom meaning 'to be disappointed') (2)
HOLD	BELONG (8) STAY (1)	OH (3)	BELONG (13)	HAVE (3) CHARACTER (1)
THROW	LET (2) BAD (2) OVER/ABOUT (1) STAND (1) WEST (1) OFF (1) RIGHT (1) TAKE (1)	FINAL (9) Sign-searching gesture (1)	AFTERWARDS (10)	MAYBE (4) CATCH (3) ALLOWED (2) CAN (2) RAIN (1) AFTERWARDS (1) PROTECTION (1)

Although some ID-glosses may seem related to some of the functions of the taxonomy, their grammatical status and use are different. For instance, FINAL in LSC may seem related to the function of topic ending, but this sign is used at the beginning of utterances as a sequencing discourse marker meaning 'in the end'.

4.3 Degree of lexicalisation

The ratio of all lexicalised tokens to gestural tokens in all four language samples is presented in Table 5. There is a visible difference between LSC and LSFB on the one hand and DGS and PJM on the other. In LSFB, and especially in LSC, the degree of lexicalisation of manual elements belonging to the Away family seems to

be higher. In DGS, and PJM especially, the Away elements seem to have retained their gestural nature to a greater extent. If the annotations present in the corpora can be taken at face value, we might be witnessing lexicalisation or at least conventionalisation of gestural elements in (at least two out of the four studied) SLs. These differences, however, might stem from the fact that the four corpora used for the present study are prepared in different ways and the implemented annotation protocols are used differently by different annotators in the four countries.

A further comparison with the use of Away forms in co-speech gesture in Catalonia, French-speaking Belgium and Poland could yield interesting results in this respect. It might be the case that the use of these co-speech gestures in the environmental SpL influences the annotation of Away forms in the SL. That is, if the Away forms are used more frequently in some countries/regions than in others and consistently express the same functions in a SL and the environmental SpL, the forms are annotated as more gestural than lexicalised in nature. For now, this hypothesis might only and partially explain the numbers for DGS, which is the only SL for which the four Away forms have been studied in the surrounding SpL culture (see Section 5 for further discussion).

Table 5. Number and percentage of lexicalised and gestural tokens in the four studied language samples

Data sample	Lexicalised tokens	Gestural tokens
DGS	96 (64.9%)	52 (35.1%)
LSC	128 (97.7%)	3 (2.3%)
LSFB	74 (90.2%)	8 (9.8%)
PJM	49 (46.2%)	57 (53.7%)

As the difference in frequency between gestural and lexicalised tokens is smaller in DGS and PJM than in LSC and LSFB, it is informative to look at forms and functions which are placed on the far ends of the continuum in DGS and PJM – i.e., which forms are frequently annotated as gestures and which ones are assigned lexical ID-glosses by the annotators (see Table 6). In both DGS and PJM, the lexicalisation patterns of the four gestures are quite similar. In both language samples, SWEEP, BRUSH, and HOLD are more often lexicalised than gestural, whereas THROW more frequently functions as a gesture.

When it comes to the lexicalisation of the particular functions, a pattern also emerges from the data. Among the functions that are most often conveyed by using a lexical item in DGS, we find negation (29 conventionalised vs. 2 gestural tokens), exclusion (9/0), completion (6/2) and removal (6/0); and in PJM negation (9/3), exclamation (3/0) and removal (6/1). As regards gestural occurrences,

Table 6. Number and percentage of lexicalised and gestural tokens of the four Away gestures in DGS and PJM

	DGS		PJM	
	Lexicalised tokens	**Gestural tokens**	**Lexicalised tokens**	**Gestural tokens**
SWEEP	30 (88.2%)	4 (11.7%)	15 (100%)	0
BRUSH	27 (87.1%)	4 (12.9%)	11 (78.6%)	3 (21.4%)
HOLD	12 (70.6%)	5 (29.4%)	9 (69.2%)	4 (30.8%)
THROW	23 (37.1%)	39 (62.9%)	14 (21.9%)	50 (78.1%)
Mixed forms	4 (100%)	0	n/a	n/a

most tokens belong to the functions of negative assessment (3 conventionalised vs. 14 gestural tokens), lack of interest (3/8) and disagreement (0/3) in DGS. In PJM, the functions of these gestural tokens are: negative assessment (0/25), rejection (3/5), appeasement (0/3), turn/topic ending (0/3) and lack of interest (0/3). As for LSFB and LSC, most functions are lexicalised with two exceptions which are always expressed with a gestural form, namely annoyance in LSFB data (5) and powerlessness in LSC (1).

5. Discussion

In this paper, we have presented the first corpus-based comparative study on Away forms across four SLs, while previous accounts were based on just a single (Indo-European) SpL. In order to give an overview of cross-modal and cross-cultural variation, we have adapted the summary table created by Bressem, Stein, and Wegener (2017, 177) in Table 7. We have kept the most frequent function of each Away form in German and French (the ambient SpLs of DGS and LSFB, although the variety of French is the one spoken in France and not in Belgium) and added the most frequent function in Savosavo (Bressem, Stein, and Wegener 2017), DGS, LSC, LSFB and PJM.

