DEAF-BLIND INTERPRETING: BUILDING ON WHAT YOU ALREADY KNOW[1]

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Resumo: Este artigo foca nas considerações visuais e descreve inúmerais similaridades entre a interpretação em video e a interpretação para surdos-cegos. Também, analisa as considerações linguísticas da interpretação para surdos-cegos e apresenta os resultados de pesquisas mostrando similaridades e diferenças entre a ASL e a ASL Tátil. Uma vez que muitos intérpretes não estão familizarizados com a comunicação tátil, há uma seção que inclui uma revisão sobre ASL Tátil. Estes aspectos, descrições e dados são apresentados neste artigo a partir de situações nos Estados Unidos e envolvem o uso da ASL e da ASL Tátil; no entanto, é muito provável que estas discussões e resultados também estejam relacionados com a interpretação para surdos-cegos em outros páises usando outras línguas de sinais.
Palavras-chave: interpretação para surdos-cegos, ASL tátil.

Abstract: This article focuses on visual considerations and describes the numerous similarities between video interpreting and deaf-blind interpreting. It also looks at linguistic considerations for deaf-blind interpreting and presents research findings showing similarities and differences between ASL and Tactile ASL. Because many interpreters are unfamiliar with tactile communication, there is a section that includes an overview of Tactile ASL. The issues, descriptions, and data presented in this article are based on situations in the United States and involve the use of ASL and Tactile ASL; however, it is highly likely that these discussions and findings also relate to deaf-blind interpreting done in other countries using other sign languages
Keywords: deaf-blind interpreting, ASL tactile.

There is a need for more interpreters qualified to do Deaf-Blind interpreting. Unfortunately, there are many proficient interpreters who are uncomfortable and/or hesitant to do deaf-blind interpreting. Many of these interpreters feel inadequate due to lack of familiarity and knowledge of what to do. If these interpreters had a better understanding of deaf-blind interpreting and realized that many of the skills they already are using could transfer to deaf-blind interpreting, I believe they would feel more comfortable, would be interested in learning more, and could become competent in providing these services. This would serve to create a larger pool of qualified interpreters available to provide services for Deaf-Blind individuals.

When looking at deaf-blind interpreting there are different approaches one can take. A common approach focuses on the differences between interpreting for Deaf individuals and interpreting for Deaf-Blind individuals. Under this approach, interpreters feel that deaf-blind interpreting is different from what they normally do – that they would need to learn a completely different set of language skills and interpreting techniques. An alternative approach, the one I am taking in this article, looks at the similarities between interpreting for Deaf and Deaf-Blind individuals. This approach assumes that proficient interpreters already possess many of the techniques and language skills used in deaf-blind interpreting. As will be shown, many techniques used in the growing field of video interpreting are similar to techniques used in deaf-blind interpreting. Research shows that the language variation that occurs between ASL and Tactile ASL is often a matter of degree – in Tactile ASL, most linguistic features occur as they do in ASL; however, some occur more frequently, while others are infrequent or rarely used (Petronio and Dively, 2006; Dively and Petronio, 2006). Under this alternative approach, part of becoming a skilled deaf-blind interpreter involves learning which features of ASL are successfully used in deaf-blind interpreting.

This article is organized into two main parts. The first section focuses on visual considerations and describes numerous similarities between video interpreting and deaf-blind interpreting. The

second section looks at linguistic considerations for deaf-blind interpreting and presents research findings showing similarities and differences between ASL and Tactile ASL. Because many interpreters are unfamiliar with tactile communication, section two includes an overview of Tactile ASL. The issues, descriptions, and data presented in this article are from situations in the United States and involve the use of ASL and Tactile ASL; however, it is highly likely that these discussions and findings also relate to deaf-blind interpreting done in other countries using other sign languages.

One goal of this article is to present information that will give interpreters a better understanding of aspects that need to be considered when doing deaf-blind interpreting. A second goal is that as interpreters increase their knowledge of what is involved with deaf-blind interpreting, they will become interested and continue to educate themselves. The hope is that more interpreters will become proficient with deaf-blind interpreting and add it to their repertoire.

Section 1: Visual Considerations

As recent as 10 years ago in the United States, it would have been unrealistic to suggest that many skilled interpreters, unfamiliar with deaf-blind interpreting, actually had or were developing some of the techniques used in deaf-blind interpreting. For example, techniques such as making accommodations due to visual restrictions and conveying visual information were considered unique to deaf-blind interpreting. However, with technological advances that now allow sign communication through computers and videophones, interpreters who do video interpreting are now (consciously or unconsciously) using many of the same techniques used by deaf-blind interpreters.

Figure 1 provides an example of video relay interpreting. The interpreter listens and talks to the hearing caller through a phone

headset. At the same time, the interpreter and the Deaf caller are able to see each other on TV monitors or computer screens.

Figure 1. A typical set-up with the video interpreter watching a monitor

Figure 2. A close-up of the monitor that the interpreter watches.

The enlargement in Figure 2 shows that there are two windows on the monitor. The larger window contains the image of the Deaf caller. In the smaller window (upper right of Figure 2), the

interpreter can see themselves and see how they appear to the Deaf caller. While the look and arrangement of the two windows vary depending on the video relay company and software, most video interpreters do have and use a second smaller window.

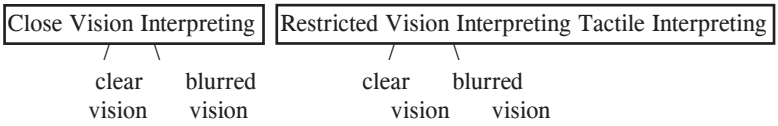
The following four subsections describe similarities between video interpreting and deaf-blind interpreting, these include considerations regarding set up, the size of the signing space, visual clarity, and the need to provide visual information.

1.1 Adaptations in Setting Up

Video interpreting involves setting-up in ways that are not part of regular interpreting. For example, before starting to work, a video interpreter needs to check to make sure they are positioned correctly and that the lighting conditions are appropriate for the camera. Typically, getting positioned involves zooming in or out with the camera lens and moving the chair so that one is positioned correctly within the camera's visual field. Lighting must be checked to make sure it is not too dark or too bright. This can involve adjusting window blinds, the lights, or the camera settings. To improve visibility for deaf callers, video interpreting companies use solid color backgrounds and ask interpreters to wear solid colors that contrast with their skin.

