Loosely Structured Role-playing Events as a Means to Elicit Intonation Patterns in the Field

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ABSTRACT

Ecuadorian Siona (Western-Tukanoan) shows a rather distinct prosodic system from that described in other Tukanoan languages. Because of flat monotone responses produced during eliciting sessions in the field, we developed an on-the-spot method for data collection through loosely structured role-playing events involving the use of a script with lines specifically designed to elicit the utterance types. Skits were performed in pairs who stood at approximately 5 meters apart from each other to assure the dialog was vocalised as much as possible though without yelling. Each participant was accompanied by a researcher who provided the lines in Spanish e.g., "What are you doing?". After each line was repeated in Siona, the other participant was asked to respond. Each participant wore a head-mounted microphone and carried a digital recorder in a backpack to allow for mobility during the event. Results provided clear patterns for analysis that were not present during traditional elicitation sessions.

Keywords: Intonation, field methods, elicitation, Ecuadorian Siona, role-playing

1. INTRODUCTION

The elicitation of intonation patterns (and phonetic properties in general) in the field has traditionally been overlooked due to the lack of laboratory-like conditions and technology used to collect reliable data. In fact, many great books specialising in field method techniques do not offer specifics on eliciting suprasegmentals (cf [4][5][9]) or only mention them in passing [2].[1] This is not to say that the topic of eliciting prosody is lacking (cf. [7][8][10]), however in the field context, this has meant that a substantial number of linguistic grammars only contain impressionistic observations of prosodic properties, if any at all.

During a 2016 fieldtrip in Ecuador, the authors set out to elicit intonation patterns in Ecuadorian Siona, a Western-Tukanoan language that shows a rather distinct prosodic system compared to those described in other Tukanoan languages. However, during the first day of elicitations, it was clear that standard laboratory techniques for eliciting intonation patterns (e.g., reading phrase lists, oral translations, guided conversations, even the Discourse Completion Task [8] etc.) were not effective, as the flat monotone responses did not reflect those of natural speech observed during informal interactions among speakers. At the same time, speakers did not always produce the intended sentence type. It was later determined that the formality of the elicitation tasks was resulting in the atypical responses. In addition, intonation in Ecuadorian Siona (henceforth Siona) does not contain a complex inventory of intonation patterns. Therefore, we only expected to find contrasts in the pitch contour with speech acts and emotional states not conveyed though Siona's rich morphology.

The capture of naturalistic speech data was achieved through a method developed on-site that involved loosely structured role-playing events with a particular recording set up. The following sections describe this method, its implementation, attributes, and limitations.

2. METHOD

The primary goal of this method is to move the participants away from the table, recorder, and elicitation lists and to place them in a more naturalistic setting as they engage with their peers. To do this, we developed a list of speech acts and various pragmatic contexts that we wished to elicit (cf Table 1 for examples).

Table 1: Targeted speech acts and pragmatic contexts. Both columns displayed independently from each other.

Speech acts	Pragmatic contexts
Wh-questions	Annoyance
Yes/No questions	Confusion
List intonation	Sadness & Pity
Focus, contrast, emphasis	Happiness
Imperatives	Surprisal
Declaratives	Curiosity
Vocatives	

These utterances along with the pragmatic contexts were designed with the help of a consultant but were not shown to the participants during the role-play events.

2.1. Recording equipment setup

Because we pinpointed the formality of the elicitation session to be problematic for eliciting intonation patterns, we wanted to remove the standard microphone setup from the equation (e.g., condenser microphones pointed at consultants sitting around a table) to lessen any tension felt by the formal interview set up. To accomplish this, we first asked the participants to wear discrete headset microphones during the recording session. We also wanted to remove the table from the equation to lessen any additional tension brought on by being face-to-face with the researchers. This was accomplished by making the elicitation session 'mobile' thus allowing the speakers to move around freely as they interacted with each other in various locations (e.g., a soccer field, along a dirt road, on a walk down to the river, and in communal gathering areas). To do this, we placed the digital recorders in a backpack or traditional handbag that was worn or carried by the participants. Each participant had an identical set up.

Their speech was recorded in 16-bit Waveform Audio File Format (WAV) with a sample rate of 44.1 kHz using an Apex Universal Headworn condenser mic connected to a ZOOM H4n digital recorder set to record in mono. Participants were told in advance that once the recorder was placed in the backpack or handbag, that their speech would be recorded. This also allowed for additional spontaneous speech to be captured between the participants as we walked to our destination. Permission was asked to use any utterance captured this way.

