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INTONATIONAL VARIATION IN THIRD PARTY COMPLAINTS IN SPANISH

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Abstract

Very little previous research has addressed the prosodic characteristics of third party complaints. This paper discusses an utterance and word level intonational analysis of this speech act in four speakers of Mexican Spanish. The effect of social distance/ power relationships was incorporated into the study by creating an experimental data elicitation task in which participants addressed identical complaints to a friend, as well as a boss, based on a series of hypothetical contexts. Major global findings revealed that all speakers significantly increased their fundamental frequency (F0) mean when directing their complaints to friends, however, only two speakers significantly expanded their F0 range in the same circumstance. Locally, peaks and valleys were manifested at significantly higher levels across the board when addressing friends. Finally, while speakers produced complaint contours of similar overall shape regardless of hearer, individual variation was present in the form of circumflex versus suppressed utterance-final F0 configurations. Overall, the relatively small data set initiated preliminary thoughts on the application of both cross-linguistic and language- and dialect-specific intonational concepts to complaints while also emphasizing the importance of relationships between interlocutors for future studies.

Keywords: complaint; third party; intonation; fundamental frequency; Mexican Spanish

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1. Introduction

1.1. Background on Complaints

Complaints are expressive speech acts used to verbally communicate displeasure, dissatisfaction, or frustration toward the actions of a hearer or a third party that has shown a violation in social competence in a way that negatively affects the speaker. (1-4) In terms of their formulation, complaints, similar to any speech act, largely depend on distance (emotional and/or social) and power relationships between interlocutors. (3, 5, 6) Relationships affect the level of directness when voicing a complaint, as well as appropriate strategies hearers can use as responses to either pacify the speaker or defend his/her own social competence. (1)

Complaints are considered 'direct' if they pertain to actions committed by a hearer (i.e. complainee) and 'indirect' if they deal with the behavior of a third party (i.e. complainable) outside of the speaker or hearer's control. (1, 4, 5, 7-9) Indirect complaints have been shown to build rapport and solidarity between interlocutors. (2, 5, 9, 10) Work on both personal and impersonal indirect complaints emphasizes that this rapport-building occurs more when addressing intimates, friends, acquaintances and strangers. (5, 9) For example, in the genre of complaint stories, certain expressions and prosodic strategies signaling heightened emotion can be utilized in order to convince the hearer to identify with the speaker's perspective regarding the complainable. (9) Furthermore, situational context and the development of interactional sequences can also influence the communication and interpretation of complaints. (7, 8) Across languages, mitigation strategies, or internal modifications to directness can be altered through lexical choices, verb forms, utterance type, and prosodic modifications in utterances. (4) Such strategies are often divided into 'downgraders' and 'upgraders,' which respectively reduce or intensify the emotion and impact of a complaint. (4)

1.2. Unifying Intonation and Relevant Pragmatic Conditions

In general, any type of utterance can be prosodically manipulated to be interpreted as a complaint, if warranted by the contextual and social factors discussed above. Fundamental frequency (F0) movement in complaints -- which may help distinguish them from similar expressions -- is probably the least understood aspect of this speech act. (11) Some previous work refers to (but does not solely focus on) prosodic effects in complaints via orthographic conventions used in conversation analysis. (9, 12) However, more recent work has begun examining complaints using phonetic detail found in F0 contours. One example is a qualitative analysis of F0 in third party complaints in longer sequences of talk in British English. (13) This approach emphasizes that such complaints rely heavily on two turn taking strategies:

'A-complaints' generally provoke an affiliative response and continue an interaction; 'X-complaints' conclude an interactional string. Phonetically, speakers produce A-complaints with increased F0 levels and higher peaks, which are often further exaggerated in nuclear (i.e. final) position (causing a wider range). On the other hand, X-complaints demonstrate reductions in F0 level and range and are produced in a quieter, more lax fashion. A follow-up study extends these ideas by including the phonetic consequences of A-complaints with both affiliative and non-affiliative responses, as well as ways in which hearers use F0 increases of words and phrases as strategies to repair identified problems. (14)

With regard to emotion and distance between interlocutors, three biological codes show that speakers alter F0 in order to communicate different pragmatic meanings to hearers. (15) One such tendency is an ascent in F0, which is an implementation of the 'Frequency Code.' According to this code, high or rising F0 values are associated with submission (e.g. politeness) and lower or falling values with dominance (e.g. confidence, authority, assertiveness). The second code is the 'Effort Code,' in which an expansion of F0 range is interpreted as having an emphatic function, though it can also deal with emotions such as surprise. Finally, the last code is the 'Production Code,' which says that speakers generally exert increased articulatory effort phrase initially. Subsequent work converted these three codes into maxims that can be violated based on our communicative intent. (16)

Another body of literature has investigated the interface between prosody and emotion, attitude, and relationships between interlocutors based on global analyses of F0 (among other variables). (17-26) An expressive type of intonation is when an emotion (e.g. happy) is communicated along with a belief about a person or situation (e.g. critical). Specifically regarding emotion, F0 range expansion seems to convey a high degree of emotion, while reduction of this range indicates lower levels of emotional involvement. Expressive intonation is distinguished from an attitudinal type of intonation, where F0 couples with non-linguistic cues (e.g. smile) to determine a speaker's actions in a particular context (e.g. friendly). (26) However, others interested in the prosody-pragmatics interface prefer unifying emotions and social attitudes (i.e. toward the hearer), which are claimed to be distinct from propositional attitudes (e.g. beliefs, knowledge, opinion). (20) This division, representing an innovative approach to previous conceptions of the prosody of attitudes and emotions, (e.g. 17, 18, 23-26) is namely based on acoustic and perceptual analyses (as well as those involving resynthesis) of Brazilian Portuguese.

1.3. Relevant Studies on Spanish

F0 contours of broad focus declarative utterances in Spanish typically follow a pattern of downstepping, or gradual peak decay across the utterance, with pre-nuclear peaks manifesting themselves post-tonically. (27-30) In nuclear position in broad focus, it is common to observe extreme F0 suppression to a relatively flat trace that is in the lowest portion of the F0 range (i.e. final lowering). (27,

28, 31-33) However, when emphasis is communicated, such as in narrow focus utterances, increases in F0 levels, in particular, of peaks of highlighted elements, have been attested in many dialects (along with earlier alignment). (27, 31, 34, 35) Such peak height increases in narrow focus conditions often interrupt downstepping. Similarly, in cases of increased emotion in declaratives, downstepping is less common due to increased F0 excursions on words particularly important in conveying excitement. (33)

Mexican Spanish is a particularly interesting object of study because, while it does exhibit the broad and narrow focus trends cited in the previous paragraph, it is also characterized by the use of a circumflex (i.e. rising/falling) F0 curve in nuclear position of various types of declaratives (among other utterance types). (36) While circumflex intonation has been documented in other varieties of Spanish (e.g. Caribbean, Canarian), the pragmatic range and the location of final rising and falling pivot points in Mexican Spanish demonstrate great diversity. (37) There is also considerable individual variation between the use of this nuclear contour and one with terminal F0 suppression. (38) One function of the circumflex variety that has been identified in Mexican Spanish is conveying emphasis and/or increased emotion. (30, 37) Specific evidence of this comes from declaratives, commands and exclamatives. (37) Furthermore, a consideration of social factors has revealed that age, gender, and level of education influence nuclear F0 contour configuration production in declaratives. (36, 39) Overall, we can see that some work has attempted to shed light on the influence of pragmatic conditions on F0 movement in Mexican Spanish (37, 39, 40, 41), however, no explicit reference has been made to complaints (or distance between interlocutors) in existing classifications.