Setting up for deaf-blind interpreting closely resembles video interpreting except that instead of working with and making adjustments to a camera, you are working with and making adjustments for Deaf-Blind individuals as they determine the best set-up for their needs.

Many people erroneously assume that deaf-blind interpreting refers only to tactile interpreting, however many Deaf-Blind individuals have either what is broadly referred to as 'close vision', or have 'restricted/tunnel vision'. Those having close vision or restricted vision can be further divided: those who have good visual acuity (clear vision) and those who don't (blurred vision). The following illustrates the common types of deaf-blind interpreting.



The Deaf-Blind individual's vision influences how things are set up. For almost all types of deaf-blind interpreting, the lighting and background are important – even those using tactile interpreting usually do not want to sit facing a very bright or glaring light. For Deaf-Blind individuals having Ushers Syndrome and using restricted vision interpreting, the lighting is often the most important factor when determining where they want the interpreter to sit or stand. How close or how far the interpreter is positioned also depend on an individual's vision. This distance can vary greatly: a person with very close vision (e.g. optic atrophy, cataracts, glaucoma) might want an interpreter to sit extremely close while another individual with clear vision but a very restricted field of vision (e.g. Ushers Syndrome) might want the interpreter positioned farther away, perhaps even 20 feet. Because of visual difficulties, it is important for Deaf-Blind interpreters to use solid color tops that will provide contrast with their skin color – if there is not enough contrast, many Deaf-Blind people are not going to be able to discern the interpreter's signing.[2]

1.2 Adaptations Due to a Restricted Signing Space

The signing space used in ASL is typically described as an oval which extends from slightly above the head and goes slightly below the waist. In video interpreting, the signing space is much smaller. When physically in the same room with each other, signers have a full view of each other's signing space. In contrast, in video interpreting, the interpreter and the signer have a much smaller view of each other, typically only from slightly above the head to the upper chest (see Figures 1 and 2). The limitations of this smaller viewing

area result in signers making adjustments, one of which is decreasing the size of their signing space. In a study of four Deaf families over a two-year period, Keating and Mirus (2003) found radical differences in the size of the signing space used during computer-mediated signing. This included:

- the sign BABY, usually below the chest level, was raised to almost chin level, and
- the sign NOW, usually at chest level, was signed at shoulder height.

In video relay interpreting, interpreters have adapted to using a smaller space without much discussion or apparent difficulty. Interpreters new to video interpreting frequently check themselves in the monitor's smaller window to make sure they are in the camera's viewfinder. As they become more experienced, adjusting and using a smaller signing space becomes an unconscious adaptation. This is necessary and automatically done for effective communication to take place. The visual feedback of seeing one's self in the smaller window facilitates the easy adaptation of video interpreters to using a smaller signing space.

Just as using a smaller signing space is one of the main adaptations for video interpreting, it is also one of the main adaptations made when interpreting for Deaf-Blind individuals using restricted vision interpreting, e.g. those with Usher Syndrome who have tunnel vision. One difference is that in restricted vision interpreting, each Deaf-Blind individual differs in how much peripheral vision they have. This affects the size of the signing space an interpreter will use. One Deaf-Blind individual might need the interpreter to sign in a space that is similar to that used while video interpreting, while another individual with a smaller field of vision will need an interpreter to sign in an even smaller space. Depending on how much peripheral vision a Deaf-Blind person has, the distance they are from the interpreter also affects the size of the area they are

able to see. To better understand this, close one eye and try looking through a straw at a person who is about one foot away. Because of the small tunnel that you are looking through, you have a very limited view of that person. Now walk back several feet more and look at the same person, you will notice that you can now see a much larger area. This simulates what occurs for someone with tunnel vision -- if they are standing right next to the interpreter, their field of vision is smaller and correspondingly an interpreter must sign smaller[3]. If they are farther away, they can see a larger area and the interpreter can increase the size of their signing space.

While interpreters are easily adjusting their signing space to meet the needs of video interpreting, many of those new to deaf-blind interpreting have difficulty adjusting their space to meet the needs of Deaf-Blind individuals. Often these interpreters start off by using a smaller signing space but soon revert back to signing in the normal, larger signing space. It is easier for video interpreters to adjust to and maintain a smaller signing space because of the visual feedback they receive from the smaller window on their monitor – they see themselves the same way they are seen by the Deaf person. In contrast, when interpreting for a Deaf-Blind individual, the interpreter is often unsure of the size of the space that the Deaf-Blind individual is able to see. There are cues that experienced deaf-blind interpreters use to help them adjust and maintain the appropriately sized signing space. Cues that an interpreter is using too large of a signing space include the Deaf-Blind individual needing to turn their head or move their eyes to see the signs, starting to lean back (to see a larger area), starting to look puzzled, or having to ask for multiple repetitions for clarification. As one becomes more experienced with deaf-blind interpreting, these cues serve asfeedbackandhelp in maintaining an appropriate sized signing space.

Since many interpreters are now regularly using a smaller space while doing video interpreting, it would be a logical assumption that if these interpreters understood the need, this adaptation could

carry over and be successfully used while interpreting for Deaf-Blind individuals with restricted vision.[4]

1.3 Adaptations Due to Issues with Clarity of the Image

Besides using a smaller signing space, video interpreters also adapt their signing for situations in which it is hard for the interpreter and Deaf individual to clearly see each other. Initially, the visual images that were transmitted through video relay services were less than perfect and it was the norm for the interpreter and Deaf caller to have some difficulty seeing each other. Today, with new technology and higher transmission speeds, the quality of the video picture has improved. However, there are still many calls in which the image is blurred, pixilated and difficult to see due to issues with transmission speeds, technical problems, or older equipment. Keating and Mirus (2003) stated that the ability to manipulate features of language and alter signing speed were important skills Deaf people used as they signed with each other using videophone technology. In order to accommodate problems with the clarity of the transmitted images, they observed the following:

- signs were clearer and more fully articulated compared with the signs a person would use in non video situations, and
- signing was also slowed down –particularly for fingerspelling and numbers.