2.2. Role-playing events

To elicit a variety of speech acts, 'loosely-structured role-playing' events were used based on the desired grammatical utterances and pragmatic contexts. Each event involved interactions between two participants, each of whom was accompanied by a Spanish-speaking researcher. Participants, along with their designated researcher were asked to stand at various distances from each other depending on the speech act under elicitation.

To begin the event, the assistant would speak to the participant in a quiet voice and ask them to say a specific utterance to their conversation partner (e.g., "Hey, what are you doing here?"). The researcher from the other group would then either provide their participant with a response or just ask them to answer freely. Participants were encouraged to converse back and forth for a short time before the next utterance was elicited. The average distance between the participants was approximately 5 metres. This provided enough distance to assure the dialog was vocalised as much as possible though without yelling.

This was ideal in this specific context as we observed that many Siona speakers were very soft spoken when recorded.

To elicit various pragmatic contexts, responses to specific questions could be changed in such a way to elicit an emotional reaction from the participant who asked the initial question. See example 1, which could be used to elicit an *annoyed* response. It should be noted that speakers knew they were acting out these emotions and no one actually became e.g., *annoyed* during the events.

(1) P1: Did you bring your fishing net?
P2: What?
P1: I said, did you bring your fishing net?
P2: What?!
P1: Do you have your fishing net!?

Example 2 could be used to elicit a *confused* response. The researcher would have asked P2 to act confused and to provide a clarifying statement.

(2) P1: Go to XXXX's house and pick up some rice.
P2: But we're at XXXX's house.
P1: Oh, I meant YYYY's house.
P2: But, she lives in another village!

Example 3 could be used to elicit a *curious* response. The researcher would have prompted P1 to be curious since P2 usually doesn't wear a backpack.

(3) P1: What do you have in your bag?
P2: What bag?
P1: The bag that you're holding?
P2: Oh, this bag? Sorry, I can't tell you. It's a surprise.
P1: Who's it for?

Example 4 could be used to elicit a *surprisal* response. The researchers would have asked the participants to act surprised since XXXX is so rare.

(4) P1: What do you have in your bag?
P2: It's a new XXXX!
P1: Wow, where did you get that?!
P2: I got it from the city.
P1: I can't believe you found one!

Example 5 could be used to elicit a *sadness and pity* response. The researcher also said, "Pretend you're sad and in pain so your wife (the other participant) offers you a massage".

(5) P1: I went hunting yesterday, but I didn't catch anything.

P2: Oh, that's too bad.
P1: Yeah, and on the way back I hurt my leg.
P2: Oh, no! What I can do to help?

Approximately 5 role-playing events for each pragmatic context should be run in order to collect a large enough sample for intra- and inter-comparative analyses. Since it was impossible to predict free responses, a large enough collection is needed in case certain responses happen to contain a high number of voiceless segments or creaky voice (common in Siona). Each session lasted approximately 20 minutes.

Moving away from the standard elicitation design (henceforth SED) and into a natural environment also had the unforeseen advantage of capturing natural pragmatic contexts that are difficult to elicit otherwise (e.g., shooing away a dog, coddling a baby, etc).

2.3. Participants

Thirteen participants, nine women and four men, participated in this study. All participants were born and raised in the surrounding communities of Sototsiaya and all were native speakers of Siona. The age of the consultants ranged from 16 to 75 and the majority had either a primary or secondary education.

2.4. Data collection

For this particular study, recordings were analysed in Praat 6.0.19 [1] with an accompanying three-tier text grid based on ToBI guidelines [6]. One interval tier contained the utterance divided into syllables represented in IPA. Two point-tiers contained (1) the tone level marking the f0 contour and (2) the break indices.

The following adjustments to the pitch contour were made to avoid micro perturbations, and octave jumps: (1) voicing threshold was increased from the 0.45 default to 0.6, and (2) the octave-jump cost was increased discretely from 0.35 until any octave jumps were eliminated. For utterances produced by women, Praat's default 75-500 Hz pitch range was used while the pitch range was adjusted to 50-250 Hz for utterances produced by males. Finally, the pitch contour of each utterance was extracted and smoothed using Praat's Smooth function.

