Do all pronouns point? Indexicality of first person plural pronouns in BSL and ASL

Kearsy Cormier

1. Introduction

One of the unique properties of signed languages is that they exhibit a high degree of isomorphism. That is, many characteristics of signed languages involve a close relationship between form and meaning, much more so than spoken languages. Such characteristics include iconicity, topographic space, and indexicality. Iconic signs are those that visually resemble their referents; for example, the sign CAT in some signed languages represents the whiskers of a cat. Topographic use of the signing space maps onto real-world space, such that placement of signs in particular locations in the signing space reflects entity locations in real-world space. Indexic signs are those that point toward (or are located at) the location associated with their referents.

In this paper, I present evidence from both American Sign Language (ASL) and British Sign Language (BSL) suggesting that the pronominal systems of these signed languages, particularly first person plural forms, may under some circumstances lose their indexicality. This loss of indexicality, I argue, is largely due to two types of tendencies: one motoric and one linguistic. Furthermore, I also present evidence suggesting that there may be some variation in indexicality across signed languages.

I first define the notion of indexicality in more detail and provide an overview of analyses of signed language pronominal systems in Section 2. Section 3 outlines the research questions concerning the existence and indexicality of first person plural pronouns in ASL and BSL, and Section 4 describes the data elicitation task and the coding system. The results of the study are presented in Section 5 in a comprehensive discussion of the different types of first person pronouns used and the different contexts in which they occur. After a summary of these results in Section 6, the final section addresses areas for future research (Section 7).
2. Background

2.1. Indexicality

Indexic signs are those that ‘point to’ a location in space associated with a referent (or referents). Here I define the term indexicality as the extent to which such pointing occurs. The indexicality of some signs is quite strong. For instance, singular pronouns quite literally point to their referents. Some verbs are also highly indexic in their singular forms – for example, spatial verbs (which include classifier predicates) and agreement verbs. Rather than literally pointing, these signs instead move between locations associated with the subject and object, or source and goal, or in the case of intransitive verbs of location, are positioned at the location associated with the argument (Lillo-Martin and Klima 1990; Meir 1998; Padden 1988).

Plural pronouns and verbs, on the other hand, are somewhat less indexic. For instance, Klima and Bellugi (1979) note a loss of indexicality for plural pronouns over time. They note the progression of the ASL sign WE from a series of pointing signs to each referent (ME + HIM + HER + HIM + YOU … + ME) to the current sign that consists of only two points on the signer’s chest (as illustrated below in Figure 1). The sign was once highly indexic, pointing to each referent, but now is much less indexic and does not point to any referents other than the signer. This seems to suggest that the indexicality of plural forms may be somehow less important than the indexicality of singular forms.

![Figure 1. WE-CENTRAL (ASL)](image)
2.2. Person in signed languages

Before exploring the issue of indexicality in signed languages further, it is important to discuss the issue of person in signed languages, that is, how participant roles are encoded (or not encoded) in the grammar.

2.2.1. Three-person system

Sign languages, like all languages, have ways of distinguishing various participant roles (e.g. signer, addressee, and non-addressed participants). On the surface, sign language pronouns seem to act very much like pronouns in other languages that have a three-person system. That is, sign languages have pronominal signs that can refer to the signer, addressee(s), and non-addressed third participant(s). Thus, Friedman (1975) in one of the first analyses of person in a signed language uses a three-person system to analyse pronominal reference in ASL. Others since then have also used a three-person system to describe “referential indexing” (Klima and Bellugi 1979) or “indexic reference” (Padden 1988, 1990).

2.2.2. Locus feature

One problem with positing a three-person system for ASL is that if the feature in question were person, each non-signer and non-addressed participant present would have the same value (i.e. third person). However, there are theoretically an infinite number of ‘third person’ location values (i.e. locations associated with referents other than the signer or addressee) that can be assigned to an indexer or verb. Thus, following Lacy (1974), there have been several proposals that steer away from a person analysis and instead analyze the locations associated with pronouns and agreeing verbs as variables (‘loci’) whose content comes from discourse (Cormier et al. 1999; Lillo-Martin and Klima 1990).

Bahan (1996) and Neidle et al. (2000) have a similar analysis in which agreement is with a bundle of phi-features, and information from this bundle “constitute[s] the ‘person’ feature” (Bahan 1996: 84). These analyses are based loosely on the locative analysis of Gee and Kegl (1982). Janis (1995) also has a locative analysis of agreement (with no reference to
person) in which nominals are assigned locative case and verbs agree with these locations.

2.2.3. Gestural analysis

One characteristic that the above analyses share is that they all consider pronominal reference to be linguistic, either morphologically or in terms of the discourse structure. Liddell (1990 and subsequent publications) does not believe that the locations associated with pronouns and certain verbs are grammatical. Previous proposals, he says, all share the assumption that some sort of spatial morpheme is attached to the pronoun or verb. However, he claims that there can be no representation of these spatial morphemes in the grammar because (a) the list of morphemes in the grammar would have to be non-discrete and infinite, while the nature of morphology typically demands that morphemes be discrete and finite, and (b) pronouns and verbs are directed not towards specific points in space, but towards general areas that vary depending on the verb and on the referent. In particular, Liddell notes the striking similarities between the use of space with pronouns in ASL and the use of space with deictic points used by hearing gesturers.

To address these problems, Liddell offers a very different description of the way ASL verbs use space. Liddell claims that the relationship between indicating verbs (his term for agreeing verbs) and location is not linguistic (and therefore not what is normally considered ‘agreement’). Instead he claims that verbs point to people and objects in the same way that hearing people normally use gestures to point to people and objects. He assumes that signers use these pointing gestures both when the referents are present and also when the referents are not present (in which case signers point to people and objects as if they were present). According to Liddell (1995), the only linguistic (i.e. lexically specified) information within pronouns and indicating verbs is the hand configuration, certain movements, and possibly palm orientation.

“I adopt a solution for [pronouns] and for indicating verbs in which the handshapes, certain aspects of the orientations of the hand, and types of movement are lexically specified through phonological features, but for which there are no linguistic features identifying the location the hands are directed toward. Instead, the hands are directed
toward the specific part of the referent's body by non-discrete gestural means.” (Liddell 1995: 26)

2.2.4. First vs. non-first person

Although both the locus feature analyses and Liddell’s gestural analysis avoid the problems with an analysis that has multiple third person values3, none of them address the special status of first person in signed languages. Meier (1990) notes that there is no single default location associated with addressee(s) and non-addressed participant(s). The use of space with pronouns directed toward these participants is fully gradient, and the different distinct locations that can be referred to with these pronouns are non-listable and potentially infinite in number.4 There is a single default location associated with the signer, however – the centre of the signer’s chest. This is Meier’s primary argument for a distinct first person category.

Furthermore, Meier (1990) notes that the modern ASL first person plural form WE is idiosyncratic – that is, it does not point to its referents in the way that other pronouns do. Although the first person singular form ME seems to follow the general pattern of a point to the referent (specifically, a point to the signer’s chest), Meier notes that this sign does not invariably refer to the signer. In the discourse strategy known as role shift, which can function as a method of direct quotation, a point to the self refers to the person whose role the signer is assuming (i.e. the person being quoted), not the signer him/herself, similar to direct quotation in speech. This can only happen in languages with a first person category, since the signer/speaker within a direct quotation may not be the same as the signer/speaker at the time of utterance.