In terms of complaints in Spanish, previous research has given them relatively sparse attention compared to other speech acts. A couple of examples are studies on the pragmatic strategies involved in the formulation of complaint sequences in Venezuelan and Uruguayan Spanish. However, these reports do not specifically focus on complaints' effect on F0 or related prosodic factors. (42, 43) Finally, two conversation-analytic studies addressing complaints in Spanish briefly touch on prosody by noting differences in intonational rises/falls and loudness when emotions are conveyed via complaint sequences. (44, 45)

1.4. Goals of the Paper

Inspired by the aforementioned body of literature and our lack of knowledge on F0 behavior in complaints in Spanish, the present study seeks to phonetically characterize declarative third party complaints in Mexican Spanish. Utterance and word level F0 values (i.e. mean, range, peak and valley heights) are analyzed in third party complaints in which disparities in power/social distance between the speaker and hearer are present. The utterance level variables (i.e. mean and range) build upon previous cross-linguistic and cross-cultural work related to complaints, emotions, and relationships between

speaker and hearer (e.g. biological codes, A vs. X complaints). The word level variables (i.e. peak and valley heights) relate to the more general concepts just mentioned, but are also particularly relevant for Mexican Spanish because they shed light on the presence of downstep, as well as final lowering versus circumflex movement. This word level analysis allows us to find the shapes of third party complaint F0 curves, as well as any hearer-based effects on these shapes.

The remainder of this paper is organized as follows: Section 2 describes approaches to collecting and analyzing third party complaint data; Section 3 presents the results of the analysis of F0, both across speakers and for individual speakers; and Section 4 discusses the implications of the present findings for the prosody-pragmatics interface and provides remarks on points of departure for future related work.

2. Methods

2.1. Participants

Four native speakers of Mexican Spanish now living in the Upper Midwest of the United States were recruited to participate in the study. All participants were born and raised in or near Mexico City and moved to the United States in order to pursue graduate school. They have all been in the United States for at least seven years, but continue visiting Mexico multiple times annually. Even though they live in an English-dominant environment and are proficient speakers of English, they speak more Spanish on a daily basis due to their academic-related jobs and social circles. They are all also non-naïve to the study of intonation in Spanish. For the purposes of the analysis, subsequent sections refer to the participants as follows: AV (male in his 40s), OP (male in his 30s), EB (female in her 30s), and AA (female in her 30s).

2.2. Data Collection

Due to logistical difficulties associated with collecting naturally occurring, comparable speech samples, as well as the preference for voiced sounds and open, consonant + vowel (CV) syllables in acoustic analyses, a controlled data elicitation task was developed and implemented with participants.[1] Before beginning the task, speakers were explicitly made aware that they would be recorded producing contextual information, followed by a short utterance that they should aim to make sound like a complaint against an absent person. They were also told to think about how their complaints would sound different based on emotional closeness and power differentials between them and imagined hearers.

[1] Direct complaints in Spanish are more complex to acoustically analyze due to *tú* ('you,' informal) verb forms often containing morphemes with voiceless phonemes such as /s/.

A sample task item is illustrated in (1). Each item was constructed through a hypothetical situation in which speakers first silently read a context stating whether their displeasure toward a third party should be stated to a friend (i.e. - emotional/social distance, - power differential) or a boss (i.e. + emotional/social distance, + power differential), as seen in (1a). (3, 4) Along with information on the hearer, this contextualization provided a reason for displeasure toward a third party, who was an individual about whom the hearer had a positive attitude (also in 1a). Participants then recorded a scripted, indirect complaint using an intonation that they envisioned as appropriate for expressing displeasure toward their friend or boss about the third party's actions, as presented in (1b).[2] The final sentence of the recorded portion explicitly expressed the distasteful action of the third party and was prepared as a subject-verb-object (SVO) declarative containing only words with voiced sounds and exactly nine CV syllables (e.g. *Lorena le daba la lana* in 1b). This final utterance of each item was the specific portion of each recording acoustically analyzed.

(1) Sample task item

a. *Contexto: Hablas con tu amigo/a acerca de su amiga Lorena, quien es muy grosera, en tu opinión. Se llevan muy bien tu amigo/a y Lorena.*

('Context: You are talking to a friend about his/her friend Lorena, who is really rude, in your opinion. Your friend and Lorena get along very well.')

b. *Le cuentas a tu amigo/a: Oye, le había comprado lana a mi mamá porque quería coser algo de lana por primera vez. Estaba aquí Lorena y se la mostré porque quería algo así para su mamá, quien también estaba aquí. No quería que nadie tocara esa lana. Salí del cuarto por unos momentitos y cuando volví, vi a Lorena y a su mamá y; Lorena le daba la lana.*

('You tell your friend: Listen, I had bought some wool for my mother because she wanted to sew something out of wool for the first time. Lorena was here and I showed it to her because she wanted something like that for her mother, who was also here. I did not want anyone to touch that wool. I left the room for a few moments and when I returned, I saw Lorena and her mother and; Lorena was giving (her mother) the wool.')

The task contained 24 such items equally divided between hearer type; 12 contained third party complaints directed at a friend (henceforth, FDCs) and the other 12 were directed at a boss (henceforth,

[2] Similar controlled, 'acting' types of data collection methods, at times using speakers who are non-naïve to a language's intonation patterns, have been successfully implemented in previous work, namely dealing with emotions or the production of short, authentic speech act samples. (31, 33, 46, 47)

BDCs). As such, the FDC example in (1) had a nearly identical BDC counterpart. All task items were randomized when presented to participants and all recordings were done using a head-mounted microphone, a laptop computer, and the Praat software package. (48)

After all recording was complete, the stimuli were informally perceptually validated by another native speaker of Mexican Spanish. This listener heard utterances produced by all four speakers in order to judge whether or not they actually sounded like third party complaints, as well as whether or not it was possible to discriminate BDCs from FDCs. Both points were affirmed for all four speakers, however, the listener believed that OP's data overall sounded slightly less authentic than those of the other three speakers (who sounded very natural) due to specific instances in which his complaints were clearly perceived as read speech. Overall, the listener described the recordings as conveying a sense of displeasure, disgust, and disbelief.

2.3. Acoustic and Statistical Analysis

F0 mean, range, and peak and valley measurements (of the three content words) in all complaints were taken in Praat. Peak and valley measurements were organized according to initial, medial, and nuclear content words of utterances. Additionally, the terminal point of each utterance was recorded in order to be able to observe any utterance-final fall. All measurements were initially noted in Hertz (Hz), but were subsequently converted to Equivalent Rectangular Bandwidth (ERB) units. Conversion to this psychoacoustic scale alleviates differences between our linear production and non-linear perception of pitch. (49, 50) While many equations for conversion to ERBs from Hz have been proposed, this study implemented ERB = 16.7* (log(1+(f/165.4))), where 'f' is the frequency in Hz. In order for an F0 excursion to be classified as culminating in a peak, which was particularly important in nuclear position, its rise had to measure approximately .30 ERB. (51, 52) Any low-to-high rise significantly less than this value resulted in a relatively flat, suppressed nuclear contour.[3] Finally, in nuclear words of all utterances, if a peak was present, its alignment was noted as being within the tonic or post-tonic syllable. If circumflex contours were to appear, providing the location of final falls would complement previous work on the pragmatics of this type of intonation in Mexican Spanish.

The final step in the data analysis involved statistically comparing F0 values for mean, range and peak and valley height differences between BDCs and FDCs both for the whole group, as well as for individual speakers. Means and standard errors based on hearer were calculated for F0 mean and range values of utterances. Furthermore, means and standard errors of peak and valley heights were calculated

[3] For each content word, F0 increases from low to high points associated with each word were recorded. The terms 'valley' and 'peak' are used more or less synonymously here with 'low' and 'high,' respectively. However, 'peak,' and its associated threshold value, contains the additional dimension of 'noteworthy, non-suppressed F0 movement,' which helps distinguish final lowering from circumflexion.

for initial, medial, and nuclear content words belonging to complaints addressing both hearer types. Next, a series of paired t-tests identified significant differences between all F0 values in complaints based on hearer. This type of t-test was appropriate because for each key measurement, there were only two nominal variables (i.e. two hearer types). These statistical tests either supported ($p > .05$) or rejected ($p < .05$) the null hypotheses that there is no intonational difference between BDCs and FDCs at the global or local level. Finally, within each speaker, if anomalous trends were observed between adjacent peaks or valleys within BDCs or FDCs, a similar, additional level of hearer-internal testing was done.