We can observe that some forms share their most frequent functions across modalities. For instance, SWEEP most often expresses negation and THROW most often expresses negative assessment in German and DGS. We could say that this similarity is the result of language contact. However, we find the same phenomenon in languages which are not in contact. In Savosavo, one of the most frequent functions of SWEEP is completion, just as contrast is for HOLD. The same results concerning these two forms were found in LSC, which neither shares the modality nor the region where it is used with Savosavo. On the other hand,

Table 7. Most commonly occurring functions (or ID-glosses) of the four elements from the Away family in the selected SpLs and SLs

	German	French	Savosavo	DGS	LSC	LSFB	PJM
SWEEP	Negation (Bressem and Müller 2014)	Absolute negation and total refusal (Calbris 2003)	Completion (in the pragmatic context of use); removal (in the abstract-referential context of use) (Bressem, Stein, and Wegener 2017)	Negation	Completion	Completion	Negation
BRUSH	Negative assessment (Bressem and Müller 2014)	Rejection (Calbris 2011)	Not identified	BEEN	Completion	GO	Removal
HOLD	Refusal, stop, rejection (Bressem and Müller 2014)	Not identified	Topic shift and contrast (in the explanatory context of use) (Bressem, Stein, and Wegener 2017)	BELONG	Contrast	BELONG	HAVE
THROW	Negative assessment (Bressem and Müller 2014)	Rejection (Calbris 2011)	Not identified	Negative assessment	AFTERWARDS	Lack of interest	Negative assessment

Table 7 also reveals the contrary trend, i.e. languages that *are* in a contact relation need not share the same functions for a given form, and in fact they need not even share the same forms. That is, some functions may not be shared in two languages that are in contact or even one of the forms may not have been identified in a language pair. For example, HOLD has not been identified in spoken French by Calbris (2011), but it is one of the most frequent Away forms in our LSFB sample. Also, Away forms express more different functions in both DGS and LSFB than they do in German and French. Despite the different methodologies which have been used in these studies on spoken and signed languages, these findings call for further research on why Away forms seem to be more polysemous in SLs and why language contact between SpLs and SLs may not be the only reason behind shared functions.

6. Summary and conclusions

This paper investigates the frequency of use, the functions, and the degree of lexicalisation of Away forms – SWEEP, BRUSH, HOLD and THROW – in DGS, LSC, LSFB and PJM. Despite the fairly small sample studied, all four members of the 'Away gesture family' first identified in SpLs were found in our SL data, with different distributions and levels of lexicalisation. Some of the functions of the four forms are shared across SLs and SpLs, whereas others seem to be idiosyncratic. These findings support Bressem, Stein, and Wegener's (2017, 200–201) claim that "[t]he documented forms, meanings and functions of sweeping and holding away thus seem not to be restricted to their use in Indo-European languages but might have a much wider cross-linguistic and cross-cultural distribution." Also, in line with Bressem, Stein, and Wegener (2017), variation in the production of the four forms can be observed in SLs. This variation concerns the handshape (e.g., fingers can be more or less extended), the orientation of the hand (e.g., SWEEP may be articulated with the palms facing downwards or in vertical position), the movement (e.g., BRUSH may be articulated with an inward or an outward movement) and size (reduced vs. enlarged depending on the signer's signing style).

Although this 'family of forms' is used differently across the four SL samples, its semantics is related to the expression of negative functions, but to a lesser extent than in SpLs. SWEEP is most commonly represented in LSC (89 cases out of all 151 found occurrences), and most of its cases (66 out of 89) are associated with completion. The most frequent function of SWEEP is negation, which is more evenly distributed across SLs. When it comes to the other three forms, in all four language samples, BRUSH, HOLD and THROW are most often annotated with ID-glosses not corresponding to the 19 functions of the taxonomy designed

for the current study (see Table 2), and therefore their function is marked as 'other'. The second most frequent function of BRUSH is negation, of HOLD it is contrast and of THROW it is negative assessment.

The distribution of the frequency of forms and functions is similar across the language samples. There is only a small number of pairings that have more than 14 tokens: SWEEP and completion in LSC (66), SWEEP and negation in DGS (20), THROW and negative assessment in PJM (25), THROW and negative assessment in DGS (16), SWEEP and negation in LSC (14). Other functions usually appear between one and seven times.

We observed the presence of so-called mixed forms – cases in which two forms are articulated one after the other in such a manner that they undergo fusion and the border between both of them is indiscernible. In our data there are only six such examples, but the same phenomenon was reported for co-speech gestures. Therefore, a future analysis of this type of gestural fusion would be interesting for our understanding of the behaviour of gestures and would be needed for answering the question of whether this is how complex gestures emerge in SLs.

