Intralinguistic and Crosslinguistic Variation in the Turn-taking Organization Between Deaf-blind Signers: new evidence from Bay Islands Sign Language

Fae Rocketship  
*University of the West Indies*

Kristian Ali  
*University of California, Santa Barbara*

Ben Braithwaite  
*University of the West Indies*

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Abstract
This paper examines the turn-taking organization between two deaf-blind signers of Bay Islands Sign Language (BISL) and discusses how this language presents unique intra- and cross-linguistic variation. Following the framework of conversation analysis adapted to tactile sign languages, a case study was done on an extract of a conversation in the BISL corpus. One area of intra-linguistic variation is influenced by whether signers can perceive the language visually as well as tactiley. Signers use non-manual markers like nodding to backchannel when interacting with others who may be able to perceive them visually, but tactile-proprioceptive backchanneling techniques with blind interlocutors. Variation is also influenced by the type of co-formation employed by the signer. Cross-linguistically, this paper introduces several features which differ from previous descriptions of tactile languages. BISL signers are seen to nod with conversational purpose. Also, a novel technique for turn yielding in BISL involving throwing the hands of the interlocutor in the air has not been previously documented. The particular demographics and social history of the BISL community seem to be responsible for a number of features which differ from other tactile languages.

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Intralinguistic and Crosslinguistic Variation in the Turn-taking Organization Between Deaf-blind Signers: new evidence from Bay Islands Sign Language

Fae Rocketship, Kristian Ali, and Ben Braithwaite

1 Introduction

1.1 Background

This paper focuses on the turn-taking organization of Bay Islands Sign Language (BISL), an endangered sign language indigenous to the islands of Roatan and Guanaja in the Bay Islands, Honduras. Figure 1 shows the location of the islands in the Caribbean Sea. BISL emerged in the early twentieth century within an extended family due to a high incidence of Usher Syndrome, a condition which causes profound deafness at birth, and gradual blindness with age. BISL is used among a community of deaf-blind, deaf-sighted and hearing-sighted people. It is produced and perceived both visually and tactiley, depending on the sensorial orientations of the participants in a particular interaction (Ali and Braithwaite 2019). Although there are numerous hearing-sighted signers, the risk of language death is high (Guilherme 2013) as there are not many deaf-blind and deaf-sighted signers who use the language (Ali and Braithwaite 2020), and demographic and social changes have meant that Usher Syndrome is much less common that it was (K. Ali 2022).

Figure 1: Location of Roatan and Guanaja in the Caribbean Sea.

1.2 Turn-taking

Turn-taking refers to the ways in which participants in a conversation negotiate who will take a turn to speak or sign, and when. Initial studies focused on spoken languages. Sacks, Schegloff, and Jefferson (1974) defined the turn-constructional unit (TCU) as the unit used to compose turns; it can be lexical, phrasal, clausal, or sentential. The completion of the TCU marks a Transition-Relevance

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Place (TRP); this is where one turn ends and the other can begin. Their model of turn-taking is essentially a system that posits a list of rules that are able to govern every conversation whatever the number of participants. This paper focuses on the variation of three aspects of the turn-taking organization of BISL: turn-yielding, turn-seizing, and backchanneling, and is based on an undergraduate research project by the first author (F. Ali 2021). In spoken languages, negotiation of turn-taking is often achieved through eye gaze (Keitel et al. 2013), syntactic cues (Riest, Jorschick, and de Ruiter 2015), and tag-questions (Sacks, Schegloff, and Jefferson 1974) amongst others. More recently, studies have looked at turn-taking in signed conversations, finding that participants can use eye gaze as well as indexing, and waving among other techniques to negotiate turns (van Herreweghe 2002). Omardeen (2022) identifies features of turn-taking in Providence Island Sign Language which resemble those documented in spoken languages, as well as those which seem to be characteristic of the visual-gestural modality, noting the particular importance of eye gaze in the regulation of conversations in visual-gestural languages (Omardeen 2022). BISL provides an interesting point of comparison because of the additional affordances involved in tactile-proprioceptive interactions, and the variability in modality. In this paper we describe some of the ways in which turn-taking cues are adapted to the sensorial orientations of the interlocutors.