Meier (1990) therefore proposes a two-person system: first person and non-first person. According to this analysis, there is no grammatical distinction between second and third person, since as Meier notes, the only factor distinguishing reference to the addressee from reference to a third person is eye gaze. Even eye gaze is not always a reliable distinction, since signers typically, but not always, look at their addressees.

Many researchers currently follow Meier’s view about a two-person system in ASL, including Padden (1990), Lillo-Martin (1995), Emmorey (2002), and Rathmann and Mathur (2002). This two-person system has been attributed to other signed languages as well, including Danish Sign Language (Engberg-Pedersen 1993), Polish Sign Language (Farris 1994),
and Taiwan Sign Language (Farris 1998). Even Liddell, who earlier (2000) rejected Meier’s two person system, more recently (2003) has accepted this analysis, affirming the special status of first person.

2.3. First person plural

Another way in which first person can be considered to have special status is in its plural form. The notion of first person plural is unusual within any language. Other plural categories generally take a noun or pronoun X and change it to mean ‘more than one X’. But first person plural generally does not indicate more than one speaker or signer – rather, it indicates the speaker or signer plus other addressees and/or non-addressed participants (Lyons 1968).

As noted above, one of Meier’s (1990) arguments for the special status of first person in ASL is that the first person plural pronoun we in ASL is quite idiosyncratic in form – specifically, that it does not point to any referents other than the signer. Semantically ASL we follows the pattern of spoken languages just noted, that is, it indicates the speaker or signer plus other addressees and/or non-addressed participants.

The special status of the first person plural category can also be seen by the fact that some languages have developed various distinct sub-categories within the first person plural. One such sub-category is an inclusive/exclusive distinction. In most languages that have this distinction, inclusive forms include a second person referent while exclusive forms exclude a second person referent. One example of such a language is Tagalog, an Austronesian language spoken in the Philippines. Tagalog has a first person plural inclusive pronoun kami meaning ‘we including you’ and a separate first person plural exclusive form tayo meaning ‘we excluding you’ (Forchheimer 1953).

Although an inclusive/exclusive distinction has been identified for many spoken languages, this distinction has been explored very little within the sign language modality.

3. Research questions

The current study investigates first person plural forms in two signed languages, with particular attention to inclusive/exclusive distinctions.
Previously, I have shown that ASL has a distinct exclusive form of the first person plural pronoun WE (Cormier 2002, 2005). The current study extends these previous studies by adding data from British Sign Language (BSL). It also looks more in depth at the indexicality of first person plural forms (inclusive and exclusive forms).

In particular, the aims of the current study are to compare ASL and BSL with respect to:

- The inventory of first person plural pronouns
- The status of first person as a category
- Inclusive/exclusive forms
- The indexicality of first person plurals, in general, and specifically of inclusive/exclusive forms

4. Methods

This section outlines the methods used for both the ASL and BSL studies. The methods for the BSL study were very similar to those used for ASL in Cormier (2002, 2005).

4.1. Participants

The ASL study included three Deaf native signers of ASL (Cormier 2002, 2005). The BSL study included three Deaf native signers of BSL. All signers grew up in Deaf families where ASL or BSL was the primary language used in the home. Signers were recruited through personal contacts within the Deaf communities in Austin, Texas (USA) and Bristol (England).

4.2. Stimuli and task

The stimuli for this study consisted of a script in English and a set of visual aids. The script contained descriptions of various scenarios which the signer was meant to read. For each scenario, the script instructed the signer to imagine that he/she was engaged in conversation with one or more other signers (the number for each scenario was specified). Each scenario gave a context for this conversation. The signers were instructed to read through
each scenario. At the end of each scenario, there was a statement to be translated into ASL or BSL that used *we, us* or *our*. Signers were asked to translate each of these statements, assuming the given context. All productions were videotaped.

Along with the scripts, in which the signer was addressed as ‘you’, signers were also provided with visual aids, a set of small figurines that were placed on a table in front of the signer. Each figurine was labelled, one as *You*, one as *B*, one as *C, D, E*, etc. These figurines were meant to help the signers visualise the location of referents in the discourse situation. The figurine labelled *You* was placed directly in front of the signer at his/her midline, facing forward (away from the signer). The other figurines were placed in front of and facing the *You* figurine – either all on the left, all on the right, or scattered (see Table 3 below for more information on the placement of the visual aids). Two sample scenarios from the script are given in examples (1) and (2) below. Figure 2 shows a bird’s-eye view of the set-up, including the location of the signer as well as the visual aids with respect to the signer; this setup was used for both examples (1) and (2).

(1) **You** and ten others (including *B & C & others*) don't have much in common. During a conversation, you realize that you are all cat lovers.  
   **B** asks **you**:  
   Do we all have anything in common?  
   **You** answer **B**:  
   *Yes, we like cats.*

(2) Many people (including *you & others*) are having a discussion. Everyone except **B** is a cat lover; **B** likes dogs.  
   **B** asks the group:  
   I like dogs. Do all of you prefer dogs or cats?  
   **You** answer **B**:  
   *We like cats.*

Example (1) presents an inclusive context – that is, the target sentence (shown in italics) should include the addressee. Example (2) shows an exclusive context – that is, the target sentence should exclude the addressee. In each instance, in order to translate the target sentence appropriately (particularly the pronoun), the signer had to combine
information from the given context with information from the position of the visual aids.

Figure 2. Bird’s-eye view of discourse scenario for examples (1) and (2), showing location of signer and visual aids You, B, C, D, etc.

The examples above represent many (an unspecified number of) referents – these examples were meant to elicit inclusive and exclusive variants of the plural pronoun WE. Other contexts were devised to elicit inclusive/exclusive variants of the dual pronoun (TWO-OF-US), the trial form (THREE-OF-US) and the first person plural possessive OUR. In each scenario, the number of referents was varied (two, three, or unspecified many).

The verbs used were varied as well (plain verb LIKE, transitive agreement verbs WATCH and KISS, ditransitive agreement verb GIVE), as was the argument position of the first person plural form (subject or object). The sentence for the possessives was the same in each instance (‘Our land is for sale.’) Furthermore, the location(s) of the visual aids were varied (toward the signer’s left or right side) to determine if the location of the referents had any effect on the pronoun (or pronoun variant) produced. In total, 64 stimuli scenarios were presented.

Table 1 shows a breakdown of the 64 different scenarios that were presented in the scripts. The scenarios differed according to the following variables: number, inclusive/exclusive context, argument position of the pronoun, as well as verb and distribution (for certain verbs). Furthermore, there were other scenarios added to elicit possessives; these were broken down to include collective versus distributive possessives, such that ‘our
(collective) land’ would indicate ‘the one piece of land that we possess together’ while ‘our (distributed) land’ would indicate ‘the separate plots of land that each of us separately possesses’.

