17 Deictic points in the visual–gestural and tactile–gestural modalities

David Quinto-Pozos

17.1 Introduction

A Deaf-Blind person has only one channel through which conventional language can be communicated, and that channel is touch. Thus, if a Deaf-Blind person uses signed language for communication, he must place his hands on top of the signer’s hands and follow that signer’s hands as they form various handshapes and move through the signing space. A sign language such as American Sign Language (ASL) that is generally perceived through vision must, in this case, be perceived through touch.

Given that contact between the signer’s hands and the receiver’s hands is necessary for the Deaf-Blind person to perceive a signed language, we may wonder about the absence of the nonmanual signals of visual–gestural language (e.g. eyebrow shifts, head orientation, eye gaze). These elements play a significant role in the grammar of signed languages, often allowing for the occurrence of various word orders and syntactic structures. One of the central questions motivating this study was how the absence of such nonmanual elements might influence the form that tactile–gestural language takes.

Thus, this study began as an effort to describe the signed language production of Deaf-Blind individuals with a focus on areas where nonmanual signals would normally be used in visual–gestural language. However, after reviewing the narrative data from this study, it quickly became evident that the Deaf-Blind subjects did not utilize nonmanual signals in their signed language production. In addition, they differed from the sighted Deaf subjects in another key area: in the use of deictic points as a referencing strategy. After further investigation, it seemed likely that this referencing strategy is linked to the use of the nonmanual signal eye gaze.

This study describes the use of deictic points in narratives produced by two Deaf-Blind adults vis-à-vis the use of deictic points in narratives produced by two Deaf sighted adults. The narratives (one per subject) were signed by each subject to each of the three other subjects in the study, which means that each subject recounted her or his narrative three times; to both sighted Deaf, and Deaf-Blind interlocutors. This design made it possible to examine language production and the manner in which it may vary as a function of the interlocutor.

17.2 Signed language for the blind and sighted: Reviewing similarities and differences

One of the most common methods of communication for Deaf-Blind individuals in the USA involves the use of signed language that is perceived by touch (Yarnell 1980), which I refer to as tactile signed language. In many cases – such as those in which Deaf-Blind individuals experience the loss of sight after the loss of hearing – tactile signed language is the adaptation of a visual signed language to the tactile modality (Reed, Durlach, and Delhorne 1992). The documented adaptations will be reviewed in Section 17.2.1. However, there are also cases in which congenitally deaf and blind individuals use tactile signed language for communication, but it is not clear if they use it in the same manner as those who became blind after having learned conventional signed language. Cases of congenitally Deaf-Blind individuals who use tactile signed language are interesting because their language acquisition would necessarily take place tactually, rather than visually. The tactile acquisition of language may influence the structure and/or form of a language that is learned, and cause it to differ from visual–gestural and auditory–oral languages, at least in some areas. Research on this topic may be of fundamental importance to our understanding of language acquisition generally, but that is not the primary focus of this study.

One point from this section must be emphasized: The use of tactile signed language for communication – whether by the congenitally deaf and blind or by later-blinded individuals – is quite successful. A brief discussion of the literature on the signed language used by Deaf-Blind people makes this clear. This portion of the literature review accomplishes two goals: it familiarizes the reader with comprehension studies that have been conducted on Deaf-Blind users of signed language, and it explains several points about the unique form of tactile signed language.

17.2.1 Communication in tactile sign language

17.2.1.1 A look at Deaf-Blind communication. Studies of tactile signed language have been conducted in which subjects' accuracy in perceiving language tactually has been measured. The tactile modality yields highly accurate perception of fingerspelling at naturally produced rates, which is about two to six letters per second (Reed, Delhorne, Durlach, and Fischer 1990). In addition, the tactile reception of signs—such as that of fingerspelling—is highly accurate, but there are some areas where errors tend to occur. For instance, in a study of the reception of 122 isolated signs by nine Deaf-Blind subjects, Reed, Delhorne, Durlach, and Fischer (1995) showed that the phonological parameter of location—which accounted for 45 percent of the one-parameter errors of perception in their study—appears to be more difficult to perceive in isolated signs than movement, handshape, and orientation. Yet, despite the observed errors of perception, the authors reported that the nine Deaf-Blind subjects identified isolated signs accurately between 75 percent and 98 percent of the time.3

In the same publication, Reed et al. (1995) also examined the perception of signs in ASL and PSE (Pidgin Sign English) sentences.4 This part of the study yielded a different result from their examination of the perception of isolated signs. When presented with sentences as stimuli the Deaf-Blind subjects made more errors in the phonological parameter of handshape than in location, movement, and orientation. In the end, the subjects' accuracy for perceiving signs in sentences ranged from 60 percent to 85 percent.5 Regarding the different types of errors encountered in the reception of isolated signs versus signs in sentences, Reed et al. (1995:485) suggested that the "better reception of handshape in citation form may result from the fact that handshape is the most redundant part of the sign in frozen lexical forms...[while] in continuous signing, handshape is less redundant than in isolated signs." Even though the Deaf-Blind subjects in this study made minimal perception errors in isolated signs and signs in sentences, Reed et al. (1995:488) asserted that "the tactile reception of sign language is an effective means of communication for deaf-blind individuals who are experienced in its use."

