Acquiring Variable L2 Spanish Intonation in a Study Abroad Context

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Dedication

For

Holly

Abstract

This dissertation identifies and describes some of the major ways second language (L2) Spanish intonation changes over time in a study abroad context. It focuses on the intonation of two specific utterance types: broad focus declaratives and absolute interrogatives. Additionally, it explores a few important factors in how L2 intonation changes over time, namely: intonational characteristics of learners' first and second languages, task style/formality, and interaction with native Spanish speakers. The methodology employed combines traditional methodological approaches of intonational phonology and second language acquisition to analyze the data of nine English speaking learners of L2 Spanish who spent a semester in the Andes of Venezuela, a region known for its distinct absolute interrogative intonation. The results indicated that the L2 Spanish intonation of most learners was considerably different at the end of the semester abroad. Seven of nine learners adopted a new most frequent intonational pattern for broad focus declaratives. One learner adopted a new preferred contour for absolute interrogatives as well. Furthermore, the learners were dramatically more consistent in their use of particular patterns for each of the two utterance types investigated. A few learners also showed evidence of an expanded pitch range. These changes resulted in an interlanguage intonation that was remarkably more like the target language and less like the learners' first language. Additionally, task formality or style was shown to be a significant variable related to variation in L2 Spanish intonation. At the end of the semester, the learners used the target dialect specific absolute interrogative pattern significantly more often in the informal task than they did in the formal one. Finally, native speaker interaction was

another variable shown to have a significant effect on the development of target dialect intonational features. The proportion of time the learners reported speaking Spanish and English significantly interacted with change in dialect specific pattern use over time. Moreover, the three learners who showed the most L2 intonational development expressed what appear to be signs of high levels of social integration into the target language community.

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Chapter 1

Introduction

The use of non-native phonological patterns can have a detrimental impact on the ability of second language (L2)[1] learners to communicate effectively. The consequences of this "foreign accent" include accent detection, diminished acceptability, and negative evaluation (Flege, 1988). Research has also linked foreign accent to significant losses in intelligibility (Derwing & Munro, 1997; Munro & Derwing, 1995a, 1995b). While pronunciation clearly plays a role, non-segmental features, such as intonation, may be even more important in the detection of foreign accent (Anderson-Hsieh, Johnson, & Koehler, 1992). For example, in Van Els and DeBot (1987), native speakers of Dutch could not accurately distinguish between native Dutch and L2 Dutch utterances that had been stripped of pitch movement (monotone). Similarly, Munro (1995) found that native English speakers could identify Mandarin accented speech even after it had been passed through a low-pass filter that removed segmental information.

The consequences of foreign accent due to non-native prosody are even more concerning when we consider that intonation may be one of the slowest developing aspects of L2 speech. Recent evidence from L1 acquisition suggests that intonation develops rather slowly in comparison to other areas. Wells, Peppe, & Goulandris (2004), found that child learners of English as a first language continue to develop the functional

[1] This dissertation uses the terms second language and foreign language interchangeably, despite the fact that they can be used with distinct meanings. This distinction becomes particularly blurred in the case of a study abroad context, because the study abroad learner has begun acquiring a target language that is not used primarily in his or her place of study (foreign language learning), prior to becoming immersed in a target language environment (second language learning) (see Freed, 1995a, p. 3-6 for a discussion of these terms and their relationship to study abroad).

aspects of intonation through age 10. This slow development could prolong the negative effects of foreign accented-ness even for L2 speakers who have achieved relatively high levels of proficiency. According to Kvavik (1976), "intonation is just about the most difficult speech habit to change" (p. 406). While they did not specifically study intonation, Colantoni and Steele (2006) suggest that "vowel quality and prosodic qualities including intonation" must have contributed to the fact that a learner of L2 Spanish with native-like pronunciation received a relatively low score on a scale of foreign accent as judged by native speakers (p. 70).

Despite its difficulty and how important it is to the success of the L2 learner, intonation remains highly understudied compared to other areas of second language acquisition (SLA).[2] In a comprehensive examination of research in L2 phonology, Major (2001) states, "There is a dearth of SLA research in tone and intonation" (p. 17). This lack of research could be due to many factors. For example, historically there has been a lack of technical equipment with the ability to reliably analyze intonational contours. The relatively late emergence of methodological and theoretical approaches to intonational phonology may have also contributed. Even with the recent strides in intonational phonology, many researchers may be hesitant to study the intonation of second languages because it requires reconciling two distinct methodological approaches. Studies of intonational phonology typically employ a laboratory approach that requires tight control over speech production in order to guarantee comparability across tokens. Studies of SLA, on the other hand, prefer interactive conversational activities that encourage

[2] See chapter 2 for a review of notable exceptions.

participants to focus on the meaning of the task at hand as opposed to the language they produce.

The study of L2 Spanish intonation may be particularly challenging. The intonation of Spanish is known to vary greatly across geographic regions. In fact, similar intonational patterns are used to communicate very different meanings in different dialects (e.g., Sosa, 1999; Prieto & Roseano, 2010). Therefore, it can be quite difficult to confidently identify the intonational target of a given L2 Spanish learner. That being said, this challenge may be successfully managed by incorporating study abroad into L2 Spanish intonation research (Henriksen, Geeslin, & Willis, 2010; Trimble, 2013). As evidence that study abroad participants are sensitive to the intonation of their host environment, Trimble (2013) found that certain study abroad participants gained perceptual intonational advantages that were specific to the intonational patterns of the region in which they studied.

This dissertation is specifically designed to supplement the current dearth of research on L2 Spanish intonation through a longitudinal study of the L2 acquisition of Spanish intonation in a study abroad context. It makes use of a study abroad program located in the Andes of Venezuela, a region known for its distinct absolute interrogative intonation. This dissertation not only addresses aspects of L2 intonation, but also attempts to inform the broader disciplines of L2 phonology and study abroad as a context of learning. As will be discussed in the following chapter, intonation may be one of the crucial linguistic features responsible for the long held belief that the study abroad context offers distinct advantages over traditional at home contexts. Furthermore, a

detailed analysis of the choices that individual learners make while abroad, and the interactional language situations that they create, may allow for a deeper understanding of individual learner variation, a phenomenon that has been shown to be important in L2 phonology, L2 intonation, and study abroad research alike.

This dissertation includes five chapters, six appendices, and a bibliography. Chapter 2 reviews literature relevant to the study of L2 Spanish intonation in a study abroad context. Chapter 3 describes the methodology and subjects who participated in the study. Chapter 4 details and discusses the results in light of the current state of L2 intonation, L2 phonology, and study abroad research. Finally, Chapter 5 draws conclusions based on the results and discussion and then presents limitations and suggestions for future research on L2 intonation.

Chapter 2

Literature Review

2.1 Introduction

The study of L2 Spanish intonation in a study abroad context involves research from several rather distinct areas of linguistics. This chapter begins by highlighting certain aspects of English and Spanish intonation. Then, it reviews current research on L2 intonation. Next, it considers recent research on SLA in a study abroad context, highlighting the findings of L2 phonology. Finally, this chapter concludes by discussing relevant theoretical frameworks that could prove especially useful in conceptualizing L2 Spanish intonation.

2.2 Intonation: Broad focus declaratives and absolute interrogatives

This dissertation investigates the production of L2 Spanish intonation in declaratives and absolute interrogatives. As a point of departure, this section discusses the intonational contours of declaratives and absolute interrogatives of American English and Venezuelan Andean Spanish. It also compares Venezuelan Andean declaratives and absolute interrogatives to some other well known varieties of Spanish.

According to Ladd (2008), "Intonation…refers to the use of *suprasegmental* phonetic features to convey 'postlexical' or *sentence-level* pragmatic meanings in a *linguistically structured* way" (p. 4). In both English and Spanish, intonation often plays a role in the conveyance of sentence type, with different contours being associated with different sentence types. However, it can also make an independent contribution to the

meaning of an utterance. For example, intonation may convey attitude, emotion, and/or pragmatic intent (Levis, 2002). It is important to keep this in mind when discussing the intonation of such grammatical sentence types as statements and questions, because different contours may be used within these types to contribute meaning beyond sentence type. Therefore, this study will limit its scope and focus solely on pragmatically neutral broad-focus declaratives and absolute interrogatives.