**Table 1. Breakdown of contexts included in scripts**

<table>
<thead>
<tr>
<th></th>
<th>Dual incl</th>
<th>Dual excl</th>
<th>Trial incl</th>
<th>Trial excl</th>
<th>Trial excl (dist)</th>
<th>Plural incl</th>
<th>Plural incl (dist)</th>
<th>Plural excl</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘we like’</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>‘like us’</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>‘we help’</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>‘help us’</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>‘we kiss’</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>‘kiss us’</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>‘we give’</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>‘give us’</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>‘we watch’</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>‘watch us’</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>‘our (coll) land’</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>‘our (dist) land’</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 further describes the labels used to indicate combinations of number and inclusive/exclusive categories in Table 1.

Table 3 describes the location of the visual aids in each set of scenarios. As noted above, in every instance, the figurine labelled You was placed directly in front of the signer at his/her midline, facing forward (away from the signer) and was meant to represent the signer’s location with respect to the location of the other referents. The other figurines were placed in front of and facing the You figurine. The figurine meant to represent the addressee (in most cases, figurine B) was in each instance placed directly in front of the figurine You. The other figurines were placed either to the left and to the right of the addressee figurine, or scattered on both the left and right around the addressee figurine, as noted below.
**Table 2.** Description of number + inclusive/exclusive categories (number of referents included & excluded) in Table 1

<table>
<thead>
<tr>
<th>Context meant to elicit:</th>
<th>No. referents included</th>
<th>No. referents excluded</th>
<th>Total no. referents involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Du incl</td>
<td>Dual inclusive forms</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Du excl</td>
<td>Dual exclusive forms</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Tr incl</td>
<td>Trial inclusive forms</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Tr excl</td>
<td>Trial exclusive forms</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Tr excl (dist)</td>
<td>Trial exclusive forms with distributed verb reading (e.g. ‘we each give’)</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Pl incl</td>
<td>Plural inclusive forms</td>
<td>many (unspec)</td>
<td>0</td>
</tr>
<tr>
<td>Pl incl (dist)</td>
<td>Plural inclusive forms with distributed verb reading (e.g. ‘we each give’)</td>
<td>many (unspec)</td>
<td>0</td>
</tr>
<tr>
<td>Pl excl</td>
<td>Plural exclusive forms</td>
<td>many (unspec)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Table 3.** Placement of visual aids during pronoun elicitation

<table>
<thead>
<tr>
<th>Context</th>
<th>Placement of visual aids</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘we like’</td>
<td>Addressee figurine at centre, other figurine(s) on the signer’s right</td>
</tr>
<tr>
<td>‘like us’</td>
<td>Addressee figurine at centre, other figurine(s) on the signer’s left</td>
</tr>
<tr>
<td>‘we help’</td>
<td>Addressee figurine at centre, other figurine(s) on the signer’s right</td>
</tr>
<tr>
<td>‘help us’</td>
<td>Addressee figurine at centre, other figurine(s) on the signer’s left</td>
</tr>
<tr>
<td>‘we kiss’</td>
<td>Addressee figurine at centre, other figurine(s) on the signer’s right</td>
</tr>
<tr>
<td>‘kiss us’</td>
<td>Addressee figurine at centre, other figurine(s) on the signer’s left</td>
</tr>
<tr>
<td>‘we give’</td>
<td>Addressee figurine at centre, other figurine(s) on the signer’s right</td>
</tr>
<tr>
<td>‘give us’</td>
<td>Addressee figurine at centre, other figurine(s) on the signer’s left</td>
</tr>
<tr>
<td>‘we watch’</td>
<td>Addressee figurine at centre, other figurine(s) on the signer’s right</td>
</tr>
<tr>
<td>‘watch us’</td>
<td>Addressee figurine at centre, other figurine(s) on the signer’s left</td>
</tr>
<tr>
<td>‘our (coll) land’</td>
<td>Du incl &amp; excl: Addressee figurine at centre, other figurine on signer’s right</td>
</tr>
<tr>
<td></td>
<td>Tr incl &amp; excl: Addressee figurine at centre, other figurines on signer’s left</td>
</tr>
<tr>
<td></td>
<td>Pl incl &amp; excl: Addressee figurine at centre, other figurines on signer’s right</td>
</tr>
<tr>
<td>‘our (dist) land’</td>
<td>Du incl &amp; excl: Addressee figurine at centre, other figurine on signer’s left</td>
</tr>
<tr>
<td></td>
<td>Tr incl &amp; excl: Addressee figurine at centre, other figurines on signer’s left</td>
</tr>
<tr>
<td></td>
<td>Pl incl &amp; excl: Addressee figurine at centre, other figurines on signer’s right</td>
</tr>
</tbody>
</table>
4.3. Coding procedure

4.3.1. Token and parameter coding

For each pronoun token, a gloss (e.g. THREE-OF-US) and the inclusive/exclusive context in which the pronoun was used according to the script were coded. In addition, formational details, such as the handshape, location, and movement of the pronoun, were coded, as well as non-manual signals (including body leans, body shifts, head movement, and eye gaze) that co-occurred with any pronoun. Non-manual signals act as grammatical markers in both ASL and BSL, and some can be used in various ways for affect. Because each of these markers can be used to establish or indicate reference in some way, it was expected that these signals might also act as inclusivity or exclusivity markers.

4.3.2. Indexicality coding

The data were coded to determine how indexic the pronouns were with respect to the location of the referents (that is, the visual aids that were placed in front of the signer during data collection). Pronouns were coded as located on the signer’s right side, at the centre of the chest, or on the signer’s left side. These values were then compared to the location of the visual aids that the signer was referring to when producing each pronoun. Pronouns were coded as being either on the left if they were produced on the signer’s left side without crossing the midline, or on the right if they were produced on the signer’s right side without crossing the midline. Pronouns were coded as centre if they were produced at the midline or if they crossed the midline.

Figure 3a shows an example of a discourse situation in which the pronoun would be coded as matching the location of the referents, while Figure 3b shows an example of a situation in which the location of the pronoun would be coded as not matching the location of the referents.
5. Results and discussion

5.1. Overall results

5.1.1. Pronoun elicitation

The following pronouns were produced by all signers for both ASL and BSL: WE, OUR, 2-OF-US, 3-OF-US, WE-COMP (composite `we’), ALL-OF-US. Two of these signs – 2-OF-US and WE-COMP – point more or less directly at the locations associated with their referents (see Table 4). I refer to these signs as ostensive plurals, because they ostensively indicate their referents.

Table 4. Ostensive plural pronouns coded

<table>
<thead>
<tr>
<th>Type of first person plural</th>
<th>Phonetic Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite first person plural (WE-COMP): series of pointing signs that point to each member of some set</td>
<td>Varies depending on which referents are being indexed</td>
</tr>
<tr>
<td>Dual (TWO-OF-US): Signs made with V or K-handshape where arm (elbow joint) or wrist (wrist joint) moves between locations associated with signer and some other referent.</td>
<td>Varies depending on which referents are being indexed</td>
</tr>
</tbody>
</table>
WE-COMP is a composite plural form, so called because of its similarity to composite first person forms found in spoken languages (Forchheimer 1953). An example of such a composite first person plural is from Melanesian Pidgin English, *yumi* ‘you and me’. This pronoun is a combination of the singular second person pronoun *yu* and the singular first person pronoun *mi*. Similarly, WE-COMP in ASL and BSL is a series of pointing signs, either starting with or ending with a point toward the signer’s chest, that refer to a number of individuals. This pronoun looks and acts essentially the same in both ASL and BSL. Figure 4 shows an example of this pronoun.