17.2.1.2 The form of tactile signed language. Recent work has claimed that there are various ways in which tactile signed language differs from visual ASL. Specifically, Collins and Petronio (1998) described the changes that visual ASL undergoes when signed in a tactile modality, and they referred to the language production of Deaf-Blind individuals as "Tactile ASL."6 One difference relates to back-channel feedback strategies that exist in Tactile ASL and not in visual ASL (e.g., Tactile ASL utilizes finger taps and hand squeezes for back-channel feedback), and another difference is that the signing space in Tactile ASL is generally smaller than in visual ASL because of the close proximity of the signer and interlocutor. Also, ASL signs articulated with contact on the body/torso/head are produced somewhat differently in Tactile ASL because the signer's body/torso/head commonly moves to contact the hand as it articulates the sign in the space in front of the signer rather than the hand(s) moving to contact the body/torso/head.

3 It may be the case that non-Deaf-Blind users of visual signed language would also fail to reach 100 percent accuracy if they were asked to perform a similar identification task. In other words, sighted Deaf individuals would likely fail to reach 100 percent identification accuracy on the identification of isolated signs and signs in sentences in visual signed language. However, sighted Deaf individuals did not participate in the Reed et al. (1995) study in order to compare such figures.

4 In this portion of the Reed et al. (1995) study, 10 subjects—rather than nine as in part one—were presented with the sentence stimuli; five subjects were given ASL sentences to repeat and five were given PSE (Pidgin Sign English) sentences to repeat. The term PSE was introduced by Woodward (1973) as the language use among the deaf that displays grammatical elements of other pidgins, with elements of both ASL and English. Later work (Cokely 1983) made the claim that PSE is not really a pidgin, but rather, among other things, a type of foreigner talk with influence from judgments of proficiency. These issues are beyond the scope of this chapter. Regarding the Reed et al. (1995) study, there were some group differences between the two groups regarding the degree of perception accuracy, but both groups made the most errors in the parameter of hand shape when presented with sentence stimuli.

5 Subjects in the Reed et al. study who were presented with PSE sentences fared better in the reception of signs in sentences than those subjects who were presented with ASL sentences. This may be due to the subjects in the study and their preferences rather than the "forms" of the message. However, it is worth remarking that several of the PSE subjects in the study learned language tactually (in one form or another) because they were born deaf and blind, or they became so at a very early age. In fact, Reed et al. (1995:487) mentioned that "the subjects in the PSE group may be regarded as closer to native signers of tactile sign language than the subjects in the ASL group." On the other hand, most of the "ASL subjects" were Deaf-Blind individuals who had lost their sight after having acquired visual ASL. Clearly, more research is needed on the sign language production of congenitally Deaf-Blind individuals in order to determine if tactual language acquisition has a unique effect on the form and/or structure of the signed language used.

6 The terms "visual ASL" and "Tactile ASL" were used by Collins and Petronio (1998) to refer to traditional ASL as it is signed in North America and ASL as it is signed by Deaf-Blind individuals, respectively. The term "visual ASL" is used in the same manner in this chapter, although the label "Tactile ASL" can be somewhat misleading, since tactile signed language in the USA, like visual sign language, can have the characteristics of ASL or Signed English, as well as variations that contain elements of both varieties. The basic claim that Collins and Petronio make is that the Deaf-Blind subjects in their studies signed ASL with some accommodations for the tactual modality, hence the term "Tactile ASL." I refer to the signed language used by the Deaf-Blind subjects in the study described in this chapter as "tactile signed language," and avoid terms such as Tactile ASL or Tactile Signed English (which is also a possibility if referring to the signed language of Deaf-Blind individuals). Also, Collins and Petronio referred to differences between Tactile ASL and visual ASL as "sociolinguistic changes ASL undergoes as it is adapted to the tactile mode" (1998:18). It seems that these "changes" could be better described as linguistic accommodations or simply adaptations made to ASL (or sign language in general) when signed in a tactual modality. The term "sociolinguistic changes" implies diachronic change for many researchers, and the direct claim of diachronic change of visual ASL to tactile ASL has not been advanced by any known researcher.
In addition to the differences mentioned above, Collins and Petronio observed that Tactile ASL regularly contains overt elements that are often covert or are represented nonmanually in visual ASL. For example, in visual ASL a signer can use a nonmanual signal to mark a yes–no question (in this case, raised eyebrows) without articulating the lexical sign QUESTION. However, Collins and Petronio reported that the Deaf-Blind subjects who they observed all used the lexical sign QUESTION at the end of a yes–no question. In addition, visual ASL signers can sometimes use nonmanual signals in place of lexical wh-question signs whereas Tactile ASL signers— as reported by Collins and Petronio (1998)—produce lexical signs to accomplish the same function. Thus, what appears to differ between visual ASL and Tactile ASL regarding the use of yes–no and wh-question lexical signs is that in visual ASL such signs are optional whereas in Tactile ASL the same signs appear to be obligatory.

Collins and Petronio (1998) also claimed that the ASL second person singular sign YOU can be used to introduce questions that are directed at a Deaf-Blind interlocutor. This observation—which is of particular relevance to the current study—was also made by Petronio (1988), who observed that Deaf-Blind people report being confused when a question is put to them. In order to avoid confusion, it appears that the use of a sentence-initial point to the interlocutor has been adopted for communicating that the subsequent sentence is indeed a question directed at the receiver.

As one can see, tactile signed language is an effective tool for communication among Deaf-Blind individuals in the USA, but there exist several ways in which it differs from conventional ASL as used by Deaf sighted individuals. One of the differences—the function and use of the deictic point—is focused upon in this chapter. A brief review of the use and function of deictic pointing (both manually and nonmanually) in visual ASL is in order first.