When doing close vision or restricted vision interpreting for Deaf-Blind individuals who have blurred vision, interpreters are using the same adaptations that video interpreters use when the quality of the transmitted image is blurred and difficult to see. That is, under 'blurred' conditions, both video interpreters and deaf-blind interpreters are clearly articulated signs and slowing down fingerspelling and numbers, which can be difficult to recognize with bad visibility. If a Deaf-Blind individual with blurred vision

also has restricted vision then, as in video interpreting, adjustments are made for the blurred vision, while at the same time using a smaller signing space.

1.4 Adaptations Due to the Need for Visual Information

Most video interpreting is done through the various video relay services and involves the interpreter, deaf caller, and hearing caller each being at a separate location. However, with the rapid popularity of videophones, their ease of use, and their increasing availability, interpreting through videophones is showing up in a variety of other situations. One example, which occurred during a university department meeting, is described below.

During this meeting, one Deaf faculty member was unable to attend. Since the meeting room had a videophone, it was decided to have an interpreter attend the meeting and interpret for the absent Deaf faculty member via the videophone. This meeting, which was attended by about 15 faculty and staff members, involved short committee reports, votes taken on various issues, and a brief PowerPoint presentation. The fact that the interpreter was at the meeting made this situation different from 'regular' video interpreting. Being physically present the interpreter could see all types of visual environmental information that the Deaf individual, who was off-site, could not see. The 'visuals' that the Deaf individual could see were limited to the image of the interpreter on the videophonemonitor.

In this type of situation, if the video interpreter can quickly and briefly add visual information, the Deaf person is able to successfully follow and participate in the meeting. At this meeting, the visual information quickly conveyed by the video interpreter included: identifying who was speaking before interpreting what they said, describing the voting process (e.g. how many hands were up, the count, and if time permitted whose hands were up), giving a quick description of the PowerPoint slides, and quickly describing anything out of the ordinary that happened, such as

someone inadvertently walking into the room. If the video interpreter had not added any visual information it would have been a different experience for the Deaf faculty member – it is unlikely they would have know who said what, how the voting process went, what was on the PowerPoint, or if anything odd happened during the meeting. Without the brief visual descriptions, it is unlikely the Deaf individual could have successfully followed or participated in the meeting.

The many parallels between video interpreting in situations such as this meeting, and doing deaf-blind interpreting are easy to see. One of the main differences is that the video interpreter provided visual information because the Deaf person was off-site and could not see environmental information. In deaf-blind interpreting, the interpreter provides this visual information even when the Deaf-Blind individual is present. In the case of a Deaf-Blind individual using tactile communication, they need the visual information because they cannot physically see it. Deaf-Blind individuals using close vision or restricted vision interpreting also need this information – those with close vision cannot see things at a distance and those with restricted vision often can only see the interpreter (think of the earlier analogy of looking through a straw). For effective and successful interpretation to take place, just as in the video interpreted meeting described above, the interpreter must briefly describerelevant visual information.

In summary, this section on visual considerations has looked at several techniques and adaptations that are being used in video interpreting and shown that similar techniques are used in deaf-blind interpreting. The chat below captures the similarities.

Interpreting Situation	use of smaller signing space	adjusting for blurred vision or blurre-dreception	conveying relevant visual infor-mation
Close-Vision Interpreting clear vision blurred vision	 No No	 No Yes	 Yes Yes
Restricted Vision Interpreting clear vision blurred vision	 Yes Yes	 No Yes	 Yes Yes
Tactile Interpreting	Yes	na	Yes
Video Relay Interpreting clear reception blurred reception	 Yes Yes	 No Yes	 No No
Video Interpreting for situation described - e.g. interpreter on-site, deaf person off-site clear reception blurred reception	 Yes Yes	 No Yes	 Yes Yes

Figure 3: Similarities between video-interpreting and deaf-blind interpreting

As stated earlier, as fluent interpreters realize that they are already using some of the techniques used in deaf-blind interpreting, it is hoped they will become more comfortable, seek further training, and become involved with deaf-blind interpreting. The next section presents information to help familiarize interpreters with tactile communication. In addition to providing an overview, Section 2 also describes linguistic research and discusses implications for deaf-blind interpreting.

Section 2. Linguistic Considerations

As described in the introduction, one reason many experienced interpreters are reluctant to do deaf-blind interpreting is their lack of familiarity, particularly with tactile interpreting. A second reason for hesitancy toward tactile interpreting comes from not understanding how it is possible for a signed language to be understood tactually. That is, how can Deaf-Blind people, who usually place only one hand on top of the signer's dominant hand, understand a visual language that uses two hands? To help familiarize interpreters, this sections starts with a brief overview of how fluent Deaf-Blind individuals receive and are able to understand tactile communication.

When a Deaf-Blind individual fluent in Tactile ASL communicates with another person who also is fluent, they will often use one-handed reception which involves putting their non-dominant hand on top of the signer's dominant hand as shown in Figure 4.(In Figures 4and 5, both individualsare deaf-blind, the Deaf-Blind individual on the right is signing and the Deaf-Blind individual on the left is receiving tactually with her hand on the signer's dominant hand.)

Figure 4.

Figure 5.

Figure 5, shows another position commonly used by Deaf-Blind receivers. In Figure 5, the Deaf-Blind receiver has added a second hand; however, notice that this hand contacts the signer's wrist, not the back of signer's hand. While this second hand is able to receive general information regarding the movement and location of the signer's non-dominant hand, its primary purpose appears to be to give feedback to the signer by using taps, squeezes, or nods on the signers wrists (for more on tactile feedback see Collins and Petronio 1998, for examples from Tactile Swedish Sign Language, see Mecsh 2001).[5]

Closer examination shows that when receiving language tactually, the receiving hand rests lightly and moves slightly on the back of the signer's dominant hand. The receiver's hand typically has contact with:

- the back of the signer's hand
- the lower part of the signer's fingers
- the lower side of signer's index finger
- occasionally the lower part of the signer's thumb

The following shows close-ups of different views of positions used by Deaf-Blind receivers.