1.3 Hand Configurations

Before beginning the analysis of turn-taking, we provide a brief sketch of the basic framework used in conversations in BISL, particularly those in which both interlocutors are deaf and blind. Edwards and Brentari (2020) provide an analysis of the phonological organization of Protactile Language (PT), a language which has been developed by a DeafBlind community in the US. PT is perceived tactiley and proprioceptively. Utterances are usually produced in what Edwards and Brentari call “contact space,” unlike visual sign languages which are produced in “air space.” Edwards and Brentari (2020) explained that air space refers to the space around the interlocutors’ bodies whilst contact space would be the locations on the interlocutors’ bodies. They argue that contact space is more effective in PT as signs can be clearly perceived against the backdrop of the addressee’s own body. In conversations, the dominant hand of the signer must be connected with the non-dominant hand of the addressee at all times (Clark and Nuccio 2020). Similarly, in tactile Swedish Sign language, the addressee places their non-dominant hand on top of the signer’s dominant hand in dialogue position (Mesch 2013).

The hand and body configurations used in BISL are rather different from those in other documented tactile sign languages. Due to the diversity of BISL signers’ sensorial orientations, the language is sometimes produced visually when the addressee is sighted, as well as tactiley with frequent co-formation of signs. The following examples demonstrate some of the range of possibilities for the articulation and perception of signs in BISL.

1. Visually

1. Proprioception refers to the ability to know exactly where the body is in space.
2. This is when the hands and body of both the signer and addressee are involved in articulation (Mesch, Raanes, and Ferrara 2015).
2. The signer places their hand on their own body.

3. The signer places their hand on the addressee’s body.

4. The signer places the addressee’s hand on the signer’s body.

5. The signer places the addressee’s hand on the addressee’s body.
Based on the data, in all the tactile modes of signing, the most common hand configuration in BISL involves the man gripping the back of the woman’s hands regardless of who is signing. Therefore, the woman tends to sign from within the man’s hands.

2 Methodology

A case study was done on an excerpt from a conversation between two BISL signers looking at the ways in which turn-taking was organized. The two BISL signers were a woman in her late 70s and a man in his late 50s. She is his maternal aunt, so they knew each other well, and have both used the language their entire lives. They are both deaf-blind due to Usher Syndrome, however, the woman is completely blind whereas the man is partially sighted. Choosing these participants gave the opportunity to analyze how the asymmetry of their vision affected the way their interaction was regulated, and indeed, it turned out that they used somewhat different techniques. It is important to
note that many, but not all, conversations in BISL involve just two participants. This has consequences for the way turn-taking works since interlocutors do not usually need to indicate which other participant they are addressing, or to explicitly select them. When the signer ends their turn, it is understood that the floor is open.

A corpus of the language was created through a documentation project carried out in 2018 by a team of four researchers based in Trinidad and Tobago: two hearing-sighted people, Kristian Ali and Ben Braithwaite, and two deaf-sighted people, Ian Dhanoosal and Kimone Elvin. For this paper, we analyzed three minutes and 50 seconds of data using three instruments: an extract from the BISL corpus, ELAN 6.0, and the BISL lexical database with ID-gloss information and example video clippings of each sign.

Figure 9 displays the ten tiers we created in the .eaf file to code and annotate the corpus: one tier for each hand of both participants, two for free translations of each participant, and one each for general notes, turn-yielding, turn-seizing, and backchanneling techniques. They were coded on separate tiers to cater for overlaps. The end of each turn was segmented from the moment the last sign was finished being formed to the moment all signing was done or in some cases when the other participant took the floor. This allowed for the segmentation of signs that were held for an extended period. This occurred particularly in questions. The conversation was then coded to identify turn transition points. Based on the context of the conversation, the turn was classed as either current speaker selects next (cssn) or the floor is open (open). If the addressee was prompted to speak and relayed expected information, then it was considered current speaker selects next. Questions were taken as those utterances where the addressee was requested to provide some specified information. In contrast, if the addressee was not prompted to relay specific information, it was classed as the floor being left open.