3. Results

This section first addresses differences between BDCs and FDCs in terms of the global variables of F0 mean and range, and then presents the findings for the local variables of peak and valley height. For each variable, an overall picture including all speakers is first provided, followed by commentary highlighting noteworthy differences between individual speakers.

3.1. F0 Mean

Examining the manifestations of F0 at the utterance level for BDCs and FDCs has implications for the expression of emotion based on relationships between interlocutors, as well as how the effect of these relationships adds to existing classifications of third party complaints. Figure 1 depicts mean F0 mean values in BDCs and FDCs across all four speakers. The difference between FDC and BDC means is highly significant ($p < .001$). As such, the summed data evidences a clear effect of speaker-hearer emotional and social distance/power differential; when speakers complain about an absent party to a friend, they shift their tonal level upward when compared to the communication of the same sense of displeasure to a boss.

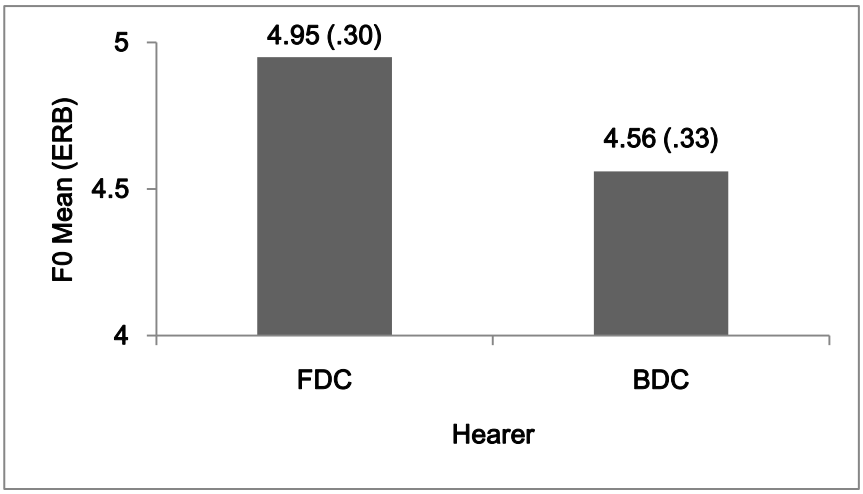

Figure 1: Mean F0 mean (and standard error) values across all four speakers in BDCs and FDCs. The difference is statistically significant.

The results for F0 mean in Figure 2, presenting the mean values in BDCs and FDCs for each individual speaker, show that the pattern in Figure 1 is indeed consistent across speakers. In all cases, mean values in FDCs are significantly higher than those of BDCs, though the degree of statistical significance is strongest in speakers AV and EB (AV, $p < .001$; EB, $p. < .001$; AA, $p = .01$; OP, $p = .02$). Therefore, the individual results also support the idea that a closer relationship and the absence of power differentials with a hearer corresponds with speakers increasing F0 mean, while more relational and power disparities with a hearer induce a lower F0 mean.

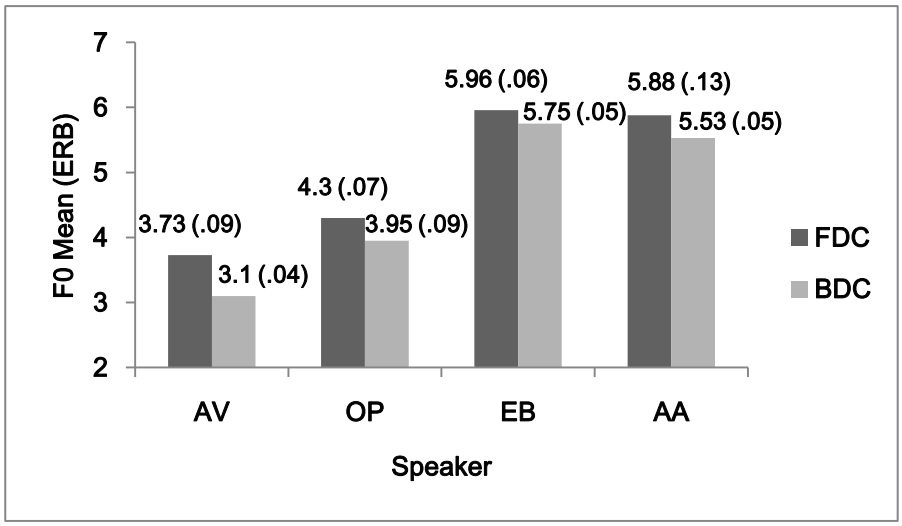

Figure 2: Mean BDC and FDC F0 mean (and standard error) values for each speaker. The hearer-based differences are significant for all speakers.

3.2. F0 Range

When looking at statistical outputs concerning F0 range for the group as a whole, illustrated in Figure 3, we see that once again, the mean value is higher in FDCs than in BDCs. This highly significant

difference ($p < .001$) builds upon the findings for F0 mean and further confirms the importance of distance and power as affecting the communication of displeasure in third party complaints. In sum, the absence of disparities in distance and power between speaker and hearer results in an expanded F0 range when compared to the opposite relationship, where F0 range is narrowed.

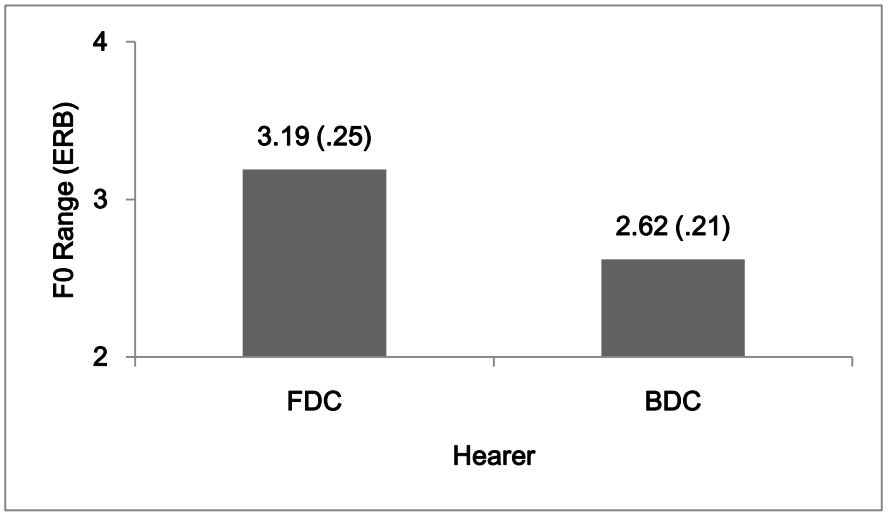

Figure 3: Mean F0 range (and standard error) values across all four speakers in BDCs and FDCs. The difference is statistically significant.

An examination of Figure 4 shows that the individual results for F0 range differ from those of F0 mean. A preliminary glance at this figure uncovers that while all speakers' BDCs and FDCs reflect the pattern that emerged in Figure 3, the difference between AV and OP's mean F0 ranges based on hearer are more drastic than those of EB and AA. In fact, the difference only attains statistical significance in the former speakers, though AA's results are close to significant (AV, $p = .008$; OP, $p < .001$; EB, $p = .21$; AA, $p = .051$). The fact that AV/OP and EB/AA pattern together is noteworthy because it suggests that expansion of F0 range with friends when complaining about a third party is a strategy employed more by males. Coupling these results with Figure 2 implies that the two male speakers significantly adjust both global F0 measures based on their relationship with hearers, while female speakers only alter one such measure based on how they perceive their connection with their addressee.