Figure 6. Various receiving positions used by Deaf-Blind individuals

As can be seen in the first picture, the receiver's thumb is in contact with the lower part of the signer's pinky and ring finger. In the second picture, the receiver's thumb contacts the lower parts of the signer's index and middle finger and in the third picture, the thumb contacts the lower side of the signer's upright middle finger. These three pictures illustrate that the receiving hand is somewhat fluid, it does not remain in exactly one position and it does not have contact with the signer's fingertips.

In interpreting situations, a Deaf-Blind receiver can sit facing the interpreter as in Figures 4 and 5. Or alternatively, both the interpreter and the Deaf-Blind individual can be seated next to each other, both facing the same direction. In this case, the Deaf-Blind receiver still places one-hand on top of the interpreter's dominant signing hand - instead of reaching across to contact the interpreter's hand, they are contacting the interpreter's hand from the side.

The next three subsections look at different linguistic features of ASL and Tactile ASL and discuss implications for deaf-blind interpreting, particularly for those using tactile communication or having blurred vision.

2.1 Phonological Patterns of ASL

When looking at the positions of the Deaf-Blind person's receiving hand in Figure 4 - 6, it would appear they would have difficulty tactually recognizing some ASL handshapes.In ASL there are a few handshapes, such as the numbers 6 – 9, in which the tip of the signer's thumb contacts a fingertip.For example in the sign for the number 6, the thumb tip contacts the tip of the pinky, for 7 it contacts the tip of the ring finger, for 8 the tip of the middle finger, and for 9, the tip of the index finger. Because the Deaf-Blind receiver's hand is not in contact with the fingertips, these handshapes are difficult for tactile reception (Collins and Petronio, 1998). To compensate, these numbers are usually held slightly longer to allow the Deaf-Blind receiver to move their receiving hand and recognize the

handshape. For Deaf-Blind people with blurred vision, the small finger details of these numbers are also difficult to perceive. In these cases, the interpreter also tends to slow down to allow the person with blurred vision time to recognize the number.

Some of the handshapes used for these numbers are the same handshapes used for fingerspelledletters. For example, 9 is the same handshape as the letter "F", and 6 is the same handshape as "W". Fingerspelling differs from numbers because it usually allows for prediction. It occurs within a context and involves combinations of letters that provide additional cues for letter and word recognition. Context and cues play an important role in allowing fluent Deaf-Blind people to understand language tactually. This is illustrated by the letters "F" and "W" rarely being misunderstood, while difficulties occur when the same handshapes are used in numbers – which do not provide with the same type of contextual cues.The significance of context, patterns and cues are further discussed in section 2.2.

Interpreters not familiar with tactile interpreting are often puzzled by how Deaf-Blind people, who are only receiving language with one hand, are able to identify two-handed signs. The phonological patterns of ASL make this possible - information on the second hand of a two-handed sign is largely recoverable by prediction and knowledge of patterns within ASL. Battison (1978) described two constraints that apply to 2-handed ASL signs, the Symmetry and Dominance Conditions. Recent work by Napoli and Wu (2003) has expanded on and provided further support for Battison's basic findings which are as follows:

> Symmetry Condition
> a) If both hands of a sign move independently during its articulation, then (b) both hands must be specified for the same location, the same handshape, the same movement (whether performed simultaneously or in alternation), and the specifications for orientation must be either symmetrical or identical.

> Dominance Condition
> (a) If the hands of a two-handed sign do not share the same specification for handshapes (i.e., they are different), then (b) One hand must be passive while the active hand articulates the movement, and (c) The specification of the passive handshape is restricted to be one of a small set: A, S, B, 5, G, C, and O.
> (Battison, 1978 pp.33-34)

Thus, in ASL two-handed signs, the handshape of the non-dominant hand is restricted to either the same handshape as the dominant hand, or the hand is passive and has one of seven possible unmarked shapes A,S, B, 5, G, or C. Therefore, even though the Deaf-Blind individual receives information from only one hand, the patterns within ASL allow them to make predictions about the non-dominant hand. Identifying two-handed signs from only one hand is not unique to tactile communication, it is also regularly done by Deaf signers as they communicate with a signer who has one of their hands occupied such as when they are holding something. In addition there is a phonological process called 'weak hand drop' that applies to certain two-handed signs and results in their being signed one-handed (Padden and Perlmutter, 1987).

2.2) Context, Patterns, and Redundancies

In all languages, context, patterns, and redundancies play a significant role in one's understanding of a message. Context, which includes prior discourse, provides the background and a framework for understanding the message. Knowledge of discourse and language patterns provides cues that allow us to predict and more easily follow the message. Naturally occurring redundancies provide multiple ways of conveying the same information within a message. For example, in the English sentence *"Yesterday, three boys played in the park"*, the plurality of the noun is redundantly

conveyed by both 'three' and the suffix 's' on the noun, and past tense is redundantly conveyed by 'yesterday' as well as by the past tense marker 'ed' on the verb. Although different types are used, all languages have redundancies that assist us in processing language and understanding intent. Using data from research on questions, the remainder of this subsection illustrates how naturally occurring redundancies in ASL, in combination with language patterns and context, assists in the understandingof signed discourses, particularly for those using tactile reception.

In ASL, questions have a nonmanual marker that co-occurs with the question. The wh-question marker includes furrowed eyebrows and the yes/no question-marker includes raised eye-brows. While yes/no questions in ASL do have a nonmanual question marker, they often do not have a manual question sign. In contrast, ASL wh-questions often include both the wh-question maker and a wh-sign, although there are situations where the wh-sign is not used (Lillo-Martin and Fischer, 1992). Questions that only use a nonmanual question marker could present problems for Tactile ASL users because they cannot see these nonmanual markers. In one of the earliest studies of Tactile ASL, Collins and Petronio (1998) videotaped multiple short interactions that occurred between fluent Deaf-Blind Tactile ASL users while attending a friend's going-away party. This data was supplemented with videotapes of three three Deaf-Blind individuals retelling short stories to another Deaf-Blind individual and then asking two or three pre-arranged questions about the story. Analyses of the data found that all of the Tactile ASL wh-questions included a wh-sign and the yes/no questions included a question sign such as QUESTION.