![Figure 4. WE-COMP (ASL & BSL)](image)

TWO-OF-US is a dual pronoun, consisting of a handshape with the index and middle fingers extended, in either a K-handshape (ASL – see Figure 5) or V-handshape (BSL) which moves between the signer and the location associated with another referent.

![Figure 5. TWO-OF-US (ASL)](image)
When either WE-COMP or TWO-OF-US was produced by signers in inclusive contexts (such as example (1) above), the pronoun referred to the addressee. With WE-COMP, the series of points included a point toward the addressee. With TWO-OF-US, the pronoun moved between the signer and the addressee. When either WE-COMP or TWO-OF-US was produced by signers in an exclusive context, the pronoun included non-addressed participant(s) but not the addressee.

Because these signs transparently point to their referents the same way that singular pronouns do, no grammatical inclusive or exclusive distinction is posited for these pronouns. These signs point to the referents who are included. Other referents are excluded only in that they happen to not be pointed to.

The other four pronouns produced by the signers in this study – WE, OUR, 3-OF-US, and ALL-OF-US – are considered to have citation forms which are either produced at the centre of the signer’s chest or start on one side and end on the other side (such that the central vertical midline is the axis) in both ASL and BSL (Brien 1992; Stokoe et al. 1965). Figure 1 (repeated below as Figure 6) and Figure 7 each show one of the citation forms for the sign WE in ASL and BSL, respectively.

I classify these signs as *lexical plurals* because they do not index the locations of their individual referents. Thus, it can be claimed that these pronouns are lexicalised with respect to location, such that the specific locations of the individual referents are combined to a single general location. Table 5 describes the forms in which these pronouns occur.
Table 5. Lexical plural pronouns coded

<table>
<thead>
<tr>
<th>Type of first person plural</th>
<th>Variants</th>
<th>Phonetic Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First person plural (WE):</strong></td>
<td>WE-CENTRAL</td>
<td>Produced at or near the center of the signer’s chest; the signer’s midline is the axis of the arc/circular movement.</td>
</tr>
<tr>
<td>In ASL, the signer’s hand moves from one point on chest to another, both in same horizontal plane. In BSL, the signer’s hand (pointing downward) moves in circular movement in horizontal plane directly in front of the chest.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WE-DISPLACED</td>
<td>Produced slightly left or right of the signer’s midline on the chest; typically involves rotation of the forearm.</td>
</tr>
<tr>
<td>Number-incorporated first person plurals (3/4/5-OF-US):</td>
<td>3/4/5-OF-US-CENTRAL</td>
<td>Produced at or near the center of the signer’s chest</td>
</tr>
<tr>
<td>In ASL, signs made with 3, 4 or 5 handshape (palm up) with small circular motion in horizontal plane. In BSL, signs made with W, 4, or 5 handshape with small circular motion in horizontal plane.</td>
<td>3/4/5-OF-US-DISPLACED</td>
<td>Produced on either the signer’s left or right side</td>
</tr>
<tr>
<td><strong>First person plural possessive (OUR):</strong></td>
<td>OUR-CENTRAL</td>
<td>Like WE-CENTRAL, produced at or near centre of the signer’s chest such that signer’s midline is axis of arc/circular movement.</td>
</tr>
<tr>
<td>In ASL, signs made with bent-B handshape, starting with thumb-side of hand near or contacting chest with arcing forearm rotation so that pinky-side of hand ends near or contacting the chest. In BSL, signs made with A-handshape, palm facing toward signer, moving in horizontal circle directly in front of signer’s chest.</td>
<td>OUR-DISPLACED</td>
<td>Like WE-DISPLACED, produced slightly left or right of signer’s midline</td>
</tr>
<tr>
<td><strong>Universally quantified first person plurals (ALL-OF-US):</strong></td>
<td>ALL-OF-US-CENTRAL</td>
<td>Produced at or near centre of signer’s chest; signer’s midline is axis of arc.</td>
</tr>
<tr>
<td>In ASL, first person plural version of fingerspelled loan sign #ALL. Produced with A-handshape moving outward, opening to L-handshape. In BSL, signs made with B-handshape starting facing contralateral side, moving in arcing movement with forearm rotating in toward contralateral side.</td>
<td>ALL-OF-US-DISPLACED</td>
<td>Produced slightly to left or right of the signer’s midline.</td>
</tr>
</tbody>
</table>
Signers in this study did often produce these pronouns in more or less citation form, that is, with the central vertical midline as the axis of the arcing or circular movement. Signers produced these pronouns at the centre of the chest in both inclusive and exclusive contexts. However, these pronouns sometimes were displaced from that central location, to the ipsilateral or contralateral side of the signer’s chest. These displaced forms were produced in exclusive contexts. Figures 8 and 9 show displaced forms of we in ASL and BSL, respectively.

As noted in 4.3.1., pronouns were also coded for various non-manual signals, including body shift, body lean, head movement, and eye gaze. Although all of these signals co-occurred with many of the pronouns that were produced, none of them were used reliably for inclusive or exclusive marking. These signals were typically used for other purposes instead, including topic marking, emotional affect marking, affirmative and negative marking.

5.1.2. Grammaticality judgements

Informal discussions with participants after the initial data collection revealed that it might be possible to use displaced forms to exclude referents other than just the addressee. Therefore, after the initial data collection and analysis, follow-up meetings were convened with each signer in order to obtain grammaticality judgements on the forms mentioned above and particularly to determine other possible meanings of the displaced forms. These meetings were based on the following
background scenario. Each participant was told to imagine that he/she has four siblings and that each week some or all five of them go to the cinema together. The participant was to imagine that two of his/her siblings were present. (In actuality, there was a research assistant physically present to act as one of the brothers – Sib1 – and another research assistant presented on a computer screen opposite the participant was a second brother – Sib2. The participant was told that the other two sisters in the family (Sib3 and Sib4) were not present for the conversation. See Figure 10 for a representation of the locations of the participant, Sib1 and Sib2.)

![Figure 10](image)

*Figure 10. Bird’s-eye view of set-up for grammaticality judgements. The participant and Sib 1 (research assistant) are physically present. Sib2 is shown on a computer screen.*

The computer screen was directly in front of the participant. The research assistant on the screen was a fluent Deaf signer (representing Sib2) who signed, on video, each of the sentences shown in examples (3) - (8):

(3) NEXT-WEEK WE-CENTRAL GO-OUT FILM
   ‘Next week we’ll go out to see a film.’
(4) NEXT-WEEK WE-DISPLACED(left) GO-OUT FILM
   ‘Next week we’ll go out to see a film.’
(5) NEXT-WEEK WE-DISPLACED(right) GO-OUT FILM
   ‘Next week we’ll go out to see a film.’
(6) NEXT-WEEK THREE-OF-US-CENTRAL GO-OUT FILM
   ‘Next week we’ll go out to see a film.’
(7) NEXT-WEEK THREE-OF-US-DISPLACED(left) GO-OUT FILM
   ‘Next week we’ll go out to see a film.’
(8) NEXT-WEEK THREE-OF-US -DISPLACED (right) GO-OUT FILM
‘Next week we’ll go out to see a film.’