3. RESULTS

Several results from our field study are provided to show the usability of the data elicited using the role-play method compared to a SED. It is worth noting once again Siona does not contain a complex inventory of intonation patterns. However, the variations identified matched the variations we observed impressionistically in spontaneous speech. Moreover, capturing some trends (cf. Figure 4 & Figure 5) would not have been possible or very difficult using a SED.

Figure 1 compares two recordings of *vocatives* with the same pragmatic context (getting someone's attention). The recording in the top image, elicited using a SED, shows a flat f0 across the entire utterance while the bottom image, elicited using the role-play method, reveals distinct low boundary tones (%L & L%) with a high pitch accent (H*) on the stressed syllable; a pattern often observed impressionistically during spontaneous speech.
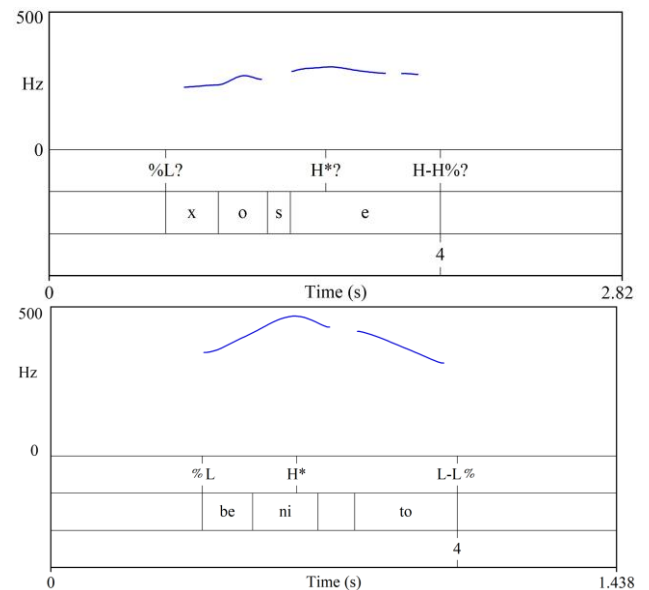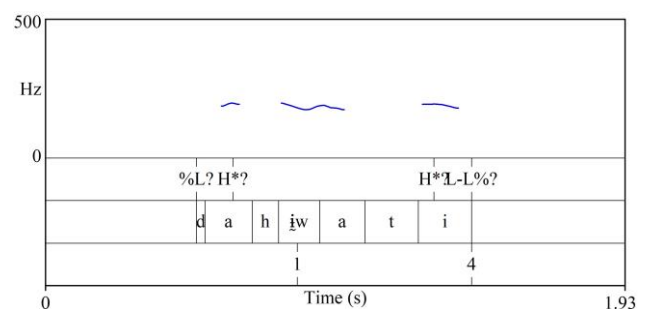

Figure 1: Vocatives produced using a SED (top) and the role-playing method (bottom).

Figure 2 compares two recordings of *imperatives*. The recording in the first image, elicited using a SED, shows another flat f0 across the entire utterance, while the bottom image, elicited using the role-play method, reveals a distinct 'plateau' pattern with low initial and final boundary tones (%L & L%) along with a relatively flat high that is maintained thought the utterance. This 'plateau' or 'arch' pattern was the most common intonation pattern for standard speech acts and most pragmatic contexts in Siona.
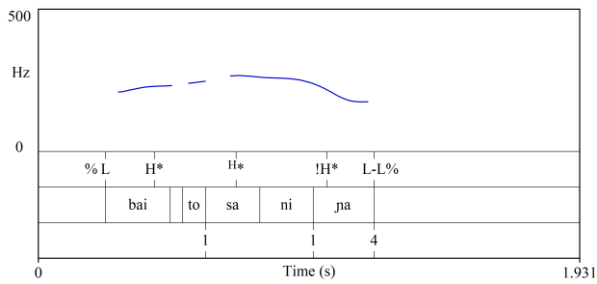
Figure 2: Imperatives produced using a SED design (top) and the role-playing method (bottom).