Much of the recent work on intonational phonology uses the autosegmental-metrical (AM) model. AM was originally applied to intonational phonology through the examination of English intonation (Pierrehumbert, 1980; Pierrehumbert & Beckman, 1988). This analysis has been modified and simplified into the ToBI (Tones and Break Indices) transcription system for Standard English (e.g., Silverman et al., 1992). ToBI systems have subsequently been created for many languages, including Spanish (Beckman, Díaz-Campos, McGory & Morgan, 2002). Given the prominence of this framework, a ToBI-style transcription system will be referenced frequently in this dissertation, but contours will also be described in a more phonetic way so they can be understood in any framework. This will be the case for the following descriptions of English and Spanish declaratives and absolute interrogatives, as well as for the description of the global intonation contours that are produced by the learners of L2 Spanish.

When considering inherent characteristics of the English and Spanish languages, the relationship between sentence type and intonational contours may be construed as less predictable in English than in Spanish. In other words, Spanish may tend to rely on

intonation to disambiguate sentence type more frequently than does English. While interrogatives are commonly distinguished from declaratives in English lexically with auxiliary *do* or syntactically with inversed subject-verb order, Spanish often relies on intonation to communicate sentence type. For example, the statement *they were reading* can become *were they reading* if it were expressed as a yes-no question in English. In Spanish, the statement and yes-no question of such utterances are commonly lexically and syntactically identical (e.g., *leían una novela* for both 'they were reading' and 'were they reading'). Consequently, there may be some important differences between English and Spanish in how they use intonation across various sentence types.

2.2.1 American English

The term *American English* is used here to refer to what has been called "General American English" (e.g. Liu, 2009). Although American English intonation varies by dialect and sentence type (Ladd, 2008), the intonation of General American English is typically based on speakers from the Midwest (e.g., Liu, 2009).

In their work on interpreting the meaning of intonational contours in English discourse, Pierrehumbert and Hirschberg (1990) posit a variety of distinct intonational contours or tunes made up of pitch accents (e.g., H*, L*, L*+H), phrase accents (H-, L-), and boundary tones (H%, L%), five of which will be presented here.[3] The H*L-L% or *falling* contour is used to convey information when the speaker believes the hearer is aware of this information and that it is mutually believed (see Figure 2.1). This is one of

[3] Pierrehumbert and Hirschberg (1990) present interpretational meanings of individual pitch accents, phrase accents, and boundary tones separately. A brief summary of the meanings these accents and tones convey when combined is offered here for the practical purposes of indentifying a few key intonational contours that may be present in the intonation of the learners of this study.

two common contours of "neutral declarative intonation" (Pierrehumbert & Hirschberg, 1990, p. 290). The other common neutral declarative intonation uses the same pitch accent (H*) and phrase accent (L-), but uses an H% boundary tone (see Figure 2.2). This H*L-H% pattern or *falling-rising* pattern is used to generally convey information like the H*L-L% pattern but also indicates that the utterance should be interpreted with respect to the subsequent utterance(s) (pp. 305-307). When used without subsequent information, it would somehow seem unfinished and therefore have a "maybe interpretation" on the part of the hearer (Levis, 2002, p. 73). In this context, this contour could be employed by the speaker to express "an element of reservation" (Levis, 2002, p. 64). Another common contour that deserves mention here is the L*L-H% or *narrow low-rise* pattern (see Figure 2.3). Because this pattern uses an L* pitch accent as opposed to the H* accent, it is said to communicate that the information is already part of the mutual beliefs of the speaker and hearer (Pierrehumbert & Hirschberg, 1990, p. 292). Bolinger (1986) referred to the low-rise as the C-contour and claimed it is primarily used to play down or minimize the message of an utterance.

According to Pierrehumbert and Hirschberg (1990), the standard, "canonical" yes-no question contour uses an L*H-H% or a simple *wide low-rising* pattern (pp. 290, 292). It should be noted that the final rise of this wide low-rising pattern typically rises higher in terms of F0 than the more moderate rise of the L*L-H% pattern (see Figure 2.4). The L*H-H% pattern is said to be neutral in the sense that it does not convey new information, while an H*H-H% or *high-rising* pattern is intended to add new information to the mutual beliefs of the interlocutors. This difference seems to be clearer in

grammatical statements than in syntactic yes-no questions (Pierrehumbert & Hirschberg, 1990, p. 290-291).

It is important to note that the meaning of the wide low-rising pattern and the high-rising pattern in syntactic yes-no questions has been debated. Historically, the high-rise (H* H-H%) has been associated with American English and the low-rise (L* H-H%) with British English (e.g., Cruttenden, 1997). Cruttenden (1997) goes as far as to say that American English listeners may perceive low-rising intonation as "patronising or ingratiating" (p. 98). However, more recently, Levis (1999, 2002) found that American speakers of English do not distinguish in meaning between high-rising (H* H-H%) and wide low-rising (L* H-H%) contours. Figure 2.4 illustrates and contrasts the wide low-rise and high-rise patterns on the same syntactic yes-no question: *are you going?*.

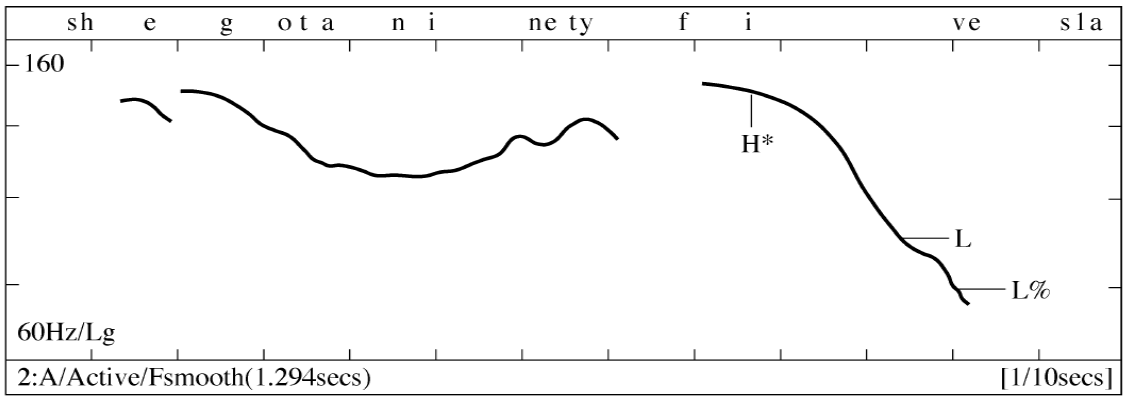


Figure 2.1. H* L-L% falling contour for *She got a ninety-FIVE*. (Levis, 2002)

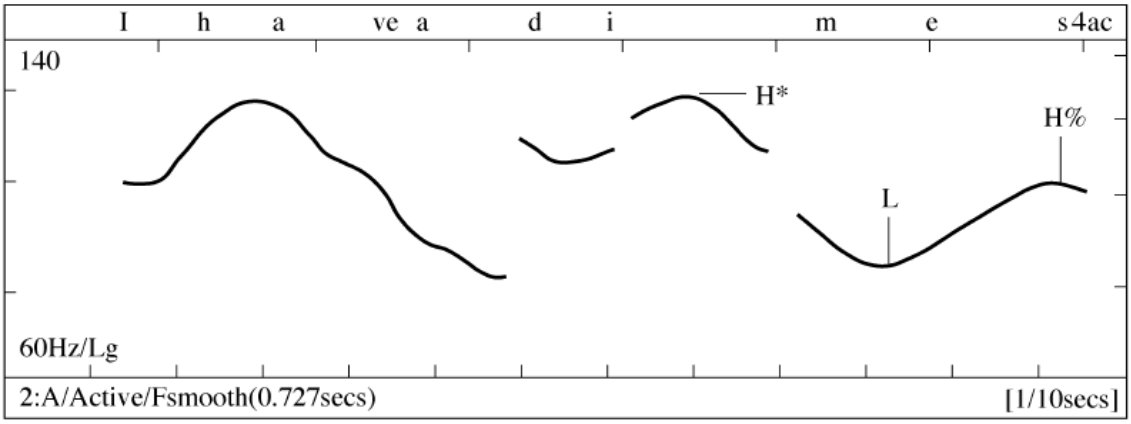


Figure 2.2. H* L-H% falling-rising contour for *I have a DIME*. (Levis, 2002)