In our study we also examined the lexicalisation status of the investigated forms. We found significant differences in this regard between DGS and PJM on the one hand and LSC and LSFB on the other. In LSFB, and LSC especially, the degree of lexicalisation of manual elements belonging to the AWAY family exceeds 90%. In DGS, and PJM especially, the AWAY elements seem to have retained their gestural nature to a greater extent. In DGS approximately 65% of all tokens under inspection were marked as lexicalised, and in PJM this number stays at 46%. However, all these quantitative results regarding the frequency of forms, their functions and degree of lexicalisation should be taken with caution due to the fairly small size of our sample.

In conclusion, our findings support the growing body of research on contrastive spoken-signed language research (e.g., Cooperrider, Abner, and Goldin-Meadow 2018; Fenlon et al. 2019; Ferrara 2020; Lepeut 2020, 2022; Lepeut and Shaw 2022) which is against posing a strict gesture-sign distinction. On the contrary, much more can be learnt from comparing gesture and sign than from opposing them (Lepeut 2022). Our study underlines the fact that some of the manual activities used both in SLs and SpLs can be viewed as forming a cross-modal continuum along which functional conventionalisation and lexicalisation take place. In other words, it is not only signers that have access to a shared repertoire of manual forms, but also speakers, even if the 'primary source of expression' of SpLs is speech (Kendon 2014). Despite the similarities found between Away forms in SLs and SpLs, not all Away forms used in SLs can be classified according to the taxonomy which was based on the literature reports concerning the same forms in SpLs. More research is therefore needed to fully answer the question of

how the use of the same manual forms differs when they are used as a part of spoken or signed discourse.

Funding

Gabarró-López's research was carried out under a María Zambrano grant funded by the European Union-NextGenerationEU, Ministry of Universities and Recovery, Transformation and Resilience Plan, through a call from Pompeu Fabra University (Barcelona). Kuder's research was financially supported by the Polish National Agency for Academic Exchange within the Bekker Programme (edition 2020; grant number: PPN/BEK/2020/1/00254).

Acknowledgements

We would like to thank the participants of the four signed language corpora from which we extracted the data that made this study possible. We are also grateful to Justyna Kotowicz for her help with statistics and to Berta Moya Avilés and Karolina Grzech for their help with the literature.

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Appendix

The overview of the samples extracted from the DGS, LSC, LSFB and PJM corpora for the purposes of the present study is presented in the four tables below (sorted by the age of the signers).

Table 8. Presentation of the DGS sample

DGS				
Signer	**Gender**	**Age group**	**Length of the inspected texts (hh:mm:ss)**	**No. of all inspected ID-glosses**
goe_08_A	F	18–29	00:06:41	498
goe_08_B	F			308
ber_01_A	M	18–29	00:06:43	251
ber_01_B	M			550
fra_06_A	F	30–49	00:06:39	507
fra_06_B	F			315
koe_13_A	F	50–85	00:06:35	288
koe_13_B	M			529
lei_06_A	M	50–85	00:06:43	320
lei_06_B	M			325
mst_16_A	M	50–85	00:07:09	213
mst_16_B	M			481
		SUM:	**00:40:30**	**4585**

Table 9. Presentation of the LSC sample

LSC				
Signer	**Gender**	**Age group**	**Length of the inspected texts (hh:mm:ss)**	**No. of all inspected ID-glosses**
CG	F	18–29	00:06:49	492
QF	M			324
DV	F	18–29	00:06:30	366
BF	M			577
DT	F	30–49	00:06:33	348
KW	M			533
SK	F	30–49	00:06:35	450

Table 9. *(continued)*

LSC				
Signer	Gender	Age group	Length of the inspected texts (hh:mm:ss)	No. of all inspected ID-glosses
SC	M			407
DT	F	50–85	00:06:25	193
KD	M			539
OS	F	50–85	00:06:38	346
TD	M			678
		SUM:	**00:39:30**	**5253**

Table 10. Presentation of the LSFB sample

LSFB				
Signer	Gender	Age group	Length of the inspected texts (hh:mm:ss)	No. of all inspected ID-glosses
S055	F	18–29	00:06:49	500
S056	F			479
S059	F	18–29	00:06:25	468
S060	M			352
S044	F	30–49	00:06:35	390
S045	M			315
S007	M	30–49	00:06:34	100
S008	M			445
S003	M	50–85	00:06:32	403
S004	M			297
S001	F	50–85	00:06:41	381
S002	F			427
		SUM:	**00:39:36**	**4557**

Table 11. Presentation of the PJM sample

PJM				
Signer	Gender	Age group	Length of the inspected texts (hh:mm:ss)	No. of all inspected ID-glosses
K75A	M	18–29	00:09:51	495
K75B	M			573
K45A	F	18–29	00:08:43	417
K45B	F	30–49		537
K03A	F	30–49	00:07:28	345
K03B	F			356
K48A	M	30–49	00:06:32	318
K48B	M			358

Table 11. *(continued)*

PJM				
Signer	Gender	Age group	Length of the inspected texts (hh:mm:ss)	No. of all inspected ID-glosses
K35A	F	50–85	00:08:03	555
K35B	F			320
K58A	M	50–85	00:05:39	200
K58B	M			261
		SUM:	**00:46:16**	4735

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Publication history

Date received: 8 September 2022
Date accepted: 31 October 2022