Figure 3 compares two recordings of a *wh-question* produced as *annoyed*. The top image, produced using a SED, showing a flat f0 across the utterance while the bottom image, produced using the role-play method, reveals a final high boundary tone (H%), which is often observed impressionistically during spontaneous speech.
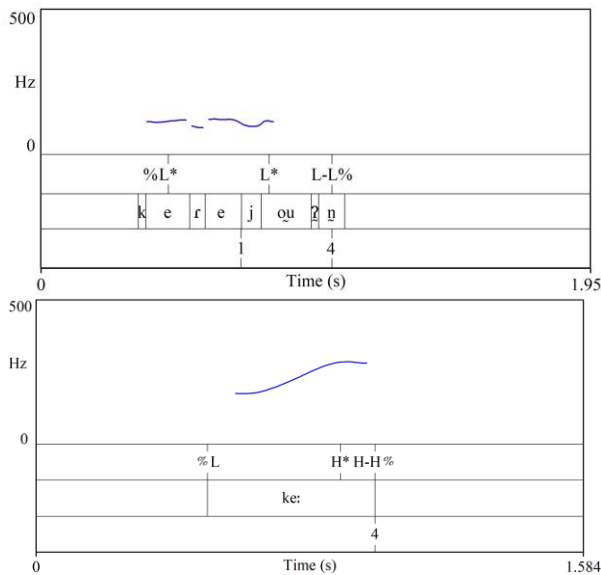

Figure 3: Wh-questions produced as 'annoyed' using a standard elicitation design (top) and the role-playing method (bottom).

Figure 4 illustrates an example of list intonation, which was difficult to elicit during the standard elicitation session. Using the role-play method, we were able to get a clear sense of the intonation pattern used in a more naturalistic context (L-H* pitch accent with a final L% boundary tone).
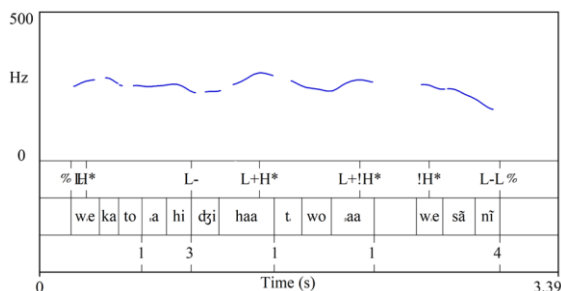

Figure 4: List intonation using the role-play method.

Finally, in Figure 5 an intermediate boundary tone was revealed using the role-play method, which was never produced during standard elicitation session.
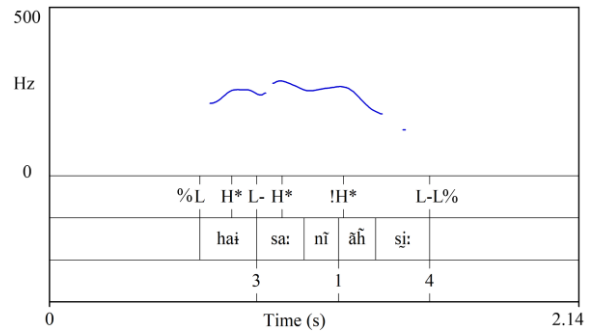

Figure 5: Affirmative + declarative with a L- boundary tone, elicited using the role-play method.

4. CONCLUSIONS

Using this method, we were able to determine that Siona does not have a rich inventory of contrastive intonation patterns. This is most likely because its complex morphology, which covers many grammatical and pragmatic expressions of meaning. However, we were able to identify a distinct high boundary tone when the speaker's emotional state shifted to *annoyance*, a function not conveyed in the morphology.

We were also able to determine that nearly all utterances fell into an 'arch' or 'plateau' pattern beginning and ending with low boundary tones (%L & L%) with numerous high pitch accents (H*). Down step was also common after the most emphatic syllable of the utterance was produced. List intonation followed the common L-H* pitch accent contour, found in many of the world's languages. In addition, intermediate phrases typically appear as L-. However, we have yet to identify any differences between nuclear and pre-nuclear PAs.

If we compare these results with those of the standard elicitation session, we notice that the role-playing method produced (1) results that are more inline with our impressionistic observations and (2) more detailed changes and contrasts in the pitch contour based on the grammatical utterance or pragmatic context produced. While this method still requires further development and comparisons with current methods like the Discourse Completion Task [8], it has the potential to elicit naturalistic speech in a more naturalistic environment. Additionally, future research might want to establish checks and balances to avoid/ identify instances of over-acting or exaggerating; however, this did not appear to be the case in our data when we asked other native speakers to evaluate the recordings.

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[1] The one exception to this list is [3], which offers a number of standard elicitation techniques similar to those used in laboratory conditions.