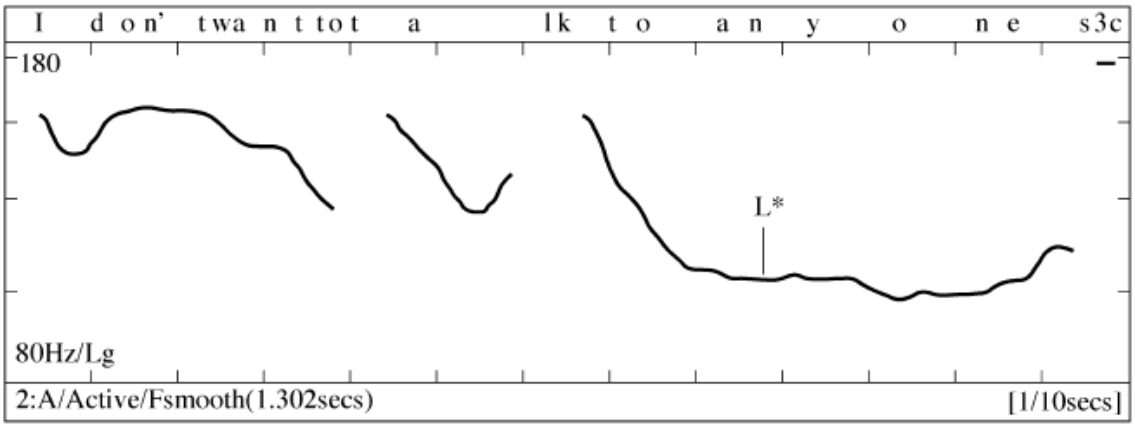


Figure 2.3. L*L-H% narrow low-rising contour for *I don't want to talk to ANyone*. (Levis, 2002)

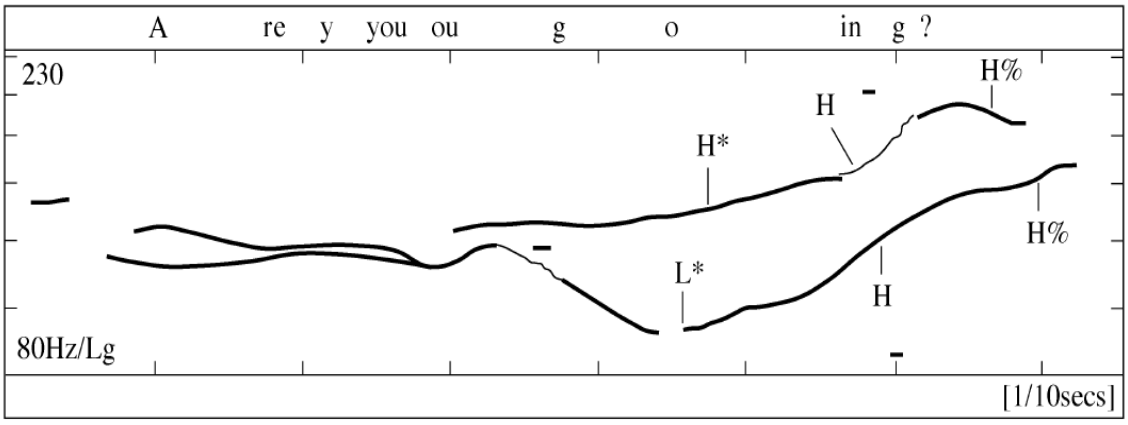


Figure 2.4. Comparison of H*H-H% high-rising and L*H-H% wide low-rising on *Are you going?* (Levis, 2002)

The above contours are presented here in order to be able to identify intonational patterns the learners of L2 Spanish may produce in broad focus declaratives and absolute interrogatives as a result of influence from their native language. These three overall basic patterns (i.e., falling, falling-rising, and rising) have also been claimed to make up the basic inventory of English intonation (Gussenhoven, 1983). As stated above, a link between grammatical sentence type and particular intonational contours in English is far from simple. Indeed, all of the above intonational contours may be used in syntactic statements, yes-no questions, as well as pronominal or WH- questions depending on the pragmatic context. For example, many studies have found that syntactic yes-no questions often use both final rises and final falls (Bolinger, 1998; Fries, 1964; Lee, 1980; Thompson, 1995). For these reasons, as previously stated, this analysis will be limited to neutral broad-focus declaratives and absolute interrogatives.

Given the variable use of intonational contours across grammatical sentence type, the term ‘absolute interrogative’ and its use in this study deserves further attention. The term ‘absolute interrogative’ will be used not to refer to grammatical sentence type but

rather to refer to what has been called “genuine” or “non-committal” yes-no questions, based on their communicative use (Seong et al., 2002; Thompson, 1995; respectively). In a review of the functional usage of syntactic yes-no questions, Thompson (1995) distinguishes rising patterns from falling patterns. She asserts that the falling pattern is used when the speaker believes he or she may know the answer. Conversely, the rising pattern does not presuppose an answer either way (i.e., non-committal). Furthermore, using an AM (autosegmental-metrical) approach, Seong, Kim, Kim, and Park (2002) showed through both a production experiment and a perception experiment that native English speakers prefer rising patterns (L*H-H%, wide low-rising; H*H-H%, high-rising) over falling (H*L-L%, H*H-L%) or falling-rising (H*L-H%) patterns for what they call “genuine yes/no” questions. On the other hand, their participants showed a preference for falling or falling-rising patterns in confirmation questions without tags. Therefore, Seong et al.’s (2002) experimental work supports Thompson’s (1995) assertion that speakers use rising patterns in yes-no questions when they are not presupposing an answer or looking for confirmation. In summary, it would be expected that native English speakers use a rising pattern in syntactic yes-no questions when their intended meaning is non-committal or neutral, in other words, when they convey an absolute interrogative meaning.

In addition to syntactic yes-no questions, syntactic declaratives may also be used in an interrogative way, depending on the pragmatic context (e.g., *It’s raining?*). These questions have been referred to as declarative questions (Gunlogson, 2002; Liu & Xu, 2007). This declarative question context is of particular interest because intonation may

be the only cue indicating the interrogative nature of these utterances.[4] Liu and Xu (2007) examined the salient differences in the typical intonational contours of declarative statements and declarative questions as affected by focus. As previously suggested by Pierrehumbert and Hirschberg (1990), Liu and Xu (2007) found typical declarative statements use a high pitch accent associated with the stressed syllable of a lexically-stressed word, a low phrase accent, and a low boundary tone: H* L-L%. Declarative questions typically use the L*H-H% low-rising contour mentioned above (see Figure 2.4). According to Liu & Xu, the first salient difference is that the tonal value of the first stressed syllable is higher in absolute interrogatives than declaratives. The second difference is specific to phrases that include word focus. While both declaratives and absolute interrogatives use compressed pitch range in post-focus syllables, this post-focus pitch range remains relatively high in declarative questions and low in declarative statements (Liu & Xu, 2007). Lastly, and perhaps most importantly, declarative statements have a final fall and declarative questions have a final rise. In other words, the low-rising pattern is preferred not only in syntactic yes-no questions but also syntactic declaratives when the meaning is an absolute interrogative.

2.2.2 Venezuelan Andean Spanish

The intonation of most varieties of Spanish is somewhat similar to English in the contours that are associated with declaratives and absolute interrogatives. For example, in Castilian and Mexican varieties, declaratives are characterized by falling final pitch movement and absolute interrogatives by a final rise (Face, 2004, 2008; Willis, 2005).

[4] In certain contexts, declaratives may be signaled as needing confirmation by facial expression, such as raised eyebrows and raised corners of the mouth (Bolinger, 1998).