Since Deaf-Blind receivers cannot see nonmanual questions markers, the finding that the Tactile ASL questions always included a manual question sign made sense. However, later observations revealed that in longer interactions, this was not always the case. In fact, looking at over 400 questions used by Deaf-Blind interviewees during Tactile ASL interviews, Dively and Petronio (2006) found

that over 22% of wh-questions did not use a wh-sign and over 89% of yes/no questions did not use the sign QUESTION. This led to further research to reexamine the use of questions in both ASL and Tactile ASL. The data used in this later study came from questions used by interviewees in 14 Tactile ASL interviews and 12 ASL interviews.[6] In the Tactile ASL interviews both the interviewer and interviewee were Deaf-Blind individuals fluent in ASL and Tactile ASL.[7] In the ASL interviews, the participants were Deaf individuals fluent in ASL.

In reexamining the ASL and Tactile ASL questions, a discourse level approach was used and a definition of a 'discourse-question' was developed. A discourse-question was defined as the 'unit' that was used to illicit one answer. That is, regardless of the length, if one answer was expected, this unit was considered one discourse-question. A discourse-question could range from a unit consisting of a single sign to a unit containing several sentences. In looking at the data from the interviewees, discourse-questions included questions asked to the interviewer as well as questions that were asked in constructed dialogue/role-shifts. Close analysis of the discourse-level questions showed they could be divided into the following four categories.

1. single-sign questions
2. single-sentence questions
3. enhanced-sentence questions, and
4. multi-sentence questions.

The first category, single-sign questions, is illustrated below in (1) – (4). (1) and (2) were used by Deaf-Blind interviewees in the Tactile ASL interviews. (3) and (4) were used by Deaf interviewees in the ASL interviews.[8]

Tactile **ASL**

1) _____q
CHILDREN
"Was it the children?"

2) ___wh
WHY
"Why should I do that?"

ASL

3) ____q
EGG
"Do your chickens provide eggs?"

4) ___wh
WHERE
"Where is that?"

For the Tactile ASL single-sign yes/no questions, the most common signs were KNOW, READY, UNDERSTAND, and REALLY. For single-sign wh-questions, the most common sign was a wh-sign, e.g. WHO, WHAT, WHERE, etc.. For all single-sign questions, prior contextual information played a major role in understanding the intended meaning of single-sign questions, particularly in the yes/no questions as shown in (1) and (3). Without knowing the context, one would not know how to appropriately respond. In (1) the Deaf-Blind receiver used context to both identify that a question is being asked and to figure out the meaning of the question. In (2) the wh-sign WHY helped the Deaf-Blind receiver identify this as a question and the context provided the intended meaning. In the ASL questions in (3) and (4), Deaf receivers were able to identify these as questions because they could see the co-occurring nonmanual markers. Context assisted in identifying the meaning.

Examples of the second category, the single-sentencequestions, are shown in (5) – (8). In (5), the Tactile ASL question was identified as a question from context. In (6), the wh-sign HOW also hel-

ped with this identification. In the ASL questions, deaf individuals used the nonmanual markers to identify these as the questions with supplemental help from the wh-sign in (8).

Tactile ASL _____q
5) WANT SCHOOL POINT-left L-S-D
"Do you want to go to school at the Louisiana School for the Deaf?"

_____wh
6) HOW COMMUNICATE
"How does he communicate?"

ASL _____q
7) GO-OUT CAMP
"Did you go camping?"

_____wh
8) HOW ENJOY POINT-right
"How did you enjoy it there?"

The signs KNOW, MEAN, REMEMBER, WANT, UNDERSTAND and REALLY were very common in the Tactile ASL yes/no single-sentence questions. Four of these six signs were also the most frequently used signs in the single-sign yes/no questions. Similar to how a wh-sign helps tactile receivers identify wh-questions, it appears that these frequently occurring signs can also function as a cue in helping identify yes-no questions.

Examples of questions that fit into the third category, the enhanced-sentence questions, are shown in (9) – (12). Enhanced-sentence questions were defined as those which started and/or ended with specific signs that were identified as 'openers' or 'endings'. The opener or ending signs are underlined in the sentences below.

(Note: for the remainder of this section, nonmanuals will not be represented in the examples).

Tactile **ASL**

9) YOU JANE LOOK-AT SIGN LOOK-AT
"Does Jane visually watch signs?"

10) YOU SAY YOU CHILDREN NOT ASHAMED #OF THEIR PARENT DEAF-BLIND Q-wglRIGHT
"You said your children were not ashamed of their parents being deaf-blind?"

ASL

11) ½ PRICE SELL ½
"Are things being sold at half price?

12) YOU #WHEN YOU WILL RETIRE YOU
"When will you retire?"

Signs identified as openers and endings are listed below. These signs regularly showed up with questions in both ASL and Tactile ASL.

Openers	Endings[9]
YOU	"WHAT" (open hand, palm up, slight shaking)
HEY	WELL (open hand, palm up)
#WHAT	QUESTION
I- ASK-you	Q-wiggle
SAY	RIGHT
CURIOUS	YOU
TELL	a repeat or 'double' of a sign wi thin the questions
WONDER	

In both ASL and Tactile ASL, it is common for enhanced questions to have both an opener and an ending, as in (9), (10) and (12). Additionally, enhanced questions could have multiple openings and/or endings as shown with the multiple endings in (10). For tactile receivers, who have knowledge of the language patterns, openers and endings provide additional cues for identifying and understanding questions.

The use of the initial YOU as an opener is very common as further illustrated in (13) - (15).

13. YOU WHY VISIT 7 FLOOR, GIRL WANT VI SIT 7 FLOOR FOR++
"Why did the girl want to visit the seventh floor?"

14. YOU WHAT PLANE WHAT
"What kind of plane was it?"

15. YOU HOW YOU
"How are you?"

(Collins and Petronio, 1998)

In these sentences, the initial YOU is not the subject of the sentence. Instead, it can serve as a cue, a forewarning that a question might be asked. While it was initially thought that this use of YOU was unique to Tactile ASL, later research shows that it also is used in ASL. However, it does seem to be used to a greater degree in Tactile ASL.