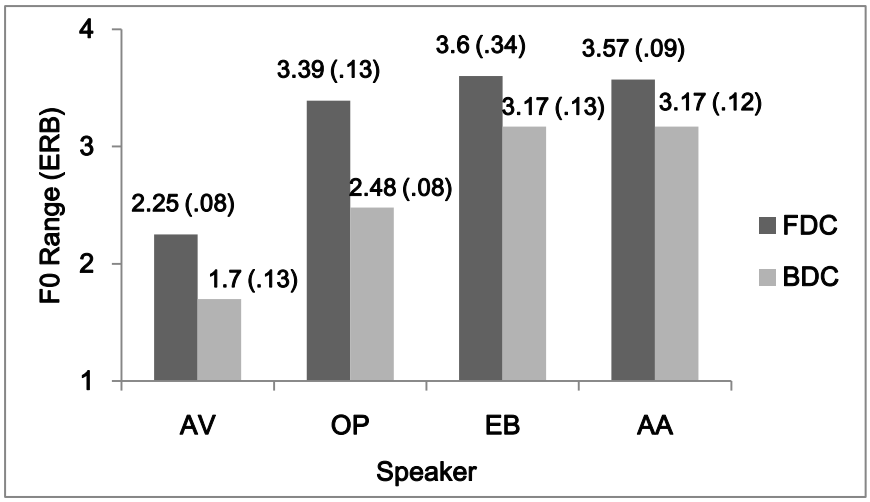

Figure 4: Mean BDC and FDC F0 range (and standard error) values for each speaker. The hearer-based differences are only significant for AV and OP.

3.3. Peak and Valley Heights

Local measures of peak and valley heights permit an exploration of scaling differences across our complaint utterances, as well as commentary on nuclear F0 movement, which is key in teasing apart the pragmatics behind final lowering and circumflex excursions in Mexican Spanish. Table 1 charts mean F0 peak and valley values associated with the three content words of complaints for the group. It also lists p values corresponding with a comparison of specific peaks and valleys in BDCs and FDCs. In relation to the third, or nuclear peak (i.e. 3P in Table 1), it is important to note that all such excursions in this data set categorically aligned within the tonic syllable, meaning the descent between 3P and the end of the final fall (i.e. FF in Table 1) occurred in the post-tonic syllable. Upon examining the overall results in Table 1, we notice that all peaks and valleys are significantly higher in FDCs than BDCs. This finding is expected given the group level global results previously detailed. Furthermore, in order to graphically represent the overall results in Table 1, these identical values are charted into average F0 contours in Figure 5. By combining these two points of reference, we see that the group's shape of BDCs and FDCs is very similar, with both demonstrating downstepping across utterances with three peaks and a large degree of difference between initial and medial peaks. The significant hearer-based differences are the level at which each is manifested, as well as valley-to-peak rises, which contain higher values in FDCs, meaning larger excursions are taking place when speaking to friends. This idea is statistically significant as well (all P-V differences, $p < .001$ in FDC vs. BDC). Finally, when looking solely at nuclear movement (i.e. 3V, 3P, FF) in both BDCs and FDCs, there is sufficient F0 movement to evidence a rise to a peak in the tonic syllable followed by a fall through the post-tonic syllable to a final low point, which can be interpreted as circumflex movement. This final low point is actually the only point that fails to reach significance when comparing BDCs and FDCs. Since the third peak in FDCs is significantly higher than

that of BDCs, this implies that the final fall is longer in FDCs, which was also statistically validated (3P-FF, $p < .001$ in FDC vs. BDC).

Table 1: Mean peak and valley height (and standard error) values in BDCs and FDCs for the group of speakers. P values compare specific points based on hearer. 1V = initial valley; 1P = initial peak; 2V = medial valley; 2P = medial peak; 3V = nuclear valley; 3P = nuclear peak; FF = final fall point.

		FDC	BDC	P
Overall	1V	4.86 (.17)	4.56 (.18)	<.001
	1P	5.86 (.17)	5.39 (.18)	<.001
	2V	4.65 (.16)	4.36 (.17)	<.001
	2P	5.07 (.16)	4.61 (.17)	<.001
	3V	4.44 (.12)	4.09 (.14)	<.001
	3P	4.82 (.13)	4.39 (.13)	<.001
	FF	3.95 (.16)	3.84 (.15)	.20

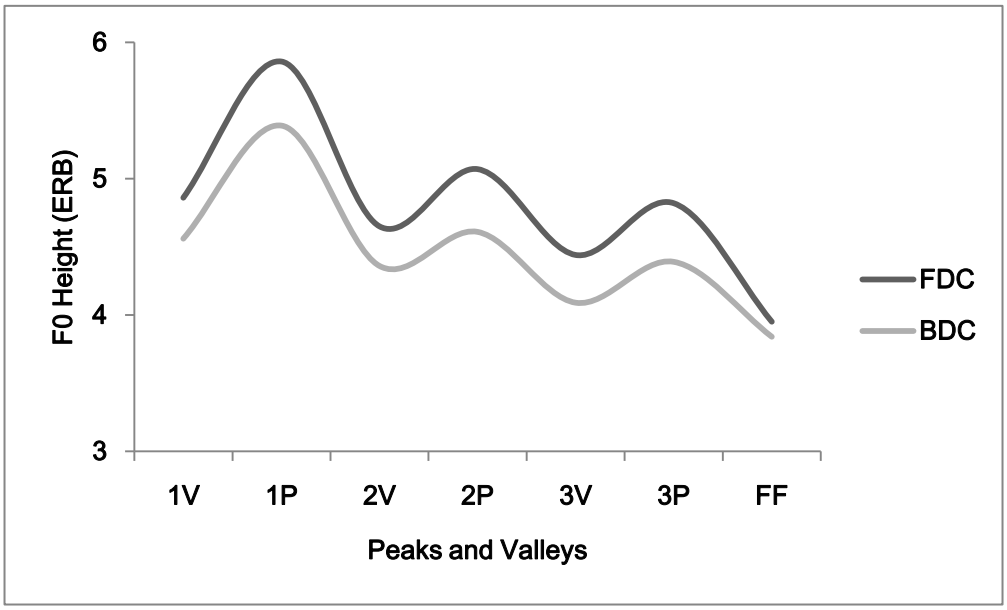

Figure 5: Average BDC and FDC F0 contours across speakers based on average peak and valley heights. 1V = initial valley; 1P = initial peak; 2V = medial valley; 2P = medial peak; 3V = nuclear valley; 3P = nuclear peak; FF = final fall point.

Averaging F0 excursions between valleys and peaks across the utterances of all speakers allows for general trends to emerge, but sacrifices detail on individual variation that is present, at minimum, due to naturally occurring gender differences related to F0. As such, Table 2 below lists local mean F0 measures for BDCs and FDCs for each individual speaker using the same format as Table 1. Subsequently, Figure 6 superimposes contours corresponding with all the values in Table 2, which is an effective way of observing inter- and intra-speaker variation dealing with type of hearer in third party complaints. In addressing the results from this table and figure, we focus on highlighting distinct features of individuals from those of the group. Statistical significance of any distinct features that can be extrapolated from Table 2 (e.g. adjacent height differences within BDC and FDC columns) are mentioned when necessary. Additionally, in order to supplement the schematics in Figure 6, specific characteristic examples of BDC and FDC contours from each speaker are provided in the Appendix at the end of the paper.