For Castilian Spanish, more specifically the Spanish of Madrid, Face (2004) documented several differences in these sentence types, some of which coincide with what has been found for American English. First, while both broad focus declaratives and absolute interrogatives have a rising pitch accent on the first stressed syllable which usually peaks post-tonically, the peak of absolute interrogatives is frequently higher. Second, in utterances with three stressed words, the pitch of absolute interrogatives commonly falls gradually throughout the medial portion of the utterance before it reaches the final stressed word, whereas in declaratives the medial stressed word has another rising pitch accent. Finally, the final stressed syllable in declaratives has another rise and then the pitch falls to the end of the utterance. For absolute interrogatives, the pitch stays low through the onset of the final stressed syllable and then rises to the end of the utterance. Figure 2.5 contrasts these two patterns which are common in many varieties of Spanish using examples adapted from Face's (2007) work on Madrid Spanish. This falling vs. rising final boundary tone, which is common to American English and many varieties of Spanish, is not employed by some well know varieties of Spanish.

Broad Focus Declarative - Madrid Spanish "Mariana miraba la luna."

Absolute Interrogative - Madrid Spanish "¿Mariana miraba la luna?"

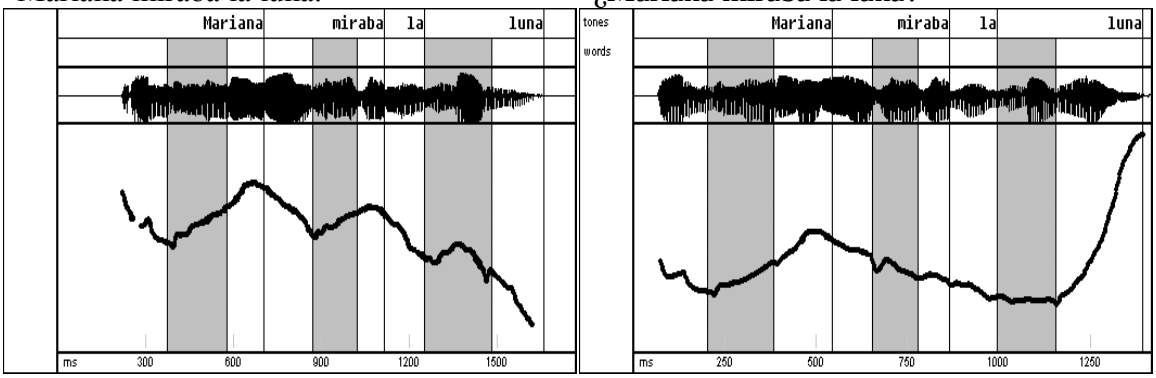


Figure 2.5. Declarative and absolute interrogative patterns for Madrid Spanish (Face, 2007)

Caribbean and Canary Island varieties of Spanish are known to employ a final falling intonation in absolute interrogatives (Alvord, 2010; Quilis, 1987). The absolute interrogatives of Venezuelan Andean Spanish do not typically use a final rise either. In fact, according to Astruc, Mora, and Rew (2010), "one of the most distinctive characteristics of Venezuelan Andean Spanish is the intonation of yes-no questions" (p. 220). Broad focus declaratives have falling final tones, similar to many varieties, with delayed prenuclear peaks (L+>H*), high nuclear accents (H* or L+H*), and low boundary tones (L%) (see Figure 2.6). The pitch accents of absolute interrogatives are extremely similar (see Figure 2.7). In fact, prenuclear accents receive the same label (L+>H*), because they do not differ in alignment; and both sentence types use low final boundary tones. Therefore, absolute interrogatives are distinguished from declaratives mainly by exaggerated pitch scaling, and a so-called circumflex nuclear pitch accent (Astruc et al., 2010; Méndez, Mora, & Rojas, 2008; Méndez, 2010; Mora, 1993). The term circumflex refers to this type of rising-falling nuclear pitch accent. Figures 2.6 and 2.7 show clearly that the shape of their contours is quite similar, but the peaks of the absolute interrogatives are significantly higher (around 90-100 Hz higher for this speaker), which is reflective of the exaggerated pitch scaling.

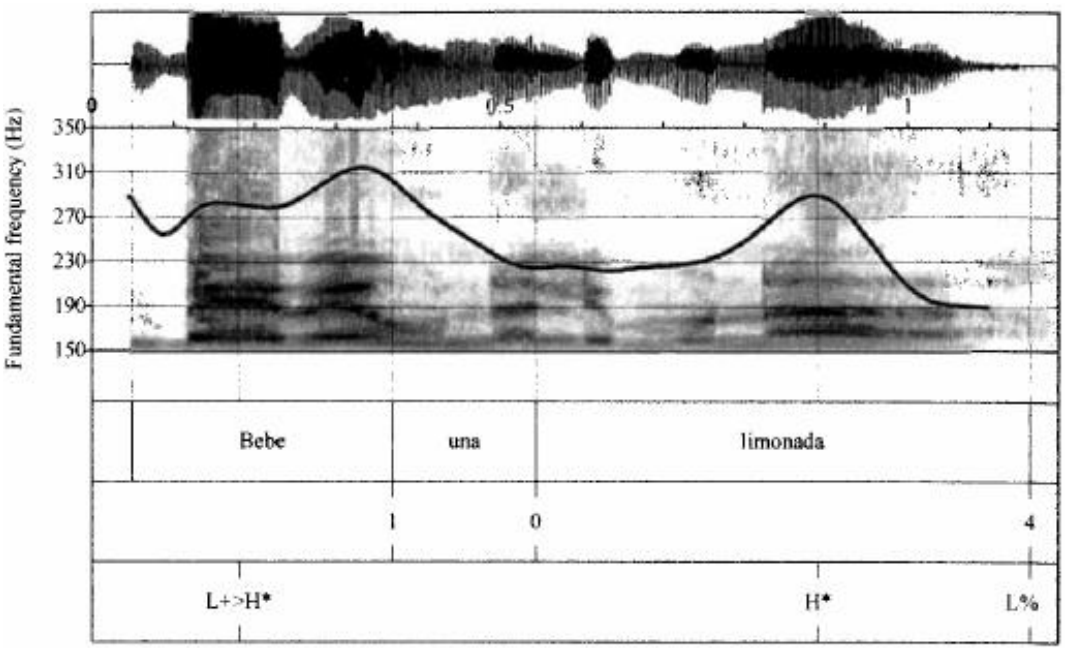


Figure 2.6. Broad focus declarative contour for *Bebe una limonada* from Astruc et al. (2010)

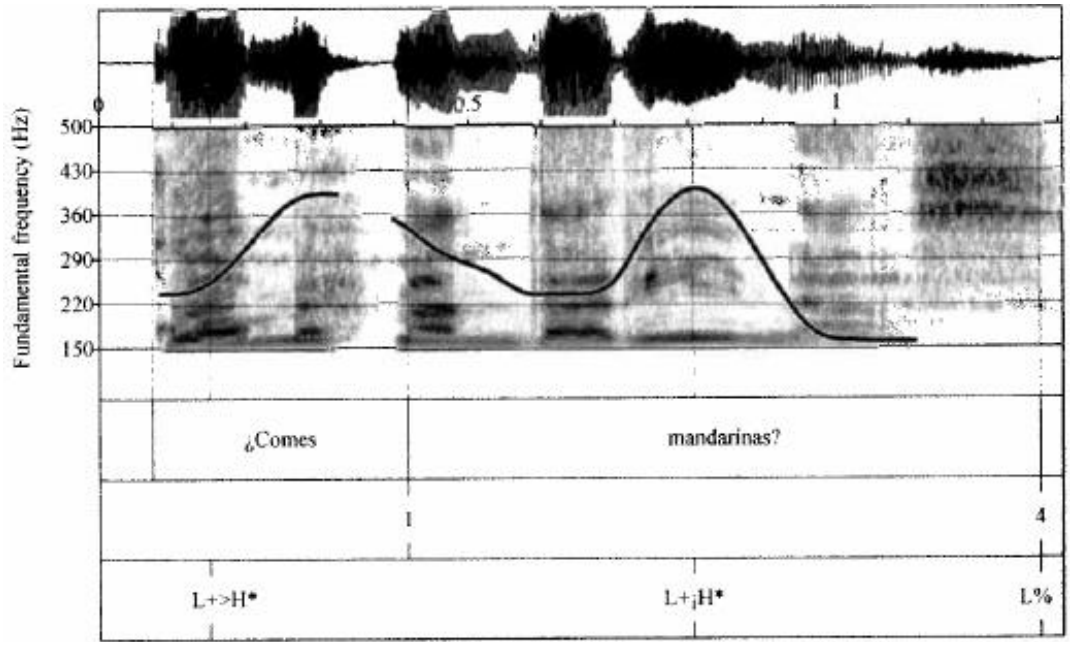


Figure 2.7. Absolute interrogative contour for *¿Comes mandarinas?* from Astruc et al. (2010)