After each clip was shown, participants were asked questions about which siblings could be included or excluded in each instance. Note that the location of the displaced pronouns was varied from right to left. The location of the physically present research assistant – Sib1 – was also varied from the participant’s left side as shown in Figure 10 to his/her right side.

It was important that the background scenario was described to the participants in a very particular way. The researcher was very careful not to localise the 2 absent sisters (Sib3 and Sib4) when explaining the background scenario. Specifically, the researcher signed YOU ALSO HAVE TWO SISTERS, NOW NOT HERE, carefully placing all signs in the middle of the signing space, with no points, body or head leans, and with eye gaze directly at the participant. This was to ensure as much as possible that the participant would not localise the two absent sisters Sib3 and Sib4 as a result of information provided by the researcher or the surrounding context.

In the situations where the pronoun produced by Sib2 was on the side where Sib1 was located (as shown in Figure 11), participants judged that the displaced pronoun, whether WE or THREE-OF-US, included the participant him/herself, Sib1, and Sib2. This is to be expected, since in these cases the pronoun would be indexic of those three referents and exclusive (i.e. excluding Sib3 and Sib4).

![Figure 11](image.png)

*Figure 11. Pronoun (represented by X) produced on the signer’s (Sib2’s) right side, the same side as Sib1’s location.*
More revealing were the responses when the pronoun was displaced to Sib2’s other side, that is, the side on which Sib1 was not located (as shown in Figure 12). In every case, participants judged that these forms had to be exclusive – excluding one or more of the siblings. The central forms were judged to be able to include any or all of the siblings (the signer + any others).

\[\text{Figure 12. Pronoun (represented by X) produced on the signer’s (Sib2’s) left side, the opposite side as Sib1.}\]

Thus, the grammaticality judgements obtained from these follow-up meetings confirmed that the displaced forms were acceptable in exclusive but not inclusive contexts, while central forms were judged to be acceptable in both inclusive and exclusive contexts, as noted below in Table 6.

Another finding which first arose in informal discussions after the initial elicitation of data – which was confirmed in these follow-up meetings – was that the displaced (exclusive) forms could actually exclude any salient referent in the discourse, not only the addressee. The stimuli from the elicitation portion of the study had been designed to elicit forms that included or excluded the addressee, since this is how inclusive/exclusive pronouns generally pattern in spoken languages. The fact that these pronouns can exclude other salient referents highlights the importance of additionally obtaining grammaticality judgements when analysing elicited data.
Table 6. Grammaticality judgements for lexical plurals in inclusive and exclusive contexts

<table>
<thead>
<tr>
<th>Lexical Plurals</th>
<th>Inclusive context</th>
<th>Exclusive context</th>
</tr>
</thead>
<tbody>
<tr>
<td>WE-CENTRAL</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>WE-DISPLACED</td>
<td>*</td>
<td>√</td>
</tr>
<tr>
<td>3/4/5-OF-US-CENTRAL</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>3/4/5-OF-US-DISPLACED</td>
<td>*</td>
<td>√</td>
</tr>
<tr>
<td>ALL-OF-US-CENTRAL</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>ALL-OF-US-DISPLACED</td>
<td>*</td>
<td>√</td>
</tr>
<tr>
<td>OUR-CENTRAL</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>OUR-DISPLACED</td>
<td>*</td>
<td>√</td>
</tr>
</tbody>
</table>

(√ indicates grammatical; * indicates ungrammatical)

What we can conclude from these patterns is that lexical plurals produced at the centre of the signer’s chest are neutral with respect to inclusivity/exclusivity because they can be used in inclusive or exclusive contexts. But lexical plurals displaced to the ipsilateral or contralateral side, when not indexic, can only be exclusive. Thus in Cormier (2002, 2005), I have claimed that ASL has a grammatical exclusive first person plural form. Here I claim that BSL has a grammatical exclusive first person plural form that works in very much the same way – that is, by displacing the pronoun to the signer’s ipsilateral or contralateral side.

The next question that I raise here is about indexicality. How indexic are these pronouns? Section 5.2 looks at the indexicality of the pronouns produced in inclusive contexts, while Section 5.3 looks at those produced in exclusive contexts.

5.2. Pronouns produced in inclusive contexts: Indexicality results and discussion

Examining the production data further revealed that not all displaced pronouns were used in exclusive contexts. Some displaced pronouns were actually used in inclusive contexts. This seems to be in direct contradiction to the findings from the grammaticality judgements above which showed...
that signers judged displaced forms to be acceptable for marking exclusive only. Why would this be?

This could be framed as part of a larger question of non-indexicality: Why do non-indexic pronouns occur? That is, under what circumstances does the location of a first person plural pronoun not match the location(s) associated with its referents? Close scrutiny of the non-indexic forms of first person plural pronouns produced in inclusive contexts revealed the following patterns.

Indexicality levels of these pronouns were less than what one might expect from singular pronouns, as shown in Table 7. Of 134 BSL pronoun tokens, 55 were indexic (i.e. the pronoun’s location matched the location of the referents in 66% of the pronouns produced). Of 109 ASL pronoun tokens, 51 were indexic (i.e. the pronoun’s location matched the location of the referents in 47% of the pronouns produced).

Table 7. Indexic and non-indexic tokens of first person plural pronouns (inclusive context)

<table>
<thead>
<tr>
<th></th>
<th>Indexic tokens</th>
<th>Non-indexic tokens</th>
<th>Total (N)</th>
<th>% indexicality</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASL</td>
<td>51</td>
<td>58</td>
<td>109</td>
<td>47%</td>
</tr>
<tr>
<td>BSL</td>
<td>55</td>
<td>46</td>
<td>134</td>
<td>66%</td>
</tr>
</tbody>
</table>

The non-indexic pronoun tokens from both the ASL data (N=58) and BSL data (N=46) fell into one of two main types: ipsilateralised and centralised. Furthermore, there were two types of centralised forms. The number of tokens for each type are noted in Figure 13 on the next page. The following two sections describe the ipsilateralisation and centralisation patterns.

5.2.1. Ipsilateralisation

Some non-indexic tokens (23 tokens in ASL, 12 tokens in BSL) were ipsilateralised. That is, the pronoun was produced on the ipsilateral side of the signer’s chest, but the referents (represented by the visual aids) were located on the signer’s contralateral side or directly in front of the signer, thus causing a mismatch in location, as illustrated in Figure 3b.
The most likely reason for this lack of indexicality seems to be ease of articulation – that is, signers produced these pronouns on their ipsilateral side simply because it requires the least effort for the sign to be articulated in that location, as opposed to the central or contralateral side which would require the signer to approach or cross the midline. Thus the proposed explanation for this particular type of loss of indexicality is a motoric one: Signers produce the pronoun at a location that is motorically easier.

One note of reminder here is that, although no grammatical inclusive marking was found in these data, these pronouns are being used in inclusive contexts. This by itself could affect the indexicality of these forms. In each scenario, all of a particular group is meant to be included.