17.2.2 The deictic point in visual ASL

The deictic point is claimed to carry out several functions in visual ASL. It has been described as a specifier of pronominal reference (Lillo-Martin and Klima 1990; Meier 1990; Engberg-Pedersen 1993; among others), a determiner (Bahan, Kegl, MacLaughlin, and Neidle 1995; Bahan 1996), a syntactic tag (Padden 1983), or a pronominal clitic (Kegl 1986; 1995; Padden 1990), as well as other functions that have not been included here. Some recent accounts claim that the deictic point in visual ASL is not entirely linguistic, but also includes a gestural component (Liddell 1995; Liddell and Metzger 1998).

In the present study, I refer to deictic points as instances of indexation, and different types of indexation are described based on their semantic functions.

17.2.3 Nonmanual signals that function as referential devices in visual ASL

One of the functions of nonmanual signals in visual ASL is that of referential indicator, and one way that this referential function is realized is through eye gaze. For instance, based on work by Bendixen (1975) and Baker (1976a, 1976b), Liddell (1980:5) noted that “the eyes are directed initially toward the location to be established, apparently a normal part of the location establishment process.” Additionally, eye gaze can function as pronominal reference (Baker and Padden 1978; Liddell 1980) once an association or a link is established between a location in space and a nominal argument. Sometimes eye gaze accompanies a deictic point that is directed at a location that was previously established in the signing space and that was linked to a particular referent (Petronio 1993). In addition, in an account of eye gaze as a syntactic agreement marker in ASL, Bahan (1996:270) claimed that eye gaze can co-occur with a manual deictic point, but cannot occur alone, except in a “special whisper register.” As can be noted from these accounts, eye gaze is widely used in visual ASL for referential purposes.

One other type of nonmanual signal in visual ASL that is pertinent to this study is torso/head/eye-gaze orientation (often termed a “role-shift”), and one function of such orientation is to mark “direct” or “reported” speech in ASL (Padden 1990). For example, if a signer is referring to a statement made by a third person who is not present, the signer can change his or her torso/head/eye-gaze orientation, and the subsequent statement is understood to have been made by a third person who is not present.

17.2.4 The focus of this study

This study focuses on tactile signed language and the absence of several visual signed language nonmanual signals (e.g. eyebrow shifts, head orientation, 8

---

8 In certain circumstances, a deictic point to the signer (first person singular) can also be referentially ambiguous, possibly referring to the signer or possibly referring to another character in ASL discourse.

7 In this chapter I primarily address instances of a point (G handshape, palm facing downward or toward the imaginary mid-sagittal line in the signing space) directed to locations other than the signer himself or herself.
and eye gaze). Does the signed language production of Deaf-Blind individuals differ substantially in form from that of Deaf sighted individuals in the context of recounting narratives? If so, how does such production differ, and can the absence of visual signed language nonmanual signals be implicated in the difference(s)?

17.3 Method of this study

17.3.1 Subjects

Four subjects participated in this study of tactile signed language in narrative form. Of the four, two are Deaf and sighted, and two are Deaf and blind. Information about the background of these subjects appears in (1).

(1) Description of subjects

- DB1: male, congenitally deaf and blind (Rubella); began to learn sign language at age four; began to learn Braille at age six; age at time of study: 25
- DB2: male, born with hearing and sight, deaf at age five; diagnosed with Usher Syndrome at age 11;\(^9\) fully blind at age 19; age at time of study: 34
- D1: female, congenitally deaf, fourth generation Deaf; age at time of study: 28
- D2: male, congenitally deaf, second generation Deaf; age at time of study: 26

The Deaf sighted subjects (D1 and D2) were chosen because they were born deaf, are both children of Deaf parents, and also because both had previously interacted with Deaf-Blind individuals. Thus, D1 and D2 had some experience using signed language actually, and they were both relatively comfortable communicating with the Deaf-Blind subjects in this study. As a consequence of D1 and D2 having Deaf parents, it is assumed that ASL was learned by each of them in environments that fostered normal language development. Furthermore, they both attended residential schools for the Deaf for their elementary and secondary education, and they both socialize frequently with family and friends in the Deaf community.

Different criteria were used for the selection of the Deaf-Blind subjects for the study. DB1 and DB2 were chosen based on their vision and hearing impairments as well as their language competence. Language competence was an important criterion for inclusion in this study because the subjects needed to be able to read the story that was presented to them. Both of them had graduated from high school and, at the time of this study, were enrolled in a community college. They appear to be highly functioning individuals as evidenced by their participation in an independent living program that encourages each of them to live in his own apartment and to hold at least part-time employment in the community. Both DB1 and DB2 are nonnative signers inasmuch as their parents are hearing and did not use signed language in the household. Regarding primary and secondary education, there were several similarities between DB1 and DB2. DB1 was educated in schools that used Signed English for communication. However, he reports that he started to learn ASL in high school from a hearing teacher. From the age of five to 19, DB2 also attended schools where Signed English was the primary mode of communication. At the age of 19, he entered a school for the Deaf and began to learn ASL actually because he was fully blind by this point. DB2 spent three years at this school for the Deaf. Upon graduating, he attended Gallaudet University, but was enrolled for only about one year. Currently, both DB1 and DB2 read Braille and use it daily. In fact, they read periodicals, books from the public library, and other materials written in Braille on a regular basis. Because of this, it is assumed that their reading skills are at least at the level needed to understand the simple narratives that were presented to them. The narratives are discussed below.