The similar shape of Venezuelan Andean declaratives and absolute interrogatives leads one to wonder about their perceptual saliency. In fact, Mora, Rojas, Méndez, and Martínez (2008) designed a perception study inspired by a common phrase of native-speaking Venezuelans: "Are you telling me or asking me?" (p. 231, translation mine). They extracted 25 declaratives and 25 absolute interrogatives from a textual elicitation task of the AMPER-Venezuela project (Romano, Lai, & Roullet, 2005). The speaker was from an urban zone of Mérida in the Venezuelan Andes. Twenty-five native Venezuelans completed two listening tasks. For the first task, they listened to the 50 utterances presented without alteration and had no problem distinguishing between the two sentence types. For the second task, the utterances were synthesized and stripped of lexical content. Despite being presented with an artificial sounding tonal contour, the listeners achieved 82% accuracy for declaratives and 74% accuracy for interrogatives, showing that Venezuelans do successfully distinguish between the two sentence types based on their intonational cues alone.

The perceptual salience of these cues has also been related to learners of Spanish as a second language. Trimble (2013) investigated the implication of dissimilar cross-language intonational cues on the acquisition of L2 Spanish intonation. Forty-three university students listened to lexically identical pairs of declaratives and absolute interrogatives as produced by a native speaker of Castilian Spanish (from Toledo), a native speaker from Mérida, Venezuela, and a native speaker of American English with a high level of proficiency in Spanish. In general, the absolute interrogative contour of Venezuelan Andean was significantly more difficult than the other patterns. While the

final rise of Castilian Spanish was perceived with 100% accuracy, the overall mean only reached 44% accuracy for the Venezuelan Andean circumflex interrogatives. However, six advanced learners who had spent a semester studying abroad in Mérida, Venezuela performed significantly better, averaging 67% accuracy. These results showed that learners initially have great difficulty perceiving target-language intonational cues that are different from those of their native language and their L2 experience, but that learners are capable of picking up on salient intonational cues in a relatively short amount of time.

2.3 L2 intonation

The majority of L2 intonation research has been concerned with the L2 production of intonation by learners of English as a second language (e.g., Backman, 1979; Cruz-Ferreira, 2002/3; De Bot, 1986; McGory, 1997; Ramírez Verugo, 2002, 2005, 2006a, 2006b; Willems, 1982). Similar to the approach of Trimble (2013), the most common point of departure has been to begin by comparing the intonational systems of the two languages. Such research suggests that L1 transfer is an important factor, because it seems intonational features of a learner's L1 frequently influence the realization of L2 intonation. For example, McGory (1997) investigated the L2 English intonation of native speakers of Mandarin Chinese and Korean. Both groups of learners struggled producing accurate intonational prominence contrasts in English. Where a native English speaking control group only produced pitch accents in prominent target words, the learners produced higher F0 values in both prominent and less prominent words. These results were attributed to native language influences based on the differences in how each language marks stress. Despite the fact that most L2 intonation studies have dealt with

English, important strides have also been made in other L2s. The remainder of this subsection highlights the most pertinent of these strides while paying particular attention to the very limited amount of research that has examined L2 Spanish intonation.

Similar to the findings of McGory (1997), L1 transfer or interference has been shown to affect the L2 intonation of many languages. Kelm (1987) examined the pitch and intensity of utterances with contrastive emphasis of learners of L2 Spanish. These L2 Spanish productions were compared to native speaking control groups of both English and Spanish. To see how the participants used intonation to mark contrastive emphasis, comparisons were made between the participants' normal tone frequency and contrastive tone frequency. Following Kvavik (1974), each participant's "normal tone frequency" was established using the average frequency of the first syllable of fifteen declarative sentences (Kelm, 1987, p. 629). Results showed that L2 learners of Spanish typically deviated from normal tone frequency to emphasize contrast much more than native Spanish speakers. However, these learners also used less pitch deviation in their L2 Spanish than was used in the English of the native-speaking English control group. Kelm attributed these results to the fact that English relies on intonation to mark contrastive emphasis more than Spanish, which tends to use lexical and syntactic markers more often. Similarly, Kelm (1995) returned to the ideas of pitch range and pitch variation to investigate the intonation of not only L2 Spanish but also L2 English. In their native languages, English speakers vacillated more within their pitch ranges than did Spanish speakers, even though these languages use a similar range of pitch. Interestingly, the results also indicated that both groups reduced their pitch range when speaking their L2.

Despite the fact that the subjects were capable communicators in their second language, Kelm hypothesizes that "suprasegmental deficiencies in the target language might be one of the reasons…none of them has reached the point where they feel totally comfortable in expressing themselves in that second language" (p. 446). Transfer may be an important factor in L2 intonation, but there may also be a tendency to use caution when speaking an L2, such as an overall reduction of pitch movement.

Mennen (2004) found not only L1 transfer in L2 intonation, but also L2 transfer in L1 intonation. In other words, she found "bi-directional interference" in the intonation of four out of five Dutch non-native fluent speakers of Modern Greek. This finding was based on the fact that Dutch and Greek differ in the realization of prenuclear (i.e., non-final) rises. Although they are phonologically identical, the Dutch rise peaks earlier than the Greek rise. When speaking L2 Greek, the speakers' peaks were considerably earlier than that of the native Greek control group; and when speaking L1 Dutch, their peaks were not as early as native Dutch speakers in statements with long vowels in the accented syllable.

In addition to interference or negative transfer, a learner's native language may affect his or her L2 intonation in a positive way. This so-called positive transfer can be seen by examining the abilities of beginning and intermediate learners. Although she did not use the term positive transfer, Nibert (2005) found that both intermediate and advanced learners of L2 Spanish were able to accurately perceive intonational phrasing patterns (phrase accents) when sentence level syntax was simple and corresponded with their L1 English. However, only advanced learners were able to accurately assign

meaning to phrase accents of a more complex syntactical phrasing pattern that is exclusive to Spanish. The intermediate learners of her study were unsure how to interpret the phrase accent when an element was introduced that is not characteristic of their L1. They assigned more meanings than were possible, showing they were not picking up on the more complex ways that it restricts interpretations.

In another perception study, Kimura, Sensui, Takasawa, Toyomaru, and Atria (2010) showed that 21 Japanese learners of L2 Spanish failed to perceive stressed syllables of words with rising pitch accents, while they accurately perceived falling accents. According to Kimura et al., Japanese is considered a pitch-accent language, whereas Spanish is considered a stress-accent language.[5] Being a pitch-accent language, Japanese is characterized by a falling pitch from accented mora to subsequent mora, and lacks a distinctive rising accent, such as the one commonly used to mark stressed syllables in Spanish. The results revealed that the characteristics of the learners L1 and L2 play a role in their L2 intonation but it is difficult to hypothesize about implications for acquisition without longitudinal or cross-sectional data for comparison.