So, it is possible here that ease of articulation could override indexicality that might otherwise be required if certain referents from a group are being picked out (see Section 5.3. below for more about the indexicality of exclusive forms).
5.2.2. Centralisation

The other non-indexic tokens from both languages were centralised. That is, the pronoun was produced at the centre of the signer’s chest when the referents (represented by the visual aids) were located on the signer’s contralateral or ipsilateral side. These two situations (whether the referents were on the contralateral or ipsilateral side) require very different explanations.

Centralisation from contralateral side

If the referents are on the contralateral side, then a pronoun produced at the centre could be considered to be partially ipsilateralised. That is, a centralised pronoun here would be more ipsilateral than a contralateral pronoun. So, the explanation here could potentially be similar to the motoric explanation given above for ipsilateralisation – that is, that these pronouns are produced centrally instead of contralaterally due to ease of articulation. There were 15 of these tokens in the ASL data and 12 in the BSL data, represented by \( Centralised(1) \) in Figure 13.

Centralisation from ipsilateral side

However, there were other non-indexic tokens that were centralised when the referents were located on the ipsilateral side (20 tokens in ASL, 21 tokens in BSL, represented by \( Centralised(2) \) in Figure 12). In these cases, the pronoun is being pulled away from the ipsilateral side. If we assume that the ipsilateral position is motorically easiest as claimed above, these tokens are quite anomalous. The motorically easiest position for these pronouns should be the same position that would lead to a match in indexicality (i.e. ipsilateral). So why are these pronouns being pulled away from the ipsilateral side?

I propose that the reason for the loss of indexicality occurring with centralised pronouns is due to first person marking. Section 2.2.4 above notes that although there is no special location associated with addressees or non-addressed participants, there is a special location associated with the signer – this constitutes part of Meier’s (1990) argument for a distinct first person category. The fact that these non-indexic tokens have been centralised, I argue, is due to first person marking. The results of this part of the study confirm the centre of the chest as the default location for first person marking. I argue that this location is such a strong marker of first person marking that it can override indexicality.
5.2.3. Indexicality of forms produced in inclusive contexts

Nearly all of the non-indexic pronouns which were produced in inclusive contexts in this study were ipsilateralised or centralised. In fact, only one token out of 245 was contralateralised (that is, produced on the contralateral side when the referents were not). The explanations offered here for ipsilateralisation are largely motoric (ease of articulation). Centralisation could be explained partially in terms of motoric ease (in cases of ipsilateralisation toward the centre), but is more likely to have linguistic reasons, especially in cases of centralisation away from the ipsilateral side. The linguistic explanation is that indexicality can be lost due to explicit first person marking, that is, locating the pronoun at the centre of the chest. This supports the special status of first person that is at the heart of Meier’s (1990) first/non-first person distinction. We see here that this holds for both ASL and BSL. These results support the notion that signed languages as grammatical systems are subject to both motoric and linguistic constraints. This is true in particular of the pronominal systems of these languages.

5.3. Exclusive forms: Indexicality results & discussion

Exclusive pronouns in this study were displaced to the ipsilateral or contralateral side of the signer’s chest. One might expect that with a displaced exclusive pronoun, the pronoun would be indexic of those referents that are included, in order to mark some other referent as being excluded. However, they were not all displaced in terms of indexicality. Table 8 below shows the indexicality totals for the exclusive pronouns.

<table>
<thead>
<tr>
<th></th>
<th>Indexic tokens</th>
<th>Non-indexic tokens</th>
<th>Total (N)</th>
<th>% indexicality</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASL</td>
<td>80</td>
<td>26</td>
<td>106</td>
<td>76%</td>
</tr>
<tr>
<td>BSL</td>
<td>104</td>
<td>3</td>
<td>107</td>
<td>97%</td>
</tr>
</tbody>
</table>
5.3.1. Non-indexic ASL tokens

The ASL exclusive pronouns in Table 8 show 76% indexicality, with 26 tokens that were not indexic. Follow-up meetings with the participants confirmed that exclusive pronouns did not necessarily have to be indexic of the included referents. One example of a non-indexic pronoun token from the elicited data is shown in example (9) and Figure 14 below.

(9) Left hand: THREE-OF-US-DISPLACED [ASL]  
    Right hand: FOND-OF CAT  
    ‘The three of us (excl) love cats.’

![Figure 14. Bird’s-eye view of the discourse situation during the production of example (9). The location of the pronoun THREE-OF-US-DISPLACED is marked by X. C and D represent the referents that the pronoun includes (along with the signer); B represents the addressee (whom the pronoun excludes).](image)

In example (9), the referents of the pronoun THREE-OF-US (i.e. the visual aids) are on the signer’s right side, represented by the X, Y and Z markers in Figure 14. A pronoun matching the location of the referents in this instance would be on the signer’s right side. In this instance, however, the signer produced a pronoun on her left side, represented in Figure 14 by “*”. Furthermore, she produced this pronoun using her left hand (despite the fact that she is normally right-handed); this pronoun was then held in place while she signed the rest of the sentence (FOND-OF CAT) with her right hand. The other 25 ASL non-indexic exclusive tokens were similar to this example.
The BSL exclusive pronouns however are extremely indexic at 97%. In fact, all but 3 tokens of the exclusive pronoun data from BSL were indexic. The following section examines those 3 tokens in more detail.

5.3.2. Non-indexic BSL tokens

The three non-indexic BSL pronoun tokens had something in common. All three of them were produced in an utterance that ended with the phrase YOU NOTHING. The three examples are glossed in examples (10), (11) and (12) below.

(10) Referents (represented by visual aids) were located on the left: 
ALL[right] BEEN\textsuperscript{12} STONE tracing-classifier KISS, \[BSL\] 
YOU NOTHING 
‘All of us kissed the round-shaped stone, but not you.’

(11) Referents (represented by visual aids) were located on the left: 
3-OF-US[centre] BEEN FLOWER GIVE-BOUQUET TEACHER, 
YOU NOTHING 
‘The three of us gave the teacher flowers, but not you.’

(12) Referents (represented by visual aids) were located on the left: 
ALL[right] LOVE CAT YOU NO\textsuperscript{13}, LIKE DOG 
‘All of us like cats except you – you like dogs.’

In these examples, the excluded referent is explicitly identified by a negative phrase (YOU NOTHING or YOU NO) occurring at the end of the clause. In examples (10) and (12), the referents were located on the left and the signer produced the pronoun ALL on her right side. In example (11), the referents were located on the left and the signer produced the pronoun 3-OF-US at the centre of her chest.

These examples suggest that if the excluded referent is explicitly identified, indexic displacement of a pronoun is not necessary. The displacement of the pronoun need not match the location of the referents, as shown by examples (10) and (12). Or, displacement may not occur at all, as shown in example (11).

Although these were the only examples of non-indexic exclusive pronouns in the BSL data, all three of these tokens were produced by the
same signer. Thus, there could be some variation across signers in the use of this negation construction for marking exclusion of referents. More data from more signers are needed to explore this further.

5.3.3. Indexicality of exclusive forms

The exclusive pronoun data have shown that exclusive marking in both ASL and BSL is marked by displacement of the pronoun to the signer’s ipsilateral or contralateral side. The data also revealed a difference between ASL and BSL in the obligatoriness of indexicality with these displaced forms. Results showed that in ASL, displacement need not indexically match included referents. However, in BSL, displacement must match included referents. The only exception is if the excluded referent(s) are explicitly identified as in examples (6) to (8) above, in which case indexic displacement is not necessary.