(16) – (19) show examples of the last category, the multi-sentence questions.

Tactile ASL

16) ALL HEARING NONE DEAF NONE
"Were they all hearing (no deaf)?"

17) HOW YOU WRITE #OR TYPE COMPUTER
WHICH YOU USE WRITE, COMPUTER YOU
"Do you write by hand or use the computer?"

ASL

18) YOU #GO YOU #GO YOU
"Did you go?"

19) WHY ASK-me WHY SUMMON-me
"Why did you ask me?"

The individual sentences within the multi-sentence questions include single-sign questions, single-sentence questions, and/or enhanced-sentence questions. While not shown here because of their length, some of these multi-sentence questions were quite long. Multi-sentence questions provide additional cues for understanding questions. In particular this repetition of a question can be helpful for Deaf-Blind individuals who are receiving language tactually and are unable to see the nonmanual question markers.

Excluding questions asking for clarification, the chart below shows that 60% of the discourse-questions used by interviewees were enhanced-sentence or multi-sentence questions. The percentages were almost identical in both the Tactile ASL and the ASL data. In this chart, the enhanced and multi-sentence questions are grouped together because both provide additional cues to help in identifying and understanding questions.

	Tactile ASL	**ASL**
Enhanced-Sentence Questions Multi-Sentence Questions	60 %	60.5%
Single-sign Questions Single-sentence Questions	40 %	39%

Figure 7: Percentage of use of discourse-questions

The research findings on questions in ASL and Tactile ASL have significance for deaf-blind interpreting in at least two ways. First, they demonstrate the complexity of language patterns and show how knowledge of these patterns along with context, can aid Deaf-Blind individuals in receiving and understanding language tactually. The important role of language patterns illustrates the need for deaf-blind interpreters to be fluent in the language and to be able to appropriately use these patterns – patterns that include the natural redundancies.

Secondly, the combination of the two different research projects shows how the type of data studied can influence the type of findings. The earlier study looked at both short interactions during a social gathering and videotapes from an 'artificial' experiment which involved the retelling of short stories followed by a few predetermined questions. In both of these cases the Deaf-Blind signers consistently used overt manual questions signs – this assisted the Deaf-Blind receivers in identifying and understanding the questions. In comparison, the data from the later study that used longer discourses, included many questions that did not have overt manual question signs. In the longer discourses we can assume that the build-up of context, along with knowledge of language patterns, allowed Deaf-Blind receivers to identify and understand questions-- even though they did not have access to the nonmanual question markers.

For interpreting, we need to be careful in how we apply these findings. These findings give us a better understanding of how tactile communication can work under ideal conditions when there is a long conversation between two Deaf-Blind people who are both fluent in Tactile ASL and both have shared context. However, interpreting is not something this is typically considered a 'naturally occurring discourse situation', and the addition of a third person adds further complications. Due to the unnaturalness of the discourse when an interpreter is present, it is common practice for deaf-blind interpreters to consciously add manual indicators of

questions,to have frequent use of openers (e.g. YOU) and endings (e.g. QUESTION), and to use multi-sentence questions in their interpretations. The uses of the enhanced and multi-sentence questions are natural patterns within ASL and Tactile ASL. These, in addition to the use of overt questions signs can all be successfully used when doing deaf-blind interpreting.

2.3 Options, a Visibility Continuum, and a Subset Model

In ASL, as in all languages, many options can be used to convey a concept. ASL includes both manual and nonmanual grammatical features (e.g. the nonmanual questions markers). In some cases, a concept can be conveyed by either manual or nonmanual means. For example, in some situations it is possible to use a nonmanual headnod or headshake, or to use the manual signs YES or NO. To take a closer look at options and at other issues that are relevant to tactile interpreting, findings from a research study done on the signs YES and NO are presented below.

Petronio and Dively (2006) studied the function and frequency of the two signs YES and NOin ASL and Tactile ASL. The data used came from three different types of interviews: 1) Tactile ASL interviews in which both the interviewer and interviewee were Deaf-Blind, 2) ASL interviews in which there was one Deaf interviewer and only one Deaf interviewee (1-to-1), and 3) ASL interviews which had one Deaf interviewer and two or more Deaf interviewees (1-to-many). In these interviews, significant differences were found in how often interviewees used the signs YES and NO. In the ASL 1-to-1 interviews, YES and NO were used only an average of 9.8 times per 15 minutes, in the ASL 1-to-many interviews they were used an average of 23.5 times per 15 minutes, and in the Tactile ASL interviews, they were used an average of 34.4 times per minute.

In the field of sociolinguistics, a variable is a factor that correlates with certain linguistic features. In the above study, visibility conditions were considered a variable that correlated with the

frequency of using the manual sign YES or NO instead of only using a headnod or headshake. That is, under optimal visibility conditions such as in the ASL 1-to-1 interviews, when both signers were facing each other and could clearly see the smaller and more subtle nonmanual features (e.g. headnods and headshakes), the interviewees used the manual signs (e.g. YES and NO) less often. In the ASL 1-to-many interviews visibility conditions were less optimal because while watching one signer, information conveyed by another signer could be overlooked, particularly smaller, nonmanual manual features. Correspondingly, in the ASL 1-to-many interviews the manual signs YES and NO were used more often than in the ASL 1-to-1 interviews. The Tactile ASL interviews, with the Deaf-Blind participants, had the poorest visibility conditions and also had the greatest frequency for the manual signs YES and NO. The inverse relation between visibility conditions and the use of YES and NO is illustrated in the visibility continuum below.

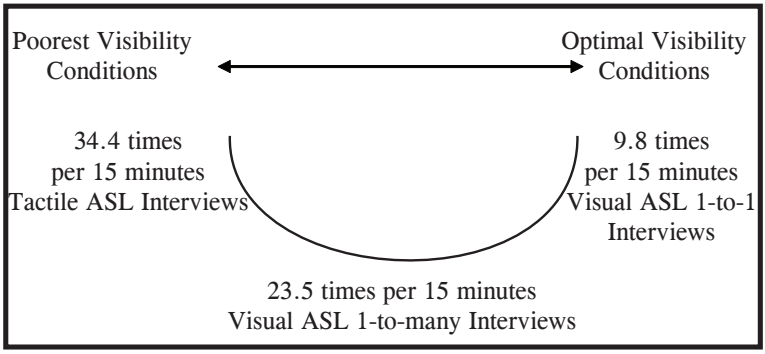


Figure 8: Visibility Continuum showing the average frequency of YES and NO.