Ramsey (1997) used a cross-sectional approach to document L2 intonational differences between beginning and advanced learners of French as a second language. The intonational contours of declaratives, yes-no questions (absolute interrogatives), and wh- questions (pronominal interrogatives) of the learners were compared across the levels and to a native speaking control group. L1 interference was abundant in the

[5] It should be noted that Spanish is also commonly referred to as a *pitch accent* language in the sense that pitch, fundamental frequency (F0), is used to convey postlexical information. The distinction between Spanish and Japanese lies in that Spanish pitch accents are typically associated with stressed syllables, which mark these syllables as stressed as well as convey intonational meaning.

intonation of the beginning learners. They were also highly inconsistent in the type of contour they used in all three sentence types, producing various L1 and L2 contours, as well as contours that did not resemble patterns of English or French. On the other hand, the L2 intonation of the advanced learners showed an increased number of target-like contours, along with a stabilization in the types of contours produced (Ramsey, 1997, pp. v-vi). The major findings of Ramsey's dissertation are that advanced learners showed improvement (based on cross-sectional comparisons) through a reduction in L1 transfer and an increased consistency in contours produced to communicate sentence types. Also of interest is that these relative gains in production were apparent only in a more formal dialogue reading task, and not in the less formal conversational task (p. 185).

An increase in consistency has also been documented through a longitudinal study of L2 Spanish intonation. Henriksen, Geeslin, and Willis (2010) studied the development of declaratives, absolute interrogatives, and pronominal interrogatives during a seven week study abroad program in Leon, Spain. Based on the results of four participants, like Ramsey (1997), this study found that L2 intonational development can be demonstrated through an increase in target-like contours, a decrease in L1 influenced contours, and an overall increase in consistency. That being said, these results were not manifested in the same way for all four learners. One learner did not significantly modify her patterns in between test times 1 and 2, but did become more consistent in use of her most frequent pattern for each sentence type. The other three learners had incorporated native-like pitch accents and/or boundary tone movements in some of their most frequent patterns. They also tended to use their most frequent patterns more consistently. However, in three of the

cases in which they changed most frequent patterns, their overall consistency decreased. Great individual variation was characteristic of all four learners' L2 intonation. High levels of individual variation may not be surprising considering that study abroad research has suggested that the context of study abroad accentuates individual variation.

2.4 Study abroad and L2 Spanish phonology

A common theme of edited volumes (e.g. Collentine & Freed, 2004; Freed, 1995a; Regan, Howard & Lemée 2009) and comprehensive reviews (e.g. Lafford, 2006) on second language acquisition in a study abroad (SA) context is the desire to empirically document the long held belief that study abroad has major linguistic benefits for second language learners. In the United States, language instructors have been very strong advocates of study abroad not only for its cultural experience, but because many believe that the best way to become truly "fluent" in a foreign language is to spend a significant amount of time immersed in a target language country (Lafford, 2006). Despite this belief, until the 1980s and early 1990s, many of these claims were based almost entirely on anecdotal evidence (Freed, 1995a). Moreover, these accounts were holistic and vague in that they typically did not pinpoint any specific linguistic area of improvement.

Freed (1995a) was the first edited volume that combined several empirical examinations of linguistic development and provided a review of the current state of the research on SA. Prior to this collection, even though most research indicated a positive effect on language learning, there seemed to be some conflicting evidence involving the extent and type of benefits gained through an in-country language experience. Many studies showed gains in "proficiency" measured through test scores and/or the ACTFL

Oral Proficiency Interview (OPI) or some type of "global fluency" as measured by rate of speech and/or use of appropriate fillers, modifiers, and compensation strategies (Freed, 1995a, pp. 9-16). That being said, according to Freed much of the data was problematic for two reasons. The more significant of the two reasons is that some studies do not provide a control group for comparison purposes (i.e., study abroad vs. at home learners). The other major problem was a lack of linguistic detail due to a heavy reliance on either test scores or a single holistic oral proficiency rating. Even with the advent of Freed (1995a) and additional research focusing on linguistic aspects, it was still unknown if SA is superior to at home (AH) instruction for some areas of linguistic development (e.g., morphosyntax, phonology). This somewhat unclear picture is further clouded by the fact that SA may accentuate individual differences. For example, DeKeyser (1986), Guntermann (1995), and Freed (1995b) found large amounts of individual variation among learners. Research at the time, due to its exploratory nature and holistic approach, lacked the tools necessary to attempt to explain such differences.

More recent study abroad research has further addressed the problems laid out by Freed (1995a) by systematically including an at home control group and documenting the development of multiple linguistic areas. The volume of *Studies in Second Language Acquisition* edited by Collentine and Freed (2004) sought to specifically address context of learning as a critical variable related to the acquisition of a variety of linguistic features. The studies in this volume documented significant advantages for the SA context in oral fluency and overall proficiency (Segalowitz & Freed, 2004), communication strategies (Lafford, 2004), as well as narrative abilities and semantic

density (Collentine, 2004). In contrast, Collentine (2004) also found advantages for at home learners in morphosyntax and more global measures of lexical items. Finally, Díaz-Campos (2004) found phonological gains in both contexts without the emergence of a significant advantage for one context over another.

As for the issue of individual learner variation, according to Lafford (2006), individual variation during study abroad can be better understood by considering differences in *learning* contexts and *communicative* contexts. Even though most popular approaches to classroom instruction do their best to incorporate communicative activities, most at home learning is still best categorized as taking place in a learning context. Study abroad, on the other hand, typically affords a balance of both learning and communicative contexts. Lafford claims that the communicative context should be viewed in a micro-level way, taking a more '-emic' (i.e. internal) view (cf. Pike, 1967; Hymes, 1972). She hypothesizes:

> It is not the context of learning alone, but rather individual learner perceptions of specific characteristics of the contexts … that interact with cognitive factors … to account for differences in linguistic performance among L2 learners in classroom and study abroad contexts. (Lafford, 2006, p. 18)

An important factor related to how individual learners may perceive a given context is that of context formality. Despite earlier work by Tarone (1979, 1983, 1988) on the systematic variability of interlanguage according to task formality, most investigators of SA have not incorporated stylistic differences into their accounts of context of learning as an important factor in SLA. However, style has been shown to be a

highly significant variable related to phonological acquisition while abroad. Díaz-Campos and Lazar (2003) and Díaz-Campos (2004) found that regular classroom and study abroad students experienced similar improvement in pronunciation of voiced and voiceless initial stops and word-final nasals. These results were based on pronunciation during a reading task. Before considering style as a variable, the authors concluded that learner variables such as the number of years of formal instruction were more significant predictors of phonological development than context of learning. However, Díaz-Campos (2006) was able to re-examine the development of these same learners by incorporating data from OPI recordings and then comparing this more informal data with that of the reading task. For all learners, the informal task favored more native-like production for word-initial voiceless stops, voiced intervocalic fricatives, syllable-final laterals, and palatal nasals. Furthermore, native-like word-initial voiceless stops and syllable-final laterals were significantly favored in the informal task of the study abroad participants.[6]

Another central factor related to individual variation during study abroad may be the degree of social and cultural integration of the learner. As for L2 pronunciation, Lybeck (2002) used Schumann's Acculturation Theory (1978) and Milroy's social exchange network theory (Milroy & Wei, 1995) to show that varying degrees of pronunciation improvement could be explained by incorporating a measure of "successful acculturation patterns" (Lybeck, 2002, p. 184). The learners who became more engaged in supportive target language social networks were able to acquire more target-like pronunciation because they had increased access to "both linguistically and culturally

[6] Although she did not address study abroad, Zampini (1994) also found more native-like pronunciation during a conversational task than during a reading task.

appropriate behaviors" (p. 184). Similarly, Martinsen (2008) found that high levels of "cultural sensitivity" at the outset of a short-term sojourn abroad correlated with increased oral language skills as judged by three native speakers and the nonnative researcher. Isabelli (2001) and Isabelli-García (2006) have also documented a strong connection between motivation and attitude, and the establishment of strong social networks. In line with Lybeck (2002), Isabelli-García (2006) claims that these networks provided expanded opportunities to practice "linguistic elements not otherwise allowed them" and to consequently enhance acquisition (p. 257).