The importance of the individual analysis immediately becomes apparent when considering AV's data in Table 2 and Figure 6. While he does follow the overall trend of shifting all relevant F0 points up in FDCs, the shape of his average contours is distinct from the group's shape, as well as that of each of the other individual speakers, because downstepping does not occur throughout his complaints. Rather, they contain a medial F0 sag flanked by significantly higher initial and nuclear and peaks ($p < .01$ for initial/nuclear versus medial height comparisons within BDCs and FDCs). While this sag occurs with both hearer types, the main differences distinguishing AV's FDCs from BDCs are that in the former, initial and nuclear peaks are not significantly different in height ($p = .72$). On the other hand, in BDCs, initial peaks maintain a significant increase in height over nuclear ones ($p = .01$). Finally, in AV's FDCs, nuclear valleys are upstepped at a significant rate from medial valleys ($p = .002$), while this comparison does not reach significance in BDCs ($p = .55$). Regardless of differences, contours with both hearer types exhibit strong evidence of nuclear circumflex movement, which is further exaggerated in FDCs.

Concerning OP, one of the main differences found between his BDC and FDC contours and those of the group takes place in nuclear position, where hearer-based differences do not have significant effects on the height of the relevant F0 points (i.e. 3V, 3P, FF). Since medial F0 is realized significantly higher in FDCs, it is apparent that the medial-final fall is longer in this hearer type. However, when specifically comparing nuclear position in both hearer types, the peak-valley difference is significant in BDCs ($p < .001$) but is not in FDCs ($p = .05$). As such, we have evidence of circumflexion in OP's BDCs but not in his FDCs, where final lowering is supported. Finally, combining the aforementioned information with the medial F0 suppression observed in BDCs, and the presence of a significant medial F0 excursion to a peak in FDCs, indicates two different complaint contours for OP based on hearer: downstepping to final lowering for FDCs, and an initial peak, a medial sag, and a circumflex configuration in BDCs. In sum,

OP's speech does have notable trends, however, we must not forget that his complaint samples were judged as the least authentic of the group.

In terms of EB's individual tendencies, we first note that her BDCs and FDCs begin at a relatively similar starting point, since initial valley differences fail to reach significance. Second, the relatively small differences between peaks and valleys in medial position, regardless of hearer, suggest a region of flattened F0 (this is stronger in BDCs). However, when comparing medial and nuclear values in both cases, we see that the higher values in medial position do not suggest a sag, as observed with previous speakers, but rather activity resembling somewhat of a plateau near the median of the F0 range. Finally, in nuclear position, EB's valley and terminal point are similar in both hearer types but peaks are significantly higher in FDCs. Coupling this with the significant peak-valley change in nuclear position ($p = .001$) of FDCs provides an output favoring rising-falling nuclear activity here and final lowering in BDCs.

Finally, AA increases her local F0 movements in initial and medial positions of FDCs, but fails to show this same pattern in nuclear position, where significant peak-valley disparities result in circumflex F0 excursions that take place at levels that are not significantly different based on hearer. Despite the initial and medial height differences in BDCs and FDCs, AA shows the most overall similarities in the two contour shapes, with both containing downstepping concluding in nuclear circumflex activity.

Table 2: Mean peak and valley height (and standard error) values in BDCs and FDCs for each speaker. P values compare specific points based on hearer. 1V = initial valley; 1P = initial peak; 2V = medial valley; 2P = medial peak; 3V = nuclear valley; 3P = nuclear peak; FF = final fall point.

		FDC	BDC	P
AV	1V	3.49 (.09)	3.1 (.06)	.002
	1P	4.18 (.07)	3.74 (.09)	.006
	2V	3.32 (.1)	2.77 (.04)	.001
	2P	3.79 (.1)	3.08 (.03)	<.001
	3V	3.62 (.1)	2.85 (.06)	<.001
	3P	4.27 (.1)	3.3 (.09)	<.001
	FF	2.83 (.05)	2.65 (.04)	.02
OP	1V	3.94 (.04)	3.69 (.09)	.02
	1P	5.45 (.08)	4.8 (.1)	<.001
	2V	3.99 (.08)	3.69 (.07)	.02
	2P	4.47 (.09)	3.93 (.08)	<.001
	3V	3.85 (.13)	3.63 (.12)	.3
	3P	3.97 (.16)	3.91 (.17)	.84
	FF	3.04 (.14)	3.24 (.14)	.33
EB	1V	5.96 (.06)	5.9 (.04)	.23
	1P	6.86 (.08)	6.61 (.08)	.002
	2V	5.82 (.06)	5.69 (.06)	.02
	2P	6.13 (.1)	5.9 (.08)	.006
	3V	5.35 (.08)	5.15 (.04)	.07
	3P	5.63 (.1)	5.3 (.04)	.02
	FF	5.1 (.06)	4.94 (.05)	.06
AA	1V	6.03 (.1)	5.53 (.08)	<.001
	1P	6.94 (.13)	6.43 (.09)	.01
	2V	5.55 (.17)	5.15 (.08)	.01
	2P	5.98 (.17)	5.55 (.05)	.02
	3V	4.98 (.14)	4.8 (.08)	.14
	3P	5.49 (.2)	5.17 (.05)	.09
	FF	4.9 (.16)	4.67 (.18)	.25

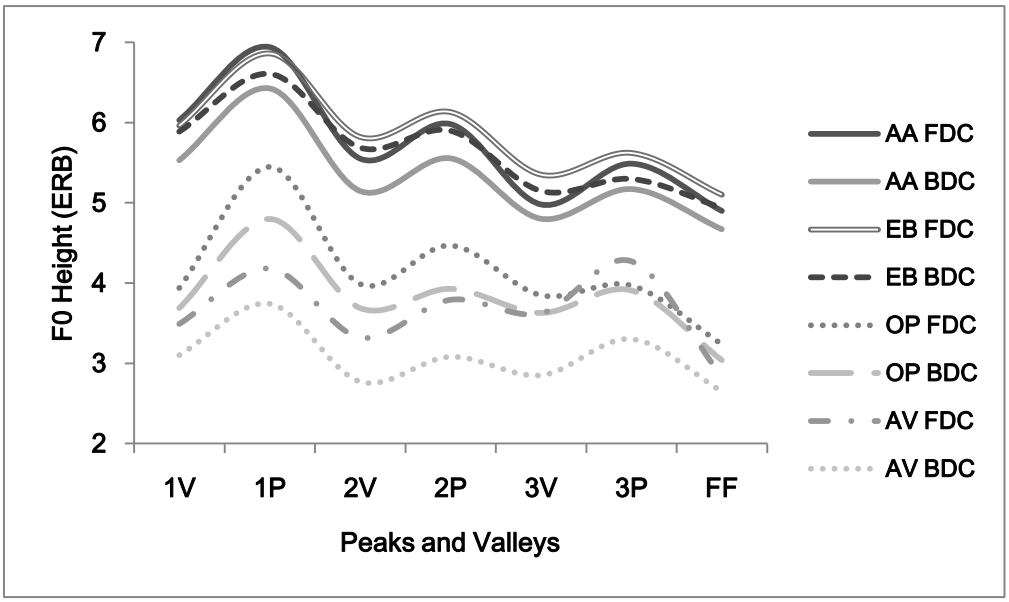

Figure 6: BDC and FDC F0 contours for each speaker based on average peak and valley heights. 1V = initial valley; 1P = initial peak; 2V = medial valley; 2P = medial peak; 3V = nuclear valley; 3P = nuclear peak; FF = final fall point.

4. Discussion and Conclusions

The main goal of collecting a data set targeting the influence of disparities in social distance and power between interlocutors on the production of third party complaints in this study was twofold: i. on a cross-linguistic level, to elucidate phonetic differences created when voicing displeasure against a third party; ii. on a language- (and dialect-) specific level, to contribute to the discussion on the curious (and somewhat unclear) pragmatic distinctions caused by producing circumflexion versus final lowering in Mexican Spanish. To summarize, the major conclusions from Section 3 are: i. FDCs were articulated with a higher F0 mean across the board; ii. FDCs generated higher F0 range in only the two male speakers; iii. all individual F0 peaks and valleys were produced at higher levels and with evidence of a circumflex configuration in the group's combined FDCs, but follow-up individual analyses revealed some variation in contour shape based on hearer type. Overall, the results showed that global and local F0 activity in third party complaints was, to varying extents, affected by relationship with the hearer, which builds on previous work on prosody and emotion, (17-26) as much of the discussion here will address.