As visibility conditions decrease (as one moves from the right to the left on the diagram), the frequency of the manual signs YES and NO increases. In relationship to interpreting, following the findings of this study, we would predict that when interpreting for Deaf

individuals, fluent interpreters are already making unconscious adjustments for visibility conditions and increasing their use of manual signs as visibility conditions decrease - that is, as the number of participants increases and/or possibly as the distance increases. In tactile interpreting or interpreting for those with blurred vision, deaf-blind interpreters would even further increase their use of manual signs due to the extremely poor visibility conditions.

The findings above are compatible with using a subset model to represent the relationship between Tactile ASL and ASL. In the model below, the options used in ASL are represented by the solid circle with the horizontal lines, the options used in Tactile ASL are represented in the dotted circle with the vertical lines, and the options used in both ASL and Tactile ASL are represented in the overlapping checkered area.

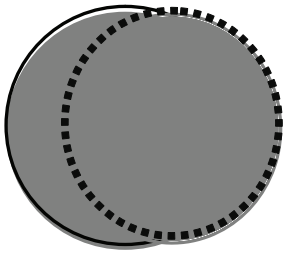


Figure 9. A subset model to represent the relationship between ASL and Tactile

Based on the information described so far, the use of the manual signs YES and NO would occur in the overlapping area since these are used in both ASL and Tactile ASL.[10] The use of only a head-nod or headshake would occur in the horizontal striped area -- this option is viable in ASL, but not viable in Tactile ASL. While this represents the generality, the actual situation is more complicated - to provide a more accurate representation of what occurs, we need to look at the 12 different functions that the signs YES and NO

were used for in both ASL and Tactile ASL. The 12 functions are shown in the chart below.

Function
1. YES or NO as an initial response to a yes/no question from the interviewer
2. YES as feedback to the interviewer
3. YES or NO following a sentence to add further confirmation or negation
4. NO as a negative operator that changes the polarity of the sentence
5. YES or NO in a sentence containing ellipsis
6. YES and NO as a discourse marker (including as a turn-taking cue)
7. YES or NO as an interjection giving the signer's emotions/opinions
8. YES or NO for conversational repair (including self-talk)
9. YES in a preverbal/pre-predicate position
10. YES or NO as an agreement verb with the meaning of 'to say yes' or 'to say no'
11. NO in English-like collocations (e.g. 'no thank-you')
12. YES or NO as a noun

Figure 10. Twelve functions of YES and No in ASL and Tactile ASL[11]

Analysis found that for the first 9 functions a nonmanual headnod or headshake could be used instead of a manual YES or NO. However, for the last three functions (function 10, 11, and 12), a nonmanual headnod or headshake was not able to convey the same amount of information that a manual sign could. In other words, for the last three functions, there is not an option to substitute a

nonmanual headnod or headshake for a manual YES or NO. This is illustrated in the model below.

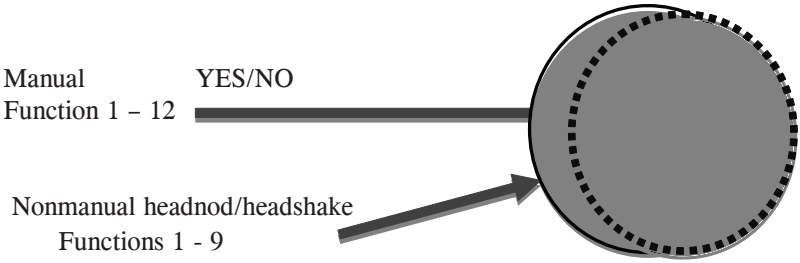


Figure 11.

The fact that both ASL and Tactile ASL can use a manual sign YES/NO for Function 1 – 12 is represented by the arrow pointing to the overlapping area, whereas for Function 1 -9, ASL users also have the option of using a nonmanual headnod or headshake.

This subset model can aid in representing other research findings and allows us to visualize the relationship between ASL and Tactile ASL. This model also highlights the options available when interpreting for Deaf individuals compared to interpreting for Deaf-Blind individuals who use tactile communication or who have blurred vision – those who will miss the more subtle nonmanual information. For example, in ASL, the concept of past tense can be conveyed through the use of lexical signs such as FINISH, YESTERDAY or LAST-YEAR, or it can be conveyed by the sole use of nonmanual headnods and/or a nonmanual facial expression including drawn lips (Maroney, 2004). Using the graph of the subset model above, since the lexical signs are options in both ASL and Tactile ASL, they would appear in the overlapped checked area. On the other hand, conveying past tense solely through the use of nonmanual means would only be a viable option in ASL and would appear in the horizontal striped area.

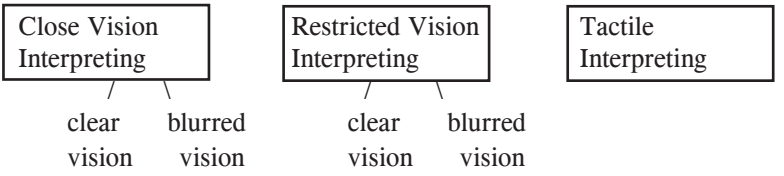
Collins (2004) examined Tactile ASL data from two Deaf-Blind individuals who were signing with each other. He focused on describing how adverbs were used in Tactile ASL and then compared this with an example of how the same concepts, or parts of the concept, could be conveyed nonmanually in ASL. For example, to convey the concept of doing something every two weeks over a period of time, the sign TWO-WEEKS was used with multiple repetitions in Tactile ASL. Collins describes an ASL alternative, which used only two repetitions of TWO-WEEK; however,a nonmanual protruding lower lip accompanied the sign. In another example from Tactile ASL, a conditional sentence started with a manual sign. In contrast, in an ASL equivalent, the use of a nonmanual conditional marker did not require the addition of the manual signs. In both of these examples, the options used in Tactile ASL (multiple repetitions of TWO-WEEKS, or starting a conditional sentence with a manual sign, e.g. SUPPOSE), are also grammatical and used in ASL. Since both of these options can be used in both ASL and Tactile ASL, they would appear in the overlapping checkered area in the subset model pictured above.