In summary, historical anecdotal claims of the supremacy of the study abroad context have been more recently documented empirically with the advent of linguistic research that has systematically compared the benefits of study abroad against at home traditional instruction. Additionally, new research methods, such as measures of stylistic variation and target community interaction, have made inroads toward the understanding of apparent contradictory evidence and high levels of individual learner variation. That being said, still relatively little is known about the perceived linguistic advances that have led to vast claims that study abroad is the ideal context for learners who want to become fluent. Markedly missing from this conversation is research on the acquisition of intonation in a study abroad context. L2 intonational research may be particularly well suited to further support anecdotal claims of perceived advances in fluency during SA due to its previously mentioned relationship with perceived foreign accented-ness. As it provides a broad theoretical background for the study of the L2 acquisition of Spanish

intonation while abroad, the following section further discusses the theoretical benefits of measures of stylistic variation and target community interaction.

2.5 Theoretical background

Due to the relative scarcity of research on L2 intonation, the majority of the theoretical background of this dissertation comes from theories that were developed primarily to explain segmental features of L2 phonology. In fact, none of the current major frameworks explicitly addresses suprasegmentals. To date, very few studies of L2 intonation have begun to attempt to incorporate or relate their findings to broader theories of segmental L2 phonology. The current study gives us the opportunity to begin to measure the compatibility of such models with the development of L2 intonation over time.

The acquisition of a second language implies the creation of an "interlanguage" (Selinker, 1972). Interlanguage (IL) refers to the L2 learner's development of a new linguistic system that is independent from what can be observed in the learner's native language (NL) and the target language (TL) alone. The study of second language acquisition, therefore, requires a framework that not only incorporates data from the NL and the TL, but is "primarily concerned with the linguistic shapes of the utterances produced in ILs" (Selinker, 1972, p. 214). Interlanguage, by definition, contains elements that would not be considered native-like in the TL. Upon attempting to determine the origin of such non-target elements, as observed in the above review of research on L2 intonation, the most obvious starting point is the learner's L1.

Transfer, or "the effect of previously learned languages on subsequently learned languages," has been one of the earliest developed and most important constructs of L2 phonology (Hansen Edwards & Zampini, 2008, p. 2). Transfer is one of the most central processes in the development of interlanguage. It has, consequently, played a significant role in all areas of SLA, but its influence is believed to be most prevalent in L2 phonology (p. 2). The earliest work on transfer was based primarily on comparisons across languages, which lead to a belief that phonological aspects that were different across the two languages would be more difficult than similar aspects (Lado, 1957; Weinreich, 1953). However, it is within the last thirty years that the role of transfer has become better understood and incorporated into general models of L2 phonology. Many of these strides have been made through the work of Flege and his colleagues (e.g., Flege, 1981, 1987, 1995; Flege & Hillenbrand, 1984).

Flege (1981, 1987) added an important nuance to the understanding of transfer and cross-language differences by making a distinction in the way that L2 learners perceive *new*, *similar*, and *identical* phones. Where earlier models predicted positive transfer due to similarity, Flege's (1987) equivalence classification predicts that only identical phones are completely transferred without issue. Due to a "basic cognitive mechanism which permits humans to perceive constant categories in the face of…inherent sensory variability", L2 learners are prone to overlook the cross-linguistic differences in similar L2 phones (p. 50). This may cause them to fail to establish a new phonetic category for the similar phone, therefore preventing them from achieving target-like phonetic norms. On the other hand, completely new phones will be easily perceived

by the learner, allowing him or her to establish a new phonetic category with relative ease.

For an example of how this model has been supported, Flege (1987) investigated three groups of American learners of L2 French that differed according to French-language experience. All three different levels, including the least experienced group, produced the French /y/ (/ü/ in IPA), a "new" vowel in a way that was not significantly different from native speakers. However, even the advanced group that had 12 years experience living in Paris produced the "similar" French /u/ significantly more English-like when compared to French monolinguals (p. 59). These results and much of Flege's work on similar and dissimilar sounds would eventually culminate in the development of the Speech Learning Model (Flege, 1995). The Speech Learning Model (SLM) includes four postulates and seven hypotheses; the hypotheses are reproduced in Table 2.1.

Hypotheses	
H1	Sounds in the L1 and L2 are related perceptually to one another at a position-sensitive allophonic level, rather than at a more abstract phonemic level.
H2	A new phonetic category can be established for an L2 sound that differs phonetically from the closest L2 sound if bilinguals discern at least some of the phonetic differences between the L1 and the L2 sounds.
H3	The greater the perceived phonetic dissimilarity between an L2 sound and the closest L1 sound, the more likely it is that phonetic differences between the sounds will be discerned.
H4	The likelihood of phonetic differences between L1 and L2 sounds, and between L2 sounds that are non-contrastive in the L1, being discerned decreases as AOL (age of learning) increases.
H5	Category formation for an L2 sound may be blocked by the mechanism of the equivalence classification. When this happens, a single phonetic category will be used to process perceptually linked L1 and L2 sounds (diaphones). Eventually, the diaphones will resemble one another in production.
H6	The phonetic category established for L2 sounds by a bilingual may differ from a monolingual's if: 1) the bilingual's category is "deflected" away from an L1 category to maintain phonetic contrast between categories in a common L1-L2 phonological space; 2) the bilingual's representation is based on different features, or feature weights, than a monolingual's.
H7	The production of a sound eventually corresponds to the properties represented in its phonetic category representation.

Table 2.1. Hypotheses of SLM (Flege, 1995)

Theories of L2 phonology such as the SLM (cf. Perceptual Assimilation Model, Best, 1995) are based primarily on the premise that a learner's NL shapes his or her perception of the TL. Moreover, such models predict that the inaccurate perception of an L2 feature may prevent it from being accurately produced. It does seem likely that perception proceeds production in most cases, but recent research has called into question whether there is truly a mutually dependent relationship. For example, Zampini (1998) compared the production and perception of the Spanish stops /p/ and /b/ of American learners of L2 Spanish. Perception was measured by determining each learner's

perceptual boundary between /p/ and /b/ as reflected by changes in voice onset time (VOT). The results did not reveal a strong relationship between production and perception. The data for /p/ suggested that accurate production actually precedes perception. Some learners were able to produce Spanish /p/ with near-native ability, but continue to use L1 perceptual categories. The data for Spanish /b/ was rather varied and did not support a correlation in either direction.

Major's (1987a) Ontogeny Model (OM) builds on the concepts of language transfer and the perceptual consequences of the relative similarity/dissimilarity of phones by incorporating markedness (i.e., universal processes). In the earliest conception of the OM, Major (1986, 1987a) focused on the importance of distinguishing transfer errors from developmental errors because they, in fact, behave differently over time in interlanguage development. According to Major (1986), a developmental error is "any deviation from native TL production that is not due to the learner's native language, but rather to universal language acquisition processes that occur regardless of whether the learner is a child or an adult" (p. 461). OM predicts that while transfer errors will be prevalent early on and simply decrease over IL development, developmental errors will be relatively less prevalent at beginning stages, increase substantially as IL progresses, and then decrease in later stages of IL development. This relationship is represented in Figure 2.8.

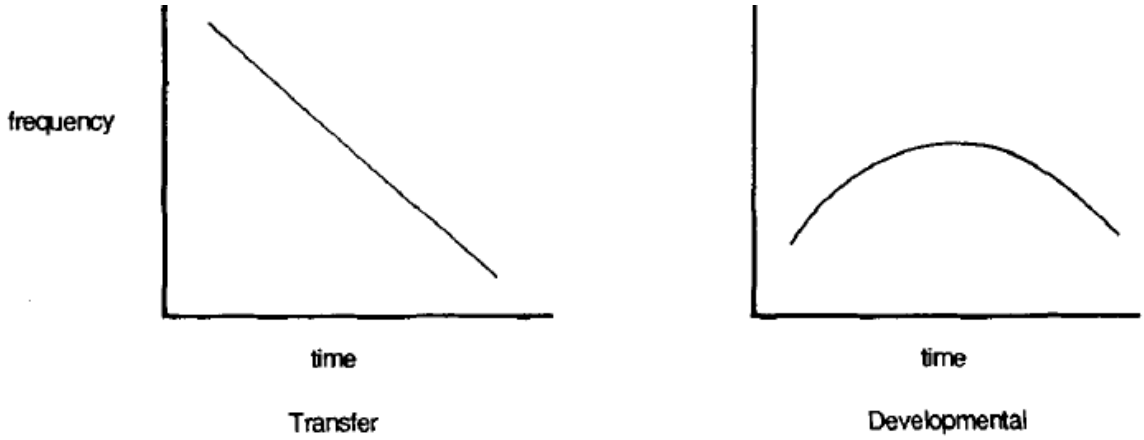


Figure 2.8. Relationship of transfer and developmental processes to time (Major, 1986)