The primary difference one would expect between complaints directed toward friends and bosses is increased emotionality and directness in FDCs due to the closeness of the relationship and the absence of a power differential. In the current data, at the global level, displeasure toward an absent party was expressed in a more emotional and direct fashion in the

speech signal of FDCs, most consistently through an increase in F0 mean. Conversely, the reductions to F0 mean seen in BDCs conveyed a lower degree of emotion, and thus a subdued nature, in the speech act when directed at an authority figure. In sum, we can conclude that in speakers from this data set, there was a positive correlation between increased disparities in distance/power from the hearer and reduction of mean F0 values. On the other hand, expanding F0 range as a strategy to increase emotion in FDCs was only utilized by the two male speakers. Therefore, the global findings overall showed evidence that in third party complaints, males employed a combination of manipulations to F0 mean and range when increasing or decreasing emotionality due to relationship with interlocutors, while females only relied on changes to the former acoustic correlate of emotionality. A potential explanation for this could be that women employ a larger group of other strategies (e.g. lexical items, non-verbal cues) not related to prosody in complaint interactions. (9, 44, 45) While these global level gender differences are borne out in the data, we must not ignore the small size of the data set, as well as OP's less authentic sounding complaints. Surely, further confirmation of these preliminary findings, especially related to any gender differences, would be useful in future research.

Regardless of the observed global differences, a potential interpretation of using F0 decreases to lower emotional levels in third party complaints is to avoid the possibility of sounding offensive, which has much more severe consequences when power differentials are present (e.g. losing a job), especially given that the contexts used here specified a positive relationship between hearers and third parties. Thus, in BDCs, F0 reductions can be conceived as a type of prosodic downgrader that lessens directness, and thus, the risk involved when addressing an authority figure. Such risk is not present in FDCs, where emotion can be comfortably expressed through F0 increases, or upgraders, due to a closer relationship and more common ground between speaker and hearer.

The data set also implied that speakers produced distinct classes of complaints, which serve different communicative functions, based on how they viewed their relationship with the hearer. For example, increased measures of F0 made FDCs resemble A-complaints. (17) One potential reason for this was because the speakers here sought responses from hearers that are affiliative, and that show solidarity or co-alignment. That is, speakers wanted their friends to take their side or see their perspective about why the absent party's behavior was unacceptable. However, a further examination of third party complaints seeking solidarity showed that this generally occurs when both speaker and hearer are in a situation in which both share frustration toward an absent party. (10) On the other hand, in the present data, the speakers disapproved of the actions of a third party but, as stated in each context of the data elicitation task, the hearer had a positive attitude toward the absent party. Therefore, from the present data, it is more plausible to suggest that raising F0 levels functioned to seek affiliation and co-alignment (i.e. 'Please understand/reciprocate my perspective about the unacceptability of the third party's

actions') rather than solidarity in FDCs. This emphasizes the importance of specifying the hearer's perspective toward the third party in the experimental protocol. Furthermore, AV's FDCs displayed the most exaggerated nuclear F0 activity, which could be indicative of a non-terminal break in an interaction. As such, nuclear F0 increases in this individual's productions may have been used in order to provoke a friend to give a co-aligned response supporting the complaint. However, the fact that only one speaker demonstrated drastic nuclear excursions makes this proposal very tentative.

Conversely, BDCs were realized closer to the previously mentioned description of X-complaints because F0 was reduced. Looking at the current data through the lens of X-complaints shows that one possible explanation of the effect of distance and power differentials is that in BDCs, speakers' phonetic trends seemed to be more informative in nature and less aimed at affecting the hearer's thoughts toward a third party's actions; taking sides, or even a response in general, were not essential. The overall reduction of F0 in speakers' BDCs can be perceived more along the lines of "Here is what person X did, you do what you want with this information." Finally, on a methodological note, even though the original discussion of A- and X-complaints is couched within rich interactional sequences with multiple interlocutors, complete with descriptions of turn-taking, the parallels drawn between that study and the present study support the value of protocols similar to the one used here, since it appears that they are capable of at least yielding authentic chunks of more natural interactions.

Furthermore, the phonetic detail examined here relates to the biological codes outlined earlier. (19) The findings for FDCs were most relevant to the Effort Code because the broadening of F0 range in complaints directed at friends included a heightened sense of emotion and emphasis due to less distance between interlocutors. Surprise is an emotion specifically referenced in relation to the Effort Code, and was also connected with the responses produced by speakers in the data set, since effectively, the contexts elicited complaints conveying an idea of "I can't believe person X did this." This sense of utter disbelief in complaints, when interlocutors were assumed to be close, was supported in 3/4 speakers through the perceptual validation carried out. Regarding the Frequency Code, since increased F0 excursions were more representative of FDCs than BDCs – and thus a lower degree of politeness – it appears that the present data went against one of the tenets of this code, in which increased F0 rises are understood as conveying more politeness. However, the increased F0 descents seen in FDCs can be viewed as showing a sense of assertiveness or bluntness. In general, these ideas would have been difficult to posit if the relationship between interlocutors had not been included as a variable of interest. Finally, the Production Code was also relevant to the present data given that overall F0 expansion, particularly in FDCs, was the most drastic in initial position in the majority of complaints examined. The peak height data for initial position could also be interpreted as conveying narrow focus on the subject of each complaint. Speakers may have

wanted to stress the role of the person as the complainable rather than his/her action or the person/object he/she affected, especially since this third party was supposed to be positively viewed by the hearer. In the case of AV, he may have wanted to how emphasize how the direct object was affected as well.

Finally, we arrive at the importance of the third party complaint data for Spanish, and in particular, the Mexican variety. First, we observed that the speech act of complaining against a third party did provoke a circumflex nuclear configuration with a rise through the tonic syllable and a fall in the post-tonic, but with a certain degree of individual variation between this contour and one with final F0 suppression. (as in 38) Overall, though, the former was more commonly observed than the latter in this data set, with increased nuclear rise-falls seen in FDCs. This finding builds on the existing body of literature on complaints in Spanish in general (42-45), as well as the body of work considering nuclear configurations in Mexican Spanish. (36-41) To the latter studies, this study has specifically added a previously unexamined speech act to a set of pragmatic conditions that already contained broad focus declaratives, wh-questions, and exclamatives, among others. (37) The connection with exclamatives is particularly useful because it once again brings the topic of heightened emotion into play, though in this study, we identified a specific reason for the appropriate use of such emotion to express displeasure, which was a socially close hearer. That is, circumflex movement may be common in third party complaints, but it is realized at higher levels when emotionality can be increased as well. The results also further validated the previous claim that the pragmatic range of circumflex contours is wider in Mexican Spanish than in the majority of other dialects in which such F0 movement is attested. (37) The phonetic detail examined here was the first step in forging the path toward a phonological analysis of pitch accents in complaints, which would increase the comparability between this data and other pitch and boundary accent related work on pragmatics in Spanish and related languages. (21, 37) The fact that we have better understood right-edge movement in third party complaints as a final fall to a low boundary will help compare this speech act with others in which circumflex movement is present, but with more complex boundary activity. (37) Furthermore, based on OP and EB's individual peak and valley results, we can very tentatively propose that distance and power with hearers played a role in determining the use of circumflex or terminally lowered nuclear movement. We will treat this idea as more of a question emerging from the data that is encouraged as an object of future work using more speakers, namely because the two speakers' preferences were reversed and because OP's data was perceived as more recited and less authentic than that of the other speakers. Furthermore, the unique trends manifested, particularly in AV's speech, spark further ideas on the role of nuclear upstepping as well as the influence of age, since he was the oldest speaker of the data set. Further looking at age and, as previously mentioned, gender, with more speakers would effectively complement work on social variables' influence on Mexican Spanish F0 contours. (36, 39, 40) A related idea

that motivates pursuing nuclear upstep is the fact that similar valley upstep to that found in AV's FDC data has been documented in, for example, recent descriptions of Dominican Spanish (another variety with observed circumflex movement) echo questions containing contrastive focus. (53) The echo question described is counter-expectational, which, in some sense, is related to an indirect complaint; in the present data, complaints were produced because an absent party acted in a way that did not coincide with the desires or expectations of the speaker. That is, there is an element of "I don't believe he/she/you acted like that" in both forms of speech. Finally, the sagging medial F0 trend found in both AV and OP's data also supported previous work on medial position being prone to F0 suppression. (51) However, the connection between this pattern, complaints, and hearers of complaints has yet to be determined.