Backchanneling and attention-getting usually used the same technique: tapping the interlocutor’s hand or thigh. They were differentiated from each other by the context. An attention-getting tap was used when the signer wished to take a turn, and was followed by that turn. Backchanneling taps were used by the addressee, usually overlapping with their interlocutor’s signing, and were not followed by a change of turn. We compared the different turn-taking techniques between the two participants, then compared those findings to turn-taking in other tactile sign languages.

Figure 9: The ten tiers in ELAN.

3 Results and Discussion

3.1 Turn-yielding
Turn-yielding is the process where one participant ends their turn and passes it to the other participant. There are two categories: current speaker selects next and leaving the floor open.

### 3.1.1 Current Speaker Selects Next

Current speaker selects next is often achieved through asking a question. Mesch (2001) found that signers of tactile Swedish Sign Language held the last sign of their utterance to indicate a question. Questions in BISL also seemed to be marked by an extended hold of utterance-final signs. We identified seven instances of polar questions in the data. Table 1 indicates how long the utterance-final sign was held for. The last sign of most questions was held for over 500 milliseconds compared to the 300 milliseconds in Mesch’s (2001) data. Only the 4th question in the BISL data was held for only 310 milliseconds. This, however, was a repair strategy for the question right before it. The man asked the woman a question, but didn’t notice her answer so he rephrased his question and she answered immediately, so he didn’t have to hold the sign for the usual length. As in Mesch’s study, it seems that holding the last sign was a feature used by both BISL signers to mark questions. More research needs to be done on the length of holds, both relative to non-question utterances, and to hold in other tactile languages.

#### Table 1: Displaying the length of holds in the BISL data.

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Sign</th>
<th>Total Length (milliseconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>[KNOW] ix-2</td>
<td>836</td>
</tr>
<tr>
<td>2</td>
<td>[KNOW-ix] ix-2</td>
<td>734</td>
</tr>
<tr>
<td>3</td>
<td>ix-2</td>
<td>812</td>
</tr>
<tr>
<td>4</td>
<td>[HIGH] ix-2</td>
<td>310</td>
</tr>
<tr>
<td>5</td>
<td>[SICK] ix-2</td>
<td>573</td>
</tr>
<tr>
<td>6</td>
<td>MEDICATION</td>
<td>727</td>
</tr>
<tr>
<td>7</td>
<td>FAT</td>
<td>643</td>
</tr>
</tbody>
</table>

Although the majority of the questions featured the sign ix-2 (pointing to addressee) utterance-finally, two single-sign questions, MEDICATION and FAT, were understood as polar questions without the ix-2 sign. This is identical to what Haas, Fleetwood, and Ernest (1995) found in Tactile American Sign Language when some questions were left unmarked, and understood based on context.

### 3.1.2 Leaving the Floor Open

In this type of turn-yielding, the signer finished signing, but did not select the addressee to take the next turn. The addressee was free to take the turn if they wanted, or the signer could retake it. This is usually done by resting the hands in tactile Norwegian Sign Language (Raanes 2011) and tactile Swedish Sign Language (Mesch 2011). In the BISL data, there was an instance where the man ended his turn by throwing the woman’s hands. This was recorded as a turn-yielding technique for leaving the floor open because she understood that his turn had ended and that she was not expected to reply since she turned to speak to her husband instead of responding. This has not yet been documented in previous studies of other tactile sign languages and seems to be unique to BISL so far.

Throwing the addressee’s hand was only done by the man. It seems likely that this is because his partial vision allows him to have more control over the conversation in certain ways. For example, it is easier for him to re-establish contact after their hands are disconnected. Also, he normally grips the backs of the addressee’s hands and uses them to sign.