These results are important because they provide counter-evidence for a common assumption about signed languages: that is, the assumption that use of space for reference is uniform across sign languages. Here, we see a difference in indexicality between ASL and BSL. The displacement that occurs with BSL exclusive pronouns is indexic, just as Liddell’s analysis predicts. However, the displacement of ASL exclusive pronouns need not be indexic. The obvious question here is: Why do we see this difference between the two languages?

Perhaps to answer this question it would help to look at other types of visual motivation in signed language. As noted in the introduction, indexicality is indeed one type of visual motivation. That is, the location that a sign is directed toward (or is produced at) is motivated by the actual physical location of its referent (or the location the referent is associated with). Other visually motivated signs include signs that are iconic – that is, signs whose form resembles or somehow represents their meaning. So, an interesting question to raise here is: Is there any evidence of cross-linguistic variation with iconicity?

All known sign languages have signs that are iconic. However, all sign languages also have signs that are arbitrary. A concept that might be iconically represented in one signed language might be arbitrarily represented in another signed language. For instance: the signs for BLUE in BSL are produced on the hand or wrist. These signs are generally taken to be an iconic representation of blue veins on the hand or wrist. But the sign
BLUE in ASL is an initialised sign, a B-handshape in neutral space with forearm rotation. This sign, although its handshape is motivated by the manual alphabet which is itself motivated by English orthography, is not visually motivated. The form of this sign is in no way linked to its meaning. This can be seen with the entire lexical family of initialised colour signs in ASL (BLUE, YELLOW, GREEN, PURPLE, etc.) which differ only in handshape and are in no way visually motivated. Thus, we see that signed languages differ in which concepts they encode iconically and which they encode arbitrarily. Obviously visual motivation in signed languages is quite strong, and very many concepts which can be encoded visually probably are. But this example shows there is room for cross-linguistic variation here.

There has been little research comparing relative levels of iconicity across signed languages. However, Aronoff et al. (2003) look at the lexicalisation of classifier constructions in ASL and Israeli Sign Language (ISL) – such constructions are often noted for their strong iconicity. Aronoff et al. found some differences between these constructions – particularly, that classifier constructions in ASL seemed more arbitrary than those in ISL, which seemed more iconic. (For instance, ASL has a larger class of entity classifiers, the handshapes for which seem to be more arbitrary than those in ISL.) They attribute this difference in level of iconicity (and extent of lexicalisation in which iconicity is lost) to the relative difference in age between the two languages: ISL is a much younger language than ASL. Following Frishberg (1975), who found a tendency for iconic signs to become more arbitrary over time, Aronoff et al. predict that classifier constructions in ISL may become more arbitrary over time but so far they are less arbitrary than those of ASL.

There may well be some differences between ISL and ASL due to the different ages of the two languages. However, it is dangerous to make this claim based on these two languages alone. Classifier constructions in BSL are much more like those described by Aronoff et al. for ISL than for ASL. For example, BSL seems to have fewer entity handshape classifiers than ASL. BSL is not younger than ASL – if anything it is older. BSL can be traced back to about the mid-17th century.\textsuperscript{14} ASL can be traced back at least to the establishment of the first school for the deaf in 1817, but not as far back as the mid 1600’s.\textsuperscript{15} So, if the iconicity of classifier constructions in ASL is more lexicalised (arbitrary) than BSL, age is not likely to be the reason.

It is also possible to look at iconicity from a grammaticisation perspective. Janzen and Shaffer (2002) have looked at the grammaticisation
of modals in ASL and provide evidence that the modal signs CAN, MUST, and WILL derive from gestural, iconic origins (via the LSF signs STRONG, OWE, and GO, respectively). The origins of these modals in BSL appear to be completely different. The modal signs CAN, MUST, and WILL in BSL do not even remotely resemble any signs or gestures meaning STRONG, OWE, and GO that I have been able to find. Clearly there is room for the possibility that these BSL modals are iconic but with very different origins than the origins of the iconicity in ASL. It is also quite possible that these modal signs in BSL are just arbitrary. The point here is: BSL modals do not seem to have the same iconic origins as ASL modals. ASL has followed a particular grammaticisation path for these modals that BSL has not followed.

All of these findings together suggest that, whatever the reason, iconicity is something that can and does vary across signed languages. There is no reason to expect that indexicality, another type of visual motivation, should be different.

Recent work by Aronoff et al. (2004) on Abu Shara Bedouin Sign Language (ABSL) provides further evidence of cross-linguistic variation among signed languages with respect to indexicality. Aronoff et al. found that verbs that are directional in most signed languages (that is, verbs like ‘send’ and ‘throw’) do not show directionality in this sign language. Another way of putting it is that these verbs are not indexic as one would expect. Aronoff et al.’s explanation for this lack of directionality is the young age of the language (it is only about 70 years old); they hypothesise that as the language matures it may develop more indexic, directional forms.

This hypothesis is supported by Meier (2002), who cites data suggesting that signed languages become more directional as they mature – that is, indexicality becomes stronger over time. As noted above, the common assumption about iconicity is that signs become more arbitrary as signed languages mature. That is, iconicity becomes lost over time – this has been shown at the very least for ASL (Frishberg 1975). On the surface, if we consider both indexicality and iconicity to be types of visual motivation, this seems to be contradictory. However, I suggest that there is a distinct difference between indexicality with singular forms and with plural forms, and that plural forms are particularly susceptible to loss of indexicality while singular forms retain their indexicality. As far as I can tell, the data cited in Meier (2002) is consistent with this claim.
Based on data presented from the current study on ASL and BSL, I would like to propose that indexicality in exclusive pronouns has been grammaticised in ASL such that these forms no longer necessarily need to be indexic. BSL on the other hand has not grammaticised indexicality in this way. This suggests that within the set of signed languages that use indexic mechanisms, the extent of indexicality can vary across these languages. Clearly more data on other signed languages would help shed light on the factors involved here.

5.4. Indexicality of forms produced in inclusive and exclusive contexts

We have seen in the previous section both linguistic and motoric reasons for non-indexicality. We have certainly seen this with forms produced in inclusive contexts as noted above – ipsilateralisation of these forms seems to be due to motoric factors, while centralisation seems due mostly to linguistic marking of first person.

However, we can also see both linguistic and motoric reasons for non-indexicality with the exclusive pronoun data to some extent. Of the three non-indexic exclusive BSL tokens described above, two (examples (10) and (12)) were ipsilateralised, while one (example (11)) was centralised.

![Figure 15. Non-indexic pronoun tokens (exclusive context), by type](image-url)
Of the 26 non-indexic exclusive forms in ASL, 5 were ipsilateralised, 13 were centralised, and 8 were contralateralised – see Figure 15 above. Note that the contralateralisation is what really makes ASL unique here. Ipsilateralisation and centralisation occurred with forms produced in both inclusive and exclusive contexts, in both ASL and BSL. But contralateralisation does not occur widely in any of the data, except within the non-indexic ASL tokens of which contralateralised forms constitute 30%.