17.3.2 Materials

Each subject was presented with a short narrative consisting of 225–275 words. The narratives were written in English for the Deaf sighted subjects and transcribed into Braille for the Deaf-Blind subjects. Each narrative contains dialogue between at least two characters and describes an interaction between these characters. Several yes–no and wh-questions were included in each of these narratives. In an effort to diminish the influence that English structure would have on the signed form of each story, the narratives were presented to all four subjects 24 hours before the videotaping was conducted. Each subject was allowed 30 minutes to read his or her story as many times as he or she wished and was instructed that the story would have to be signed from memory the following day. Each subject only read his or her own story prior to the videotaping.

17.3.3 Procedure

For the videotaping of the narratives, each subject signed his or her story to each of the other subjects in the study one at a time. If a Deaf-Blind subject was the recipient of a narrative, he placed his hand(s) on top of the signer's hand(s). However, the sighted Deaf subjects did not place their hands on the

\(^9\) While DB2 reported being diagnosed with Usher Syndrome at age 11, these ages do not correspond with normal onset of blindness in the several standard types of Usher Syndrome patients. It is a possibility that DB2 was misdiagnosed with this condition, which accounts for the ages in question. I thank an anonymous reviewer for pointing out this peculiarity to me.
Table 17.1  Narrative and subject order for data collection

<table>
<thead>
<tr>
<th>Segment numbers</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storyteller</td>
<td>DB2</td>
<td>D1</td>
<td>DB2</td>
<td>D2</td>
<td>DB1</td>
<td>D1</td>
<td>D2</td>
<td>D1</td>
<td>D1</td>
<td>DB1</td>
<td>DB2</td>
<td></td>
</tr>
<tr>
<td>Receiver</td>
<td>DB1</td>
<td>DB1</td>
<td>D2</td>
<td>D1</td>
<td>DB2</td>
<td>D1</td>
<td>DB2</td>
<td>DB1</td>
<td>DB2</td>
<td>D2</td>
<td>D2</td>
<td>D1</td>
</tr>
</tbody>
</table>

signer's hands when they were recipients of narratives. The 12 narratives were videotaped in random order and followed the format in Table 17.1.

17.4  Results/discussion

This presentation of the results begins with general comments regarding the narratives presented by the subjects and then addresses the specific differences between the subjects. Given this format, the reader will see the ways in which the 12 narratives were similar as well as ways in which the narratives differed, presumably as a result of the particular narrator and recipient pairing.

17.4.1  Length and numbers of signs in the narratives

The narratives produced by the four subjects during the videotaping session were similar in length and number of signs produced. The average length of the 12 videotaped narratives was approximately three minutes with the shortest narrative lasting two minutes and the longest lasting four minutes. The narrative with the most lexical signs included 256 signs and the narrative with the least number of lexical signs included 163 signs. Table 17.2 shows the length and total number of lexical signs produced in each narrative.

The similarity of the lengths of the 12 narratives and numbers of signs used in those narratives demonstrates that all the subjects produced relatively similar amounts of text. That is, there were not major differences between the subjects such as one subject producing one minute of text and another subject producing five minutes of text. Nor were there major differences in the number of signs produced, such as one subject producing 300 signs and another producing only 50 signs. The similarity of the narratives in terms of length and number of signs produced allows for the quantitative comparison of the use of specific referencing strategies.

17.4.2  Differences between the Deaf sighted and Deaf-Blind narratives

17.4.2.1  The use of deictic points for referential purposes. Each instance of the index finger of the dominant hand pointing at something (other than first person singular) during the recounting of the narratives was coded as
an indexation. Later, the different functions of indexation in the narratives were determined from context, and four categories of indexation surfaced in the data. The Deaf sighted subjects used four different types of indexation, which fulfilled three semantic functions. The four types of indexation are shown in (2).

(2) Types of indexation in the narratives
- Type I (third person): the use of a point to the left or right side of the signing space to establish/indicate an arbitrary location in space that is linked to a human referent who is not physically present.
- Type II (person CL): the use of a point to a person classifier (G handshape or V handshape) on the nondominant hand. This, too, was used to establish/indicate an arbitrary location in space that is linked to a human referent (or referents in the case of the V handshape) who is not physically present.
- Type III (locative/inanimate): the use of a point to establish/indicate an arbitrary location in space that is linked to a locative referent or object referent that is not physically present.
- Type IV (second person singular): the use of a point to the recipient of the narrative for asking a question that is directed to a character in the narrative.

While the Deaf sighted subjects used the four types of indexation listed in (2), the Deaf-Blind subjects used indexation (other than first person singular) exclusively in the following environment: the case of one character in the narrative asking a question directed to another character in the narrative (Type IV). As mentioned above, each narrative contained two characters who engaged in dialogue regarding an event that they were planning.\(^\text{11}\) Within the dialogue, the characters asked yes–no and content w/questions of each other. In all four narratives, the situation of one character asking another character a question created the environment for the use of indexation. Thus, each subject, while signing his or her narrative, would take on the role of one of the characters and ask the other character in the narrative a question. In this case, each subject in the study did indeed use indexation, and this point in each of these interrogative phrases can be interpreted as second person singular (YOU). However, the Deaf sighted subjects exhibited a nonmanual “role shift” (either