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3This is a question where the answer is expected to be the equivalent of yes or no.
3.2 Turn-seizing

Turn-seizing is when interlocutors take their turn and begin signing, and the turn changes as a result. Due to BISL’s unique multimodal nature, involving both tactile and visual signing, analyzing turn-seizing was not as simple as saying that interlocutors either raise or switch the positions of their hands as Mesch (2013) described for tactile Swedish Sign Language. In the interaction, the hands of the signers sometimes fell out of contact, such as when the signer threw the addressee’s hands. In order for the conversation to continue, contact would need to be re-established. This was usually achieved by the signer tapping on the addressee’s thigh to alert their attention. The addressee would then bring their hand into contact. If the hands were already in contact, the interlocutors would just move their hands to the sign’s location and begin signing. BISL signers use extensive co-formation, in which a signer may form any sign using the hand(s) and/or body of the addressee (Ali and Braithwaite 2019). The method of co-formation they choose impacts their turn-seizing since each method requires the hands to be in a specific position and if they are not in the ideal position, the hands would need to be adjusted.
The man prefers to hold the woman’s hands and use them to sign. Therefore, sometimes he needs to adjust his hands to be on the back of her palms, from which position he could manipulate the handshape and location of the woman’s hand. Figure 11 shows an instance where he adjusts the position of his left hand in order to begin signing. When his hands are already on the back of her palms, he does not need to adjust them.

Therefore, if the signer wants to begin their turn by signing with the addressee’s hands, they may need to adjust their position which can be considered a turn-seizing technique since it conveys the message that they will begin signing.

In Figure 12, the left image shows the man’s left hand before adjusting to turn-seize. It is inside of the woman’s right hand. The right image displays the man’s hand after adjusting with the left hand on the outside of the woman’s right hand. Nevertheless, the hands do not need to be in this position and signing can occur from within the addressee’s hands. Indeed, this is the technique that the woman usually uses. Again, differences in sensorial orientation seem to lead to different hand configurations when signing.

Figure 12: Demonstration of switching positions in turn-seizing.

3.3 Backchanneling

Backchanneling allows the addressee to indicate to the signer that they are following and understanding the conversation. Backchanneling takes the forms of tapping and nodding in BISL. Mesch (2013) explained that tapping was the most common form of backchanneling in several tactile sign languages: in tactile French Sign Language, tactile Norwegian Sign Language and tactile Swedish Sign Language, tapping was done with either a flat hand or individual and even multiple fingers. This is seen in BISL when the man tends to tap either the back of the woman’s hand or her
thigh with his flat palm. In addition to tapping, BISL signers sometimes nod with conversational purpose. In the interaction we looked at, this was only done by the woman. Since the man has partial vision, the woman uses nodding as she knows that he can see her doing it. These nods are taken as backchanneling since the man acknowledges them by continuing to sign or nodding as well when he notices.

4 Conclusion

We have provided a short sketch of a number of techniques used by two signers of BISL to regulate turn-taking in an interaction. The social history and demographics of the BISL community have impacted the turn-taking organization of the language. Since there are both blind and sighted BISL users, signers may use different techniques depending on what the person they are addressing is likely to be able to perceive. In this conversation, the blind woman sometimes relays information visually to her partially-sighted addressee, while he consistently uses tactile-proprioceptive techniques.

BISL signers used some techniques which were similar to what has been observed cross-linguistically. Signers held the last sign of their polar questions for an extended period, though that period was longer than has been observed of signers of other tactile sign languages. We described some techniques which have not previously been documented for other tactile languages. To end a turn and leave the floor open, one of the signers threw the addressee’s hands away, ending contact. The adjustment of hand configuration necessary in seizing a turn depended on the type of co-formation used by the signers, which in turn seemed to be related to their sensorial orientations. Other aspects of intralinguistic variation may not have been attributable to the sensorial orientations of the signers, such as polar questions, which could be marked or unmarked.

More research is needed on different pairs of BISL signers to further explore the turn-taking organization of the language, the extent and nature of variation within the language, and the similarities and differences between this language and other tactile sign languages.

References


Fae Rocketship, Ben Braithwaite
Department of Linguistics and Modern Languages
University of the West Indies,
St. Augustine, Trinidad and Tobago.
fahimah.ali@my.uwi.edu
benjamin.braithwaite@sta.uwi.edu

Kristian Ali
Department of Linguistics
University of California, Santa Barbara
Santa Barbara, CA 93106.
kristianali@ucsb.edu