To conclude, the experimental approach detailed in this study has yielded a new contribution to the prosody-pragmatics interface and has helped to begin filling a research gap. Gaining a deeper understanding of the fine-grained phonetic details of one specific piece of complaint interactions is important because now researchers of the prosody-pragmatics interface have clues as to what to search for in real-world situations. This is one valuable component of experimental approaches similar to the one implemented here; they can be used as a springboard for work on more authentic situations.

Another way of discussing the contribution of this study is by outlining its limitations, which will hopefully inspire expansion of similar topics in future related research. First, as alluded to before, complaints are generally parts of interactional sequences, yet this analysis only considered a small portion of such a sequence. Future research needs to find a balance between making valid empirical comparisons and considering larger strings of interactions when looking into complaints and related speech acts. Moreover, since the study is one of the few considering the intonation of complaints, and utilized a relatively small number of speakers uttering short complaints, the findings are indeed preliminary and somewhat suggestive of larger issues that will hopefully be further advanced. Such work for Spanish and other languages should continue by examining prosodic variables like duration and intensity in different types of complaints, similar to what has been done in the previously mentioned studies on emotion and attitude. On a related note, future work on the prosody of direct complaints in Spanish would be a welcomed complement to this study and would help illuminate whether or not prosody is affected by the hearer being both the target and receiver of a complaint rather than just the receiver. This would also allow for more commentary on the tie between emotion and social attitude, as proposed in work on Brazilian Portuguese. (20) Additionally, hearers with different social relationships with speakers should also be considered, even if they are based on topics that have received attention in the past for Spanish (e.g. broad versus narrow focus, imperatives); most of these previous studies have not included interlocutor type as an important variable. Finally, since complaints are interactions involving multiple participants, in-depth

perceptual studies should be carried out to see if hearers interpret complaints and other speech acts in the ways that this study and other production studies argue that they do. In sum, the hope is that the questions arising from this study provide a point of departure for future research that will ultimately make additional important contributions to the field at large.

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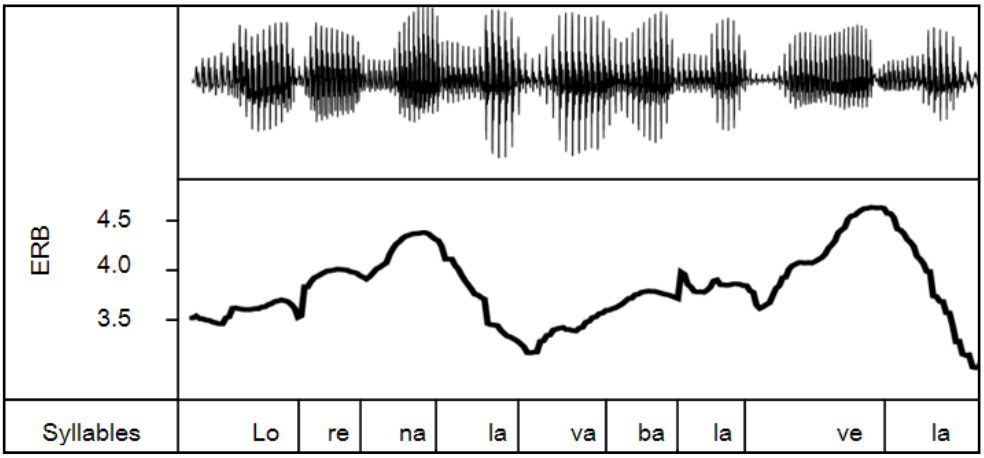
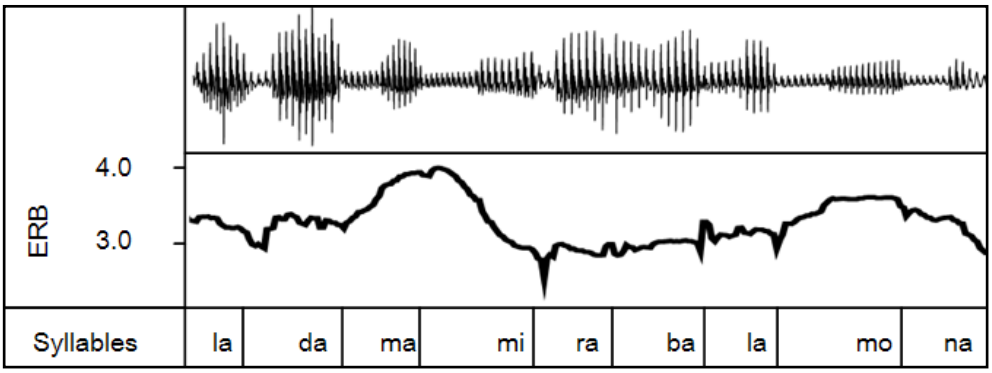
APPENDIX

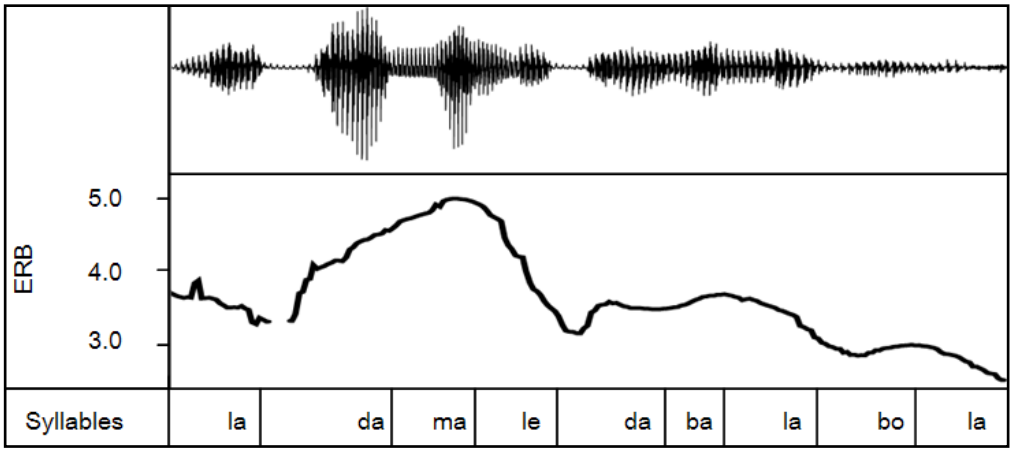
The eight third party complaint F0 contours provided here (4 speakers x 2 hearer types) characterize the global and local trends detailed for each speaker. Stressed syllables of content words are underlined.