\(^{10}\) Most tokens of Type II indexation were realized with the I-handshape CL. However, when the V-classifier was used, the signer still pointed to each finger of the V handshape individually. There were tokens of a V handshape occurring with the deictic point involving two fingers (gloused as THEY-TWO), but those tokens were not included in these data. While this study focuses on the use of a single deictic point, further research must be conducted which addresses the use of other deictic pointing devices such as the pronoun THEY-TWO.\(^{11}\) These questions were designed to elicit the use of nonmanual signals (especially furrowed and raised eyebrows, grammatically significant signals in visual ASL) by the Deaf sighted subjects and to determine what strategies the Deaf-Blind subjects would use to communicate such questions.

tors or head re-orientation and eye gaze shift) for specifying the message of a different speaker or character, whereas there was no role shifting or eye gaze shifting in the signing of the Deaf-Blind subjects. In fact, the Deaf-Blind subjects’ torsos did not deviate much—from the default position of facing the receiver of the narrative. As a result, the deictic points that the Deaf-Blind subjects produced were directed straight out, essentially in the direction of the interlocutor. As an example of the only type of indexation produced by the Deaf-Blind subjects, DB1 used indexation when a character in his narrative asked another character if she wanted to eat fish. The passage is as follows: “D-O IX-forward WANT EAT FISH” (here, IX-forward can also be glossed as YOU or second person singular). Table 17.3 presents the total use of indexation for the functions described in (2) by each subject in the study.

What is most evident from Table 17.3 is the use of Types I, II, and III indexation by the Deaf subjects, but not the Deaf-Blind subjects. Figure 17.1 shows the total use of each type of indexation by each subject (summed across all three instances of each narrative). Note that there are no examples of third person singular or of locative deictic points (either to a point in space or to a classifier on the nondominant hand) in the data from the Deaf-Blind subjects in this study, and the only examples of indexation by the same subjects are in the form of second person singular reference in questions addressed to a character in the narrative. As reported in Section 17.2.1.2, Petronio (1988) and Collins and Petronio (1998) have claimed that indexation is used by Deaf-Blind signers to signal that a question is about to be posed to the interlocutor. Based on these claims and the data from the current study, perhaps indexation in Deaf-Blind signing is used primarily for referring to addressees, either in the context of an interrogative as described previously or presumably in the context of a declarative statement (e.g. I LIKE YOU, YOU MY FRIEND, etc.).

Since the Deaf-Blind subjects did not utilize Type I and Type II indexation for pronominal reference in the signed narratives, I now describe how such pronouns were realized by the Deaf-Blind subjects (or whether they used pronouns at all). One of the Deaf-Blind subjects (DB1) used the strategy of fingerspelling the name of the character who would subsequently perform an action. This strategy served a similar function as Types I and II indexation, which was favored by subjects D1 and D2. Not surprisingly, the sighted Deaf subjects also used fingerspelling as a strategy for identifying characters in their narratives. In fact, they often used fingerspelling in conjunction with a deictic point (sometimes following the fingerspelling, sometimes preceding it, and sometimes articulated simultaneously — on the other hand — with the fingerspelling). Table 17.4 shows the use, by subject, of proper names (realized through fingerspelling) in the narratives.

It can be seen that DB1, in order to refer to characters in his narratives, fingerspelled the names of the characters, and he used that strategy more times than any other subject did. However, DB2 never used fingerspelling of proper
nouns to make reference to his characters. Rather, DB2 used such signs as GIRL, SHE, MOTHER, and FATHER. Table 17.5 shows the number of times DB2 used the signs for GIRL and the Signed English sign SHE. Thus, DB2 did not use indexation for the function of specifying third person singular pronouns nor did he use fingerspelling, but instead referred to his characters with common nouns or Signed English pronouns. The use of SHE by DB2 raises another issue that must be addressed: the use of varying amounts of Signed English by the Deaf-Blind subjects. A discussion of the use of Signed English by the subjects in this study and the implications of such use follows.

17.4.2.2 ASL or Signed English in the narratives? Certain features of Signed English appear in the tactile signed language narratives. Both Deaf-Blind subjects produced varying degrees of Signed English as evidenced by their use of D-O (ASL does not use English ‘do’), the conjunction AND (which

\[ \text{Table 17.3 } \text{Use of indexation in the narratives} \]

<table>
<thead>
<tr>
<th>Type of indexation</th>
<th>DB1</th>
<th>DB1</th>
<th>DB2</th>
<th>DB2</th>
<th>DB1</th>
<th>DB1</th>
<th>DB2</th>
<th>DB2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person I</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Person CL (II)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Location (III)</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2sg (IV)</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

\[ \text{Graph 17.1 Total use of indexation by each subject} \]

\[ \text{ShE is not an ASL sign but rather an invented sign to represent the English pronoun 'she.' Several invented signed systems are used in deaf education throughout the USA in an effort to teach deaf students English; the sign ShE as used by DB2 likely originated in one of these signed systems. In the interest of space I refer to this type of signed language production simply as Signed English.} \]
Deixis in visual and tactile signed language

Table 17.5 The use of GIRL and SHE by DB2

<table>
<thead>
<tr>
<th>Subjects</th>
<th>DB2 to DB1</th>
<th>DB2 to D1</th>
<th>DB2 to D2</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIRL</td>
<td>14</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>SHE</td>
<td>0</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>

is infrequent in ASL, and – in the case of DB2 – articles and the copula (which do not exist in ASL). Table 17.6 displays the number of times each subject produced the copula, articles, AND, and fingerspelled D-O in each narrative. In contrast to the Deaf-Blind subjects, the Deaf subjects, for the most part, did not use features of Signed English. They did not utilize the copula, articles, and Signed English D-O, and they only used the conjunction AND minimally (D1: four tokens; D2: two tokens). Rather, the sighted Deaf subjects signed ASL with NMS such as eye gaze shifts, head/torso shifts, and grammatical information displayed with the raising or lowering of the eyebrows. In fact, it is the case that the Deaf signers did not discontinue their use of ASL nonmanual signals despite the presumed knowledge that their interlocutors were not receiving those cues.