As described in this section, the use of a visibility continuum in conjunction with the subset model allows interpreters to see which of the linguistic features that they currently are using are also successfully used in tactile communication. Findings showing the low frequency of the manual signs YES and NO in the ASL 1-to-1 interviews compared with the more frequent occurrences in the ASL 1-to-many interviews supports treating visibility conditions as a variable that affects language choices made within ASL. This work suggests that interpreters fluent in ASL are already making language choices dependent on visibility conditions as they interpret for Deaf individuals. Interpreting for Deaf-Blind individuals using tactile communicationwould involve using an even higher frequency of manualoptions.

Summary and Conclusion:

This article began with the assumption that many interpreters are hesitant to do deaf-blind interpreting because they are unfamiliar with what is involved. A goal for this article was to present information to allow interpreters to get a better understanding of aspects of deaf-blind interpreting. This involved showing that fluent interpreters, particularly those involved in video interpreting, are already using some of the skills used in deaf-blind interpreting. Information presented included a comparison of similarities between video relay interpreting and deaf-blind interpreting, an overview of tactile communication, and findings from two research projects that looked at similarities and differences between visual ASL and Tactile ASL. In Section 2.2 research from a study on questions posited that knowledge of language patterns and context are crucial for tactual reception of a signed language. Because Deaf-Blind receivers are using language patterns to understand tactile signing, this demonstrated the importance of deaf-blind interpreters being fluent signers and proficient in the use of the different patterns of the language. Findings presented in Section 2.3 used a subset model to account for the relationship between ASL and Tactile ASL -- when options existed in ASL to convey information through either manual or nonmanual means, Tactile ASL would choose the manual options.

The type of deaf-blind interpreting mentioned in this article included the following:



Important points made about the different types of deaf-blind interpreting included:

- When interpreting for someone with restricted vision, a smaller signing space is used,
- When interpreting for someone with blurred vision, signs need to be clearly articulated and due to the difficulty of seeing the fine motor movements, fingerspelling and numbers are usually signed at a slightly slower speed.
- When interpreting for someone using tactile communication, there are some handshapes that are harder to perceive, the interpreter must make accommodations for this (e.g. either slowing down or picking alternative signs).
- When doing tactile interpreting (or interpreting for someone with such blurred vision that they are unable to see non-manual features), interpreters need to be aware and chose manual means to convey the information.
- In almost all instances of deaf-blind interpreting, lighting and positioning are important.
- In all types of deaf-blind interpreting, it is important to convey relevant visual information.

A second goalof this article is that as interpreters gain a better understanding of deaf-blind interpreting, they will become interested and want to further their leaning. Further education can include attending workshops, getting to know Deaf-Blind individuals, and attending different Deaf-Blind events. Opportunities will vary depending on where one lives. However, Deaf-Blind individuals in more and more places are becoming organized and holding different activities, workshops and retreats. As members of the Deaf-Blind community become more active, there will be an even greater need for skilled deaf-blind interpreters. It is hoped that this article will serve as a stepping stone and more interpreters will become interested and involved.

Notes

1. For their helpful suggestions, comments and insights, the author would like to thank Audrey Ruiz Lambert, Theresa B. Smith and the interpreting students in Eastern Kentucky University's fall 2009 semester of "Linguistics and ASL II'.

2. While white is a contrastive color for someone with darker skin, it is usually not a good color to use for deaf-blind interpreting because it cause too much glare.

3. Some deaf-blind people have such a small field of vision that they are unable to see the sign's of an interpreter who is standing next to them. These individuals might use what is called 'tracking' – they will 'track' by putting their hand on the interpreter's wrist so they will know where to look as they visually watch the interpreter's signs.

4. Some interpreters incorrectly assume that all deaf-blind people need interpreters to use a smaller signing space. While signing in a smaller space is helpful for someone with restricted vision, it can make things worse for deaf-blind individuals who use close vision interpreting and have blurred vision – these individuals prefer the interpreter to use a normal (larger) signing space to allow them to better see and distinguish the signs.

5. Some Deaf-Blind individuals use 'two-hand' tactile reception have a hand on the back of each of the signer's hands. There are situations where a Deaf-Blind person who primarily uses one-handed reception will switch to two-handed reception. This includes when a signer uses many classifiers, or when the person they are communicating with is not fluent or comfortable in using expressive tactile communication. Additionally, two-handed reception is used by many deaf-blind people who are new to using tactile communication and those who did not grow up using sign language (e.g. are late learners).

6. This research was supported by a grant from the National Science Foundation SBR-9910714. The ASL data is from research supported by the National Science Foundation SBR-9310116 & SBR-9709522 . We are indebted to Ceil Lucas and Clayton Valli for allowing us to use the ASL data.

7. The Deaf-Blind individuals had Ushers Syndrome 1. They grew up using visual ASL as their primary means of communication. Later, when their vision made it difficult to see signing, they switched to tactile reception. All of these individuals were active in the Deaf-Blind community and regularly interacted with other Tactile ASL users.

8. Capitalized English words are used as glossed to represent a sign, the '#' symbol indicates a lexicalized sign, and the letters 'q' or 'wh' on a line above the glosses respectively represent a co-occurring nonmanual wh or question marker.

9. For the use of subject YOU occurring at the end of a sentence see 'subject pronominal copy' by Padden (1983). For further discussion of 'doubles' at the end of a sentence, see Petronio and Lillo-Martin (1997).

10. In both ASL and Tactile ASL it is very common for manual signs YES or NO to be accompanied by a co-occurring nonmanual head nod or headshake. Although not the focus of this paper, factors correlating with a Deaf-Blind individuals not using co-occuring nonmanuals would include the age they became blind and the length of time they have been blind.

11. The ordering of the function differs from the order presented in Petronio and Dively 2006.

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