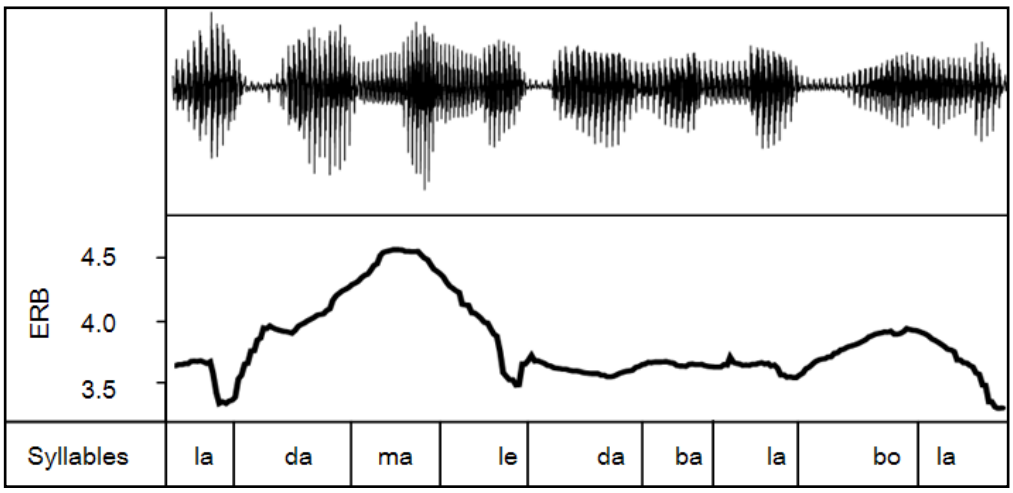
a. FDC contour produced by AV. The corresponding utterance is *Lorena lavaba la vela* (‘Lorena was washing the candle’).



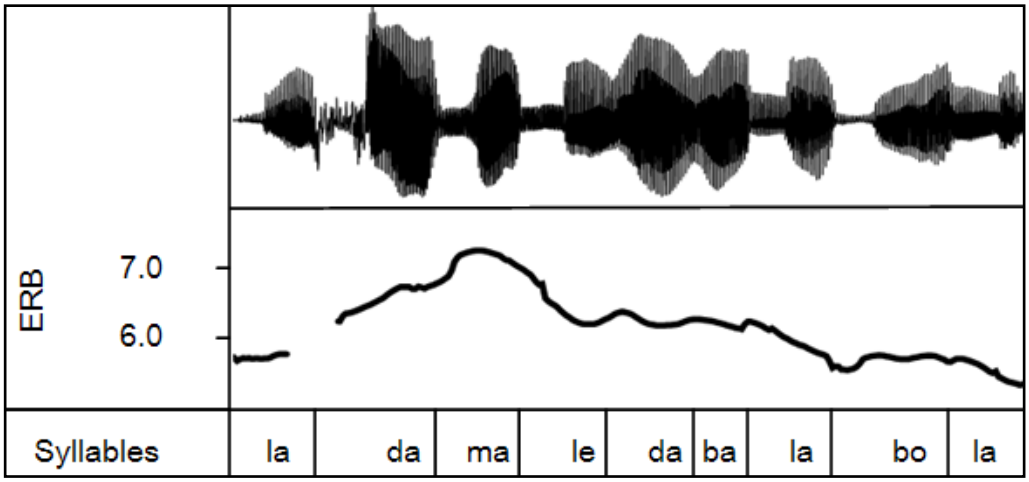
b. BDC contour produced by AV. The corresponding utterance is *La dama miraba la mona* (‘The woman was looking at the monkey’).



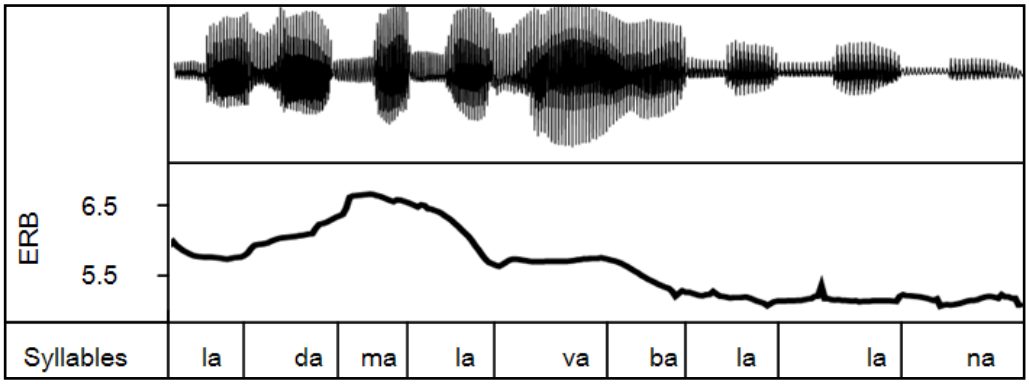
c. FDC contour produced by OP. The corresponding utterance is *La dama le daba la bola* ('The woman was giving her the ball').



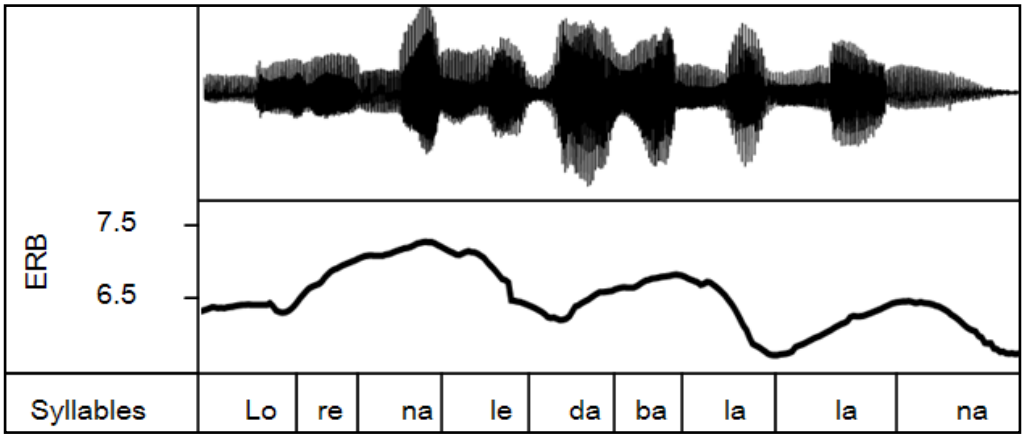
d. BDC contour produced by OP. The corresponding utterance is *La dama le daba la bola* ('The woman was giving her the ball').



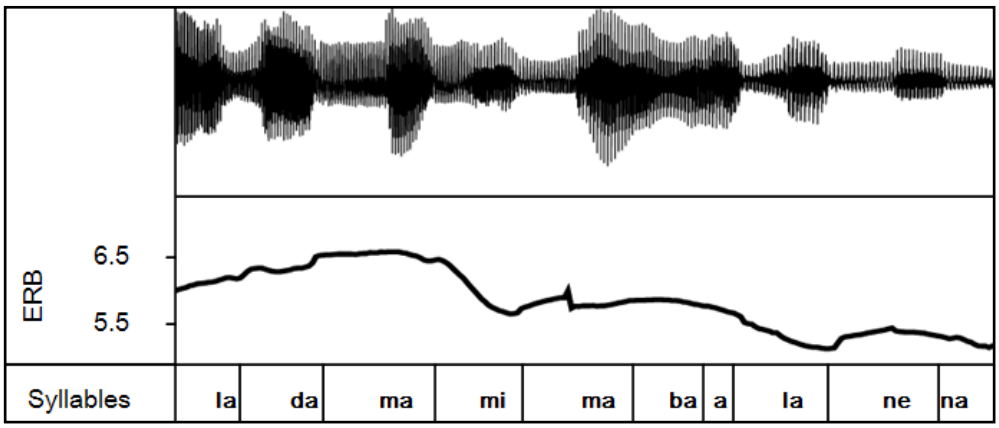
e. FDC contour produced by EB. The corresponding utterance is *La dama le daba la bola* ('The woman was giving her the ball').



f. BDC contour produced by EB. The corresponding utterance is *La dama lavaba la lana* ('The woman was washing the wool').



g. FDC produced by AA. The corresponding utterance is *Lorena le daba la lana* ('Lorena was giving her the wool').



h. BDC produced by AA. The corresponding utterance is *La dama mimaba a la nena* (‘The woman was pampering the girl’).