17.4.2.3 The use of the signing space in signed languages. Users of signed languages utilize the signing space in front of their bodies in several significant ways (Padden 1990). One way is for the production of lexical signs. Many signs – especially verbs – contain movements in the signing space that are part of their citation forms. For example, the ASL sign FOLLOW is produced with an A handshape and movement that begins in front of the torso about chest level and ends about the middle of the signing space directly in front of the signer. Yet another way the signing space is used is to establish, refer to, and/or show relationships between present and nonpresent objects and/or persons in the signing space (Klima and Bellugi 1979). For example, a signer can point to the right hand side of the signing space and then sign a noun such as WOMAN, then the sign FOLLOW-rt\(^{13}\) can be articulated with the movement ending in the direction of the point that was established. This differs from production of the sign FOLLOW in citation form as described above, and this form of the verb FOLLOW exhibits information about the subject and object of the verb: the object is interpreted as the third person form ("the woman") that was established on the right side of the signing space. Possible translations of this sequence of signs would be ‘I will follow the woman’ or ‘I followed the woman’ (depending on whether or not a time adverbial had been used previously). By using the signing space to inflect verbs in this manner, a signer can use a number of word orders and is not confined to following strict word order patterns as

\(^{13}\) In this glossing convention, the "-rt" segment indicates that the sign is articulated with movement to the signer's right side of the signing space.
in English or varieties of Signed English. The signing space can also be used in a grammatical manner in other ways (e.g. aspectual verb modulation; Klima and Bellugi 1979) or to compare and contrast two or more abstract or concrete entities (Winston 1991).

Naturally, both Deaf-Blind subjects utilized the signing space for the production of uninflected signs. However, DB1, who is congenitally deaf and blind, also consistently used the signing space for the production of inflected verbs, but that was not the case for DB2.

Throughout the narratives, DB1 produced several verbs that have the possibility of undergoing some type of inflection that utilizes the signing space. In the three narratives produced by DB1, I identified 53 instances of a verb that may be inflected, and DB1 executed 45 of those verb tokens with what appears to be inflection that utilized the signing space to specify information about the subject and/or object of the verb. For example, DB1 signed MEET with the right hand held close to his chest while the left hand (in the same handsign) moved from the area to the left and in front of the signer toward the right hand in order to make contact with it. This manner of signing MEET occurred twice across the three narratives. The inflected form has the meaning ‘He/She came from somewhere in that direction, to the left of me, and met me here;’ whereas the uninflected form does not specify location or a category of person.

DB1 inflected other verbs as well. The verb SEE was produced nine times in his three narratives; in eight of those instances it was executed with some reference to a target that was being “looked at.” For example, several times DB1 signed SEE with hand and arm movement in an upward fashion. He did this in the context of referring to a mountain. Thus, the sign can be taken to mean that he was ‘looking up the side of the mountain.’ The sign GO was often inflected as well, giving reference to the general location of the action.

In contrast to DB1, DB2 did not use the signing space for the inflection of verbs. Rather, strings of signs in his narratives resemble English, which primarily relies on word order for the determination of subject and object in a sentence or phrase. Remember, too, that DB2 used several Signed English elements throughout his narratives.

Rather than signing only some verbs with inflection (like DB1), the two sighted Deaf subjects signed almost all their verbs with some type of inflection. That is, they inflected most (if not all) verbs that were produced by them that can be inflected for location. Furthermore, ASL nonmanual signals such as eye gaze and body/torso movement were common in conjunction with the production of verbs, and these nonmanual signals were often used to indicate role shifts.

Several facts have been presented above. First, the Deaf sighted subjects produced ASL syntax (along with appropriate nonmanual signals) throughout, while the Deaf-Blind subjects produced versions of Signed English, specifically English word order and some lexical signs that do not exist in ASL. DB2 followed Signed English word order more than DB1, who inflected most verbs in
his narratives. Thus, at least one of the Deaf-Blind subjects (DB1) used the signing space in a spatially distinctive manner (thus resembling visual ASL), but he still failed to use the deictic point for third person singular or locative reference, which is unlike what would be expected in visual ASL. From these facts it is clear that it is not necessarily the use of Signed English elements or word order that influences the non-occurrence of certain deictic points (specifically, third person singular and location references), but rather something else. It appears that the tactile medium does not support substantial use of deictic points, and perhaps we can hypothesize why this is so.