6. Summary and conclusion

The results of these studies on first person pronouns in ASL and BSL reveal that pronouns do not all ‘point’ to their referents to the same degree. That is, pronouns are not all equally indexic: plural pronouns are less indexic than singulars, and first person plurals are even less indexic than general plurals. This lack of indexicality with first person plural forms involves two factors. One of these is linguistic – specifically, a strong preference for the centre of the chest as a marker of first person, and the other is motoric – a tendency for some first person plurals to be produced on the ipsilateral side of the signer’s chest. In some cases the loss of indexicality could be due to a combination of these two factors.

Centralisation supports the first/non-first person analysis of Meier (1990). The fact that centralisation can override indexicality, which in non-first person contexts is considered to be extremely strong, reaffirms the special status of first person in both ASL and BSL.

Another important finding from this study is that distinct exclusive pronouns were identified in both ASL and BSL. For the first person pronouns which were produced in inclusive contexts, there was no clear difference in indexicality between ASL and BSL. However, with exclusive pronouns, there was a clear difference between the two languages. While BSL exclusive pronouns must be indexic of their referents, ASL exclusive forms need not be indexic. Comparisons with iconicity (another type of visual motivation in signed languages) suggest that indexicality, like iconicity, may be a feature of signed languages that is subject to cross-linguistic variation. All signed languages clearly have iconic and indexic elements, but the extent to which these elements prevail in a given signed language (versus the extent to which these elements have become lost, possibly due to lexicalisation or grammaticalization) is variable.
7. Areas for future research

One aspect of this study that could certainly be improved upon is the amount and type of data on which it is based. More data from a variety of signers from both ASL and BSL would help strengthen the findings from this study. It would be best to have both grammaticality judgements from a larger number and greater variety of signers as well as naturalistic data, to confirm whether these patterns do occur in discourse.

The most obvious way to improve and extend this study in other ways would be to examine first person plural pronouns in other signed languages. The centre of the chest as the locus for first person is something that does occur in most Western signed languages. (Clearly, there is probably some relationship between the centre of the chest as first person locus and the ‘me’ gesture used by hearing non-signers in Western culture which is produced at the same location.) Data on these signed languages would support the claims here that the centre of the chest is such a salient marker of first person that it can override indexicality. However, not all signed languages use this locus for first person reference. One example is Japanese Sign Language (Nihon Syuwa, NS); one form of the first person singular pronoun ME is a point to the chest, but another variant is a point to the signer’s nose (following the gesture used for ‘me’ in Japanese hearing culture) (McBurney 2002). The first person plural pronoun (denoting signer + others) is a point to the nose followed by a spread 5 handshape with palm down in neutral space with a small circular movement (Susan Fischer, personal communication). Research on pronouns in NS would help determine the distribution of this and any other first person plurals in the language, whether any inclusive/exclusive forms exist, and also the indexicality of these pronouns.

Other research related to this study could examine more closely the loss of visual motivation in various signed languages over time, including loss of both indexicality and iconicity. With iconicity there is a wealth of different types of signs and grammatical constructions ( iconic lexical signs, classifier constructions, role shift, etc) that are strongly iconic. There is evidence from ASL that signs become less iconic and more arbitrary over time. Does this same process happen for other signed languages? Are there reasons why some forms might lose their iconicity differently or more quickly than others? Does loss of iconicity vary from one type of grammatical construction to the next, or from one sign language to the other? Addressing these kinds of questions would help support the finding
here that visual motivation (particularly how signed languages use space) is not uniform across signed languages as previously thought.

Notes

1. A few acknowledgements are in order: I would firstly like to thank those Deaf native signers of ASL and BSL who participated in these studies. I would also like to thank Perry Connolly for acting as model for the ASL examples and Sandra Smith for acting as model for the BSL examples. I am grateful to Claude Mauk, Martha Tyrone, and especially Richard P. Meier for very helpful comments on earlier drafts of this paper. I thank three anonymous reviewers for their comments as well.

2. There are some (Ahlgren 1990; McBurney 2002, 2004) who, like Liddell, have concluded that no formal person distinctions exist in signed languages. While these researchers do not explicitly adopt a gestural analysis as Liddell does, their analyses are consistent with Liddell’s.

3. The adoption of a particular model of person (e.g. a locus-feature approach vs. a gestural approach similar to Liddell) is not necessary for the purposes of this paper. For more detail and a clearer stance on the issue, see Cormier (2002).

4. Clearly in practice there are restrictions on the number of distinct locations that can be referred to at one time – that is, it becomes difficult to keep track of more than about 4 or 5 locations at once. There are also conventions for how and where these locations are distributed in space. The point here, however, is that theoretically an infinite number (or at the very least, a large indeterminate number), and an infinite or very large indeterminate spatial distribution, is possible.

5. Berenz (2002) uses data from Brazilian Sign Language (Língua de Sinais Brasileira, LSB) to argue against Meier’s first/non-first person analysis, in particular arguing for a distinct second person category. Importantly, however, her arguments do not challenge the linguistic status of first person:

   “Although I question some of the details of Meier’s argument for a grammaticised first person pronoun, I agree with his conclusion. For this reason, I will not discuss the status of first person pronouns here, but rather I will focus on the issue of greatest disagreement: the grammaticisation of the conversational role of recipient in a second person pronoun.”
   (Berenz 2002: 206).

6. During follow-up meetings with BSL participants, several other forms of we were mentioned. One was similar to this one but with the index finger
pointing upward. Another had both a downward index finger and an upward index finger rotating around each other in neutral space (similar to the ASL sign TORNADO). At this point, it is unclear whether and how these three pronouns differ in meaning; I leave this for future research.

7. Interestingly, in these cases, participants did not always agree on which siblings had to be excluded; however, they did agree that these forms had to be exclusive of at least one of the siblings.

8. Although see Daniel (2005) for examples of spoken languages with forms that particularly include participants other than the addressee.

9. Displacement of these plural pronouns to the right or left can certainly be used to indexically mark the general location of a group (Baker-Shenk and Cokely 1980). The point here is that when these displaced pronouns are not indexic, they must be exclusive (i.e. excluding some salient referent).

10. Note that, in addition to the pronoun tokens tallied in this chart, there was one token of a BSL pronoun that was contralateralised, bringing the total number of non-indexic tokens in BSL to 46.

11. In this single contralateralised token there was only one referent, represented by a visual aid positioned directly in front of the signer, but the signer clearly gazed toward his left and signed TWO-OF-US as if the addressee were on the left.

12. BEEN is an aspectual auxiliary in BSL marking the completion of an action.

13. This sign, glossed here as NO following Sutton-Spence and Woll (1998), is produced with a B-hand facing away from the signer with slight forearm rotation creating a shaking movement.

14. Although the first school for the deaf was not opened until 1760, there is ample evidence that a conventional sign language existed in Britain dating back to as early as 1666 (Jackson 1990).

15. The language that came to be modern ASL was influenced largely by French Sign Language (Langue des Signes Française, LSF) and also to some extent by the signed language used on Martha’s Vineyard dating back to the 17th century, which according to Groce (1985) can be traced back to the sign language used in Kent, England earlier in the 17th century. The creolisation resulting from these varied sources, and the fact that ASL could potentially be traced back (however loosely) to an early Kentish version of BSL, makes it difficult to truly compare the ages of ASL and BSL.
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