17.4.3 Accounting for the lack of indexation in the Deaf-Blind narratives

17.4.3.1 Eye gaze as a factor. One explanation for the phenomenon of few cases of indexation in the Deaf-Blind narratives is that the lack of visual eye gaze, which is claimed to function as an agreement marker in visual ASL (Bahan 1996), does not allow for a grammatical pointing system in tactile signed language. Because eye gaze functions as such an important referencing tool in visual ASL, its absence in tactile signed language presumably influences the forms that referencing strategies take in that modality. Perhaps use of the signing space for reference to / establishment of a nominal with a deictic point is not significant for Deaf-Blind users because they are presumably not able to visually perceive the end point of the deictic reference.14

The results of studies of gestural communication in hearing congenitally blind children supports the suggestion that eye gaze may be necessary for the development of a deictic pointing system. In studies of the gestures produced by congenitally blind children while using spoken language to communicate, Iverson et al. (2000) found that deictic points were used infrequently or not at all for referencing objects and locations. Yet, the same blind children used other gestures for deictic purposes despite the fact that they had not had any exposure to manual gestures at all.15 The sighted children in the same study used deictic points frequently while gesturing. The authors give the following account for the lack of production of deictic points by the blind subjects in their study:

Blind children used gesture to call attention to specific objects in the environment, but they did so using Palm points rather than Index points. Why might this be the case? When sighted children produce on Index point, they in effect establish a "visual line of regard" extending from the point’s eyes along the length of the arm and pointing

14 I must emphasize that the suggestions offered to explain the lack of deictic points in the Deaf-Blind narratives are all based on production data. Comprehension studies of deictic points must be conducted in order to confirm these suggestions.

15 The "other gestures" that I refer to here were defined in Iverson et al. (2000:111) as the following: "showing, or holding up an object in the listener's potential line of sight," and "palm points, or extensions of a flat hand in the direction of the referent."

Deixis in visual and tactile signed language

finger toward the referent in gesture. Index points localize the indicated referent with considerable precision – much more precision than the Palm point. It may be that blind children, who cannot use vision to set up a line between the eyes, the index finger, and the gestural referent in distant space, are not able to achieve the kind of precise localization that the Index point affords (indeed, demands). They may therefore make use of the less precise Palm point. (p. 119)

In addition to the Iverson et al. (2000) study, Urwin (1979) and Iverson and Goldin-Meadow (1997) reported that the blind subjects in their studies failed to utilize deictic points for referencing purposes. These studies support the suggestion that eye gaze might be the necessary requirement for the use of deictic points for communication purposes.

17.4.3.2 Displacement as a factor. The Deaf-Blind subjects in the current study only used deictic points when a character in their narratives would ask another character a question, while strategies other than deictic pointing were used for all other non-pronominal references. One explanation for this sparse use of pointing may have to do with "displacement" (the characteristic of language that allows reference to things that exist in places and times other than the present; Hockett 1966). Perhaps Deaf-Blind individuals reserve deictic points for reference to people and places within the immediate environment, while the use of points to locations in the signing space for linguistic purposes is limited. A rationale for this assertion is given below. But the minimal use of deictic points to characters in the Deaf-Blind narratives must first be accounted for.

As described in Section 17.2.2, deictic points in ASL serve various semantic functions, some that are claimed to be linguistic and others that have been analyzed as gestural or non-linguistic. The sighted Deaf subjects in this study used points for various purposes, but the Deaf-Blind subjects only used points when showing that a question was being asked to a character in the narratives. There is only one way to refer to a second person singular pronoun in signed language, and that is by pointing to the location (real or imagined) of second person singular. There does not exist a commonly used nondeictic Signed English pronoun for second person singular, and signers do not normally fingerspell Y-O-U. Thus, the Deaf-Blind subjects had no choice but to use the deictic point in this manner. However, there are alternatives in signed language to using a point for third person singular reference. Such strategies include (that may not be limited to) fingerspelling the name of the person being referred to, using a sign name, or using a Signed English pronoun. All of these forms of third person reference were used by the Deaf-Blind subjects in this study. Perhaps Deaf-Blind individuals prefer to use strategies other than pointing to reference third person singular characters because such points have the potential of being ambiguous. Points to third person singular can have the same phonetic form as
points to the following entities: an object in a narrative, a location in a narrative, or even a third person singular entity that is physically present in the immediate environment, but not in a narrative.

However, it is likely the case that Deaf-Blind signers do use points when referring to the location of people and objects in the immediate environment. I have learned – based on discussions with several sighted professionals who work with Deaf-Blind individuals – that indexation is indeed used frequently by sighted signers when describing to Deaf-Blind signers the location of people and objects in the immediate environment. After such a locative reference has been established, a Deaf-Blind individual can then point to that location to refer to the specific person or location in the immediate environment. Yet, in the case of the narratives in this study where displacement was involved, perhaps the Deaf-Blind signers chose not to use deictic points because of the ambiguous nature of such points.

17.4.3.3 Reception in the tactile modality. Another explanation for the lack of deictic points in the tactile medium can be posited by referring to claims made by Reed et al. (1995) regarding perception. As was reviewed in Section 17.2.1.1, Reed et al. found that handshape errors were most prevalent in the identification of signs presented in sentences. In other words, when tested to see if they could reproduce signs that had been presented to them within a sentence (both ASL and PSE sentences), the subjects made the most errors in the phonological parameter of handshape. Perhaps Deaf-Blind signers find it difficult to perceive and interpret the handshape of a deictic point within a sentence. This could be due to several factors: the speed at which the signs are produced, the direction of the point, the limited size of the signing space in tactile signed language, and/or the fact that points serve various semantic functions as outlined in Section 17.2.2.

17.4.4 Putting it all together

This study of deictic points by Deaf-Blind individuals has reinforced the description presented in Section 17.4.2.3: the signing space is used and can be defined in various ways. It is partly phonological in nature, allowing a signer to articulate the phonological parameters of movement and location in space, partly based on movement of the sign through various contrastive locations in the signing space, and partly grammatical in nature. A Deaf-Blind signer can perceive the movement of verbs through the signing space as the verbs specify subject and object in a phrase because perception simply requires that a Deaf-Blind receiver follow the signer’s hands as he or she moves through contrastive locations in the signing space. Following this line of reasoning, a Deaf-Blind signer would presumably use the signing space for production and reception of aspecual modification, which also involves specialized movement of the hands through the signing space. However, there were no cases of aspecual modification of verbs in the Deaf-Blind narratives.

Yet, the data from this study suggest that at least one use of the signing space may have a visual component that would influence the manner in which a Deaf-Blind person would use sign language. Specifically, the lack of deictic points for referencing purposes in the Deaf-Blind narratives suggests that eye gaze may play a significant role in the realization of deictic points. This means that some uses of the signing space can be carried out without eye gaze support and some uses likely rely upon eye gaze support to be executed.

17.5 Questions to consider

While the two Deaf-Blind subjects in the present study produced various versions of Signed English, Collins and Petronio (1998) claimed that Deaf-Blind subjects can and do sign ASL in the tactile modality. If so, how does deictic reference manifest itself in that type of signing? What, if any, modifications are made to visual ASL that disambiguate the intended referent of a deictic sign? Is Signed English a substitute for ASL in ambiguous structures in the tactile signed language used in North America? As mentioned before, is there a deictic system of indexation in tactile sign language that is akin to that of visual ASL, or are deictic points primarily used to refer to people and locations in the immediate environment? More data on casual conversations among Deaf-Blind people are needed to address questions such as these.

In the data from this study, we have seen that versions of Signed English were used by the Deaf-Blind subjects which contained no deictic points for pronoun and location reference. Perhaps we also need to determine if the same phenomenon occurs in the use of visual signed language. That is, do deictic points occur less frequently when sighted Deaf signers use Signed English as opposed to ASL?

Lastly, do congenitally deaf and blind individuals use the signing space, especially syntactically, in a unique manner because of their language acquisition experience and the sensory tools that are available to them? Moreover, can we theorize about the form of a signed language in the tactile modality if it were allowed to evolve without a significant amount of influence from visual signed language? There seem to be many interesting questions in this area of study.
One limitation of the current study is that the Deaf subjects are native signers while the Deaf-Blind subjects are late learners of signed language. It would be ideal to also investigate the signed language production of Deaf-Blind signers who acquired signed language following a regular acquisition process and timeline. However, the incidence of children who are congenitally deaf and blind and who also have Deaf parents is quite low. Alternatively, future investigations could include Deaf sighted subjects who are late learners of language in order to make matched comparisons with Deaf-Blind late-learners of language.

17.6 Conclusions

This chapter has examined language that is perceived by touch and has compared it to signed language that is perceived by vision. Integral to visual-gestural language is the use of nonmanual signals (e.g. eyebrow shifts, head and torso movement, and eye gaze, to name a few). What, then, are the consequences of the presumed inability of Deaf-Blind users of signed language to perceive such nonmanual signals? This study has begun to address this issue.

Based on the narrative data presented here, the signed language production of Deaf-Blind individuals does differ in form from that of sighted Deaf individuals. Specifically, sighted Deaf signers utilize nonmanual signals (such as eyebrow shifts, head orientation, and eye gaze) extensively, while Deaf-Blind signers do not. In addition, sighted Deaf signers utilize deictic points for referential purposes while Deaf-Blind signers use other strategies to accomplish the same task. It appears that the ability to perceive eye gaze is a crucial component in the realization of deictic points for referential purposes.

Regarding the use of the deictic point, the Deaf sighted subjects in this study used such points in four general ways in order to fulfill three semantic functions (reference to third person singular, to a location or object at a location, and to second person singular). On the other hand, the Deaf-Blind subjects used deictic points exclusively to fulfill one function (second person singular reference). In addition, the Deaf sighted subjects produced ASL, while the Deaf-Blind subjects each produced a unique version of Signed English. One Deaf-Blind subject (DB1) used the signing space to inflect verbs for location, whereas the other Deaf-Blind subject (DB2) did not. This shows that the signing space can be used contrastively in tactile signed language, but some uses of the signing space in visual signed language - such as the use of deictic points - do not seem to be as robust in the tactile modality.

As mentioned above, the difficulty in perceiving eye gaze presumably restricts the manner in which Deaf-Blind signers use deictic points. This suggestion is similar to findings regarding congenitally blind children who have normal hearing: they rarely utilize deixic points for gestural purposes. The manner in which blind individuals (both hearing and Deaf) - especially those who are congenitally blind - conceive of the space around them may also differ from sighted individuals. More research is certainly needed to understand the language use of blind and Deaf-Blind individuals more fully; there are many more insights to be gained from research on the role of vision in language.

Acknowledgments

I would like to thank Carol Padden and an anonymous reviewer for their insightful comments on an earlier draft of this chapter. This study was supported in part by a Graduate Opportunity Fellowship from the University of Texas at Austin to the author, a grant (F 31 DC00352-01) from the National Institute on Deafness and Other Communication Disorders (NIDCD) and National Institutes of Health (NIH) to the author; and an NIDCD/NIH grant (RO1 DC01691-04) to Richard P. Meier.

17.7 References


Deixis in visual and tactile signed language