This relationship has been supported over the years through studies of L2 acquisition of many languages. For example, Major (1986) investigated the longitudinal development of Spanish rhotics (/r/ and /ɾ/) of four learners of Spanish enrolled in a summer intensive beginning Spanish course. Results revealed large amounts of L1 transfer of the English rhotic /ɹ/ at the beginning of the course. As the learners progressed, transfer errors decreased and there was an increase in errors due to developmental strategies, such as substitutions, insertions, and deletions. However, it should be noted that there were high amounts of individual variation: of the four learners, the better learners supported the model to a greater extent than poorer learners (p. 499). Face (2006) also highlights the importance of developmental errors in a study of L2 Spanish rhotic production. With a cross-sectional approach, results showed that inaccuracy at a lower proficiency level was largely due to transfer. At the more advanced level, learners were relatively accurate with the Spanish tap /ɾ/, but because of the articulatory difficulty of the trill /r/, they tended to overgeneralize the tap, substituting it for the trill.

In addition to transfer and universal processes, a central construct of Major's work has been variation (e.g., Major, 1987b). That being said, not all researchers have agreed that variation should be an important part of SLA. For example, Gregg (1990) dismisses L2 variation as a manifestation of performance which has nothing to do with competence. Tarone (1979, 1983, 1988) and others have argued that the study of variation can provide crucial insights into SLA and that variation is an essential component in L2 competence. Major (2001) clearly supports the inclusion of variation in SLA, "any model, theory, or purported explanation that fails to account for variation is not accounting for the data, period" (p. 69). For Major, transfer and developmental processes interact with stylistic variation in a similar way to how they change over time. The effect of style is quite simple for transfer: the IL is more susceptible to transfer during informal, more conversational type tasks. But for developmental errors, the most casual speech lends itself to few developmental errors but they increase as the task becomes more formal and then decrease again for the most formal situations (Major, 2001).

Applying the axioms of Labov's (1972) 'Observer's Paradox' to interlanguage, Tarone (1979) claimed that the most systematic form of interlanguage is produced when the L2 speaker is not monitoring his or her speech. Thusly, interlanguage variability can, in part, be explained by the amount of attention paid to speech. Furthermore, attention varies according to social context. The earliest accounts of a variable system in L2 phonology investigated pronunciation across tasks of varying formality. Similar to the Ontogeny Model, these studies assumed that relatively fewer transfer errors would occur

during more formal tasks. This prediction is based on the idea that formal tasks encourage learners to focus more on L2 production. For example, in a study of Japanese learners of L2 English, Dickerson and Dickerson (1977) found a higher number of mispronunciations of English retroflex /r/ during a conversation than when reading a word list. However, other studies have found that certain L2 targets may not lend themselves well to higher accuracy during formal tasks, because variability within the learner's native language also plays a role. For example, Beebe (1980) studied learner productions of retroflex /r/ by native speakers of Thai, in two different positions (word-initial and word-final). The effect of style was contradictory, because for one position (word-final) learners produced fewer errors during a formal reading task, as would be predicted. But, in word-initial position, learners actually produced more errors during the formal task. Beebe attributed this difference to the fact that a trilled /r/ has social prestige in Thai in careful speech situations. Therefore, the learners' interlanguage was influenced by the stylistic variation inherent in their native language. Based on such research, it seems clear that stylistic variation according to social context is inherent in interlanguage phonology, but the exact nature of learner styles and how they develop remains to be learned (Bayley & Tarone, 2012).

In addition to stylistic variation, another major assumption of variationist SLA is that the individual learner plays an active role in his or her L2 development. According to Hansen Edwards (2008), learners are active in "choosing not only what and how they use their L2, but also in choosing the L2 target, and therefore what they acquire of the L2" (p. 272). That being said, much SLA research has not had the individual at its center, in part,

due to methodological reasons. With a few notable exceptions, researchers have relied heavily on cross-sectional studies with relatively large numbers of participants. While this research has been extremely fruitful, the grouping of inevitably heterogeneous learners may lead to a tendency to overlook important individual differences. As suggested by Tarone (1988), SLA research may benefit from first-person accounts of the linguistic choices learners make. In addition, crucial insight into individual learner variation may be gained from more ethnographic, longitudinal research.

Recent research has shown distinct advantages for longitudinal designs. Liu (2000) spent two years tracking the L2 English development of "Bob", a 5-year-old Chinese immigrant to Australia. Results revealed that the social setting was a crucial aspect of Bob's variable interlanguage: new stages of acquisition were produced first in one-on-one play sessions with a family friend, then with his peers in class, and last with his teacher. Consequently, in the case of Bob, development began in the informal style and then spread to the formal style over time. Another way to gain insight into how learners make choices at the individual level is by investigating their social networks (cf. Milroy, 1987). As documented by the work of Lybeck (2002) and Isabelli (2001), a great deal of a learner's success in acquisition may be tied to how much they interact with a target language community. This certainly seems to be the case when learners are immersed in a TL country. According to Bayley and Tarone (2012), these types of longitudinal studies are crucial to our ability to understand how L2 users progress from non-use to variable use to near native-like use of given target language structures (p. 24).

2.6 Research questions

In summary, this literature review has highlighted the relevant findings of research in study abroad, L2 intonation, and L2 phonology, while suggesting future areas of investigation. It has also discussed the intonational patterns of two sentence types in English and Spanish. Recent years have seen major advances in our understanding of intonational phonology of both English and Spanish, which has provided the necessary knowledge for a new avenue in SLA. A small number of researchers have begun to investigate L2 intonation making significant initial strides. For example, these studies support the idea that L1 transfer has a significant influence on L2 intonational phonology (Kelm, 1987; Kimura et al., 2010; McGory, 1997; Mennen, 2004; Nibert, 2005; Ramsey, 1997). Additionally, Ramsey (1997) and Henriksen et al. (2010) found L2 intonational development through an increase in consistent use of specific intonational contours. Finally, Ramsey's results indicate that stylistic variation may also be important. However, these results need further documentation and deeper examination. The preliminary nature of the majority of these findings has prevented them from being systematically related to broader areas of SLA theory. With this in mind, this dissertation proposes the following research questions:

1. How do the intonational patterns of learners of Spanish as a second language change over the course of a semester study abroad program for broad focus declaratives and absolute interrogatives?
2. How do the intonational characteristics of learners' native and target languages contribute to how their interlanguage intonation changes over time?

3. What is the relationship (if any) between task formality and production of L2 intonational patterns?
4. How does the amount and quality of native speaker interactions affect L2 intonational development?

Chapter 3

Methodology

3.1 Introduction

As presented in the introduction, the main objective of this dissertation is to supplement the current gap in research concerning the intonation of learners of Spanish as a second language. This dissertation also seeks to enrich the research areas of study abroad, variationist SLA, and models of speech learning that are concerned with L2 phonology. In order to accomplish these goals and respond to the research questions that were posed at the end of chapter 2, the methodology that is detailed in this chapter combines methods from experimental intonational phonology and second language acquisition as a means to detail longitudinal development of L2 Spanish intonation. This chapter is organized as follows: Section 3.2 describes the subjects of the study. Section 3.3 details the tasks and recording techniques, and section 3.4 describes the analysis of the data.

3.2 Subjects

The subjects of the present study can be divided into two groups. The first group includes nine learners of Spanish as a second language who participated in the University of Minnesota's Spring 2012 study abroad program in Mérida, Venezuela.[7] The University's Venezuela program was chosen because its participants typically report a high amount of native speaker interaction. All participants are placed in homestays; and

[7] A tenth learner also participated in this study. Unfortunately, his intonation data was rendered unusable during the data analysis process. He responded to the prompts of the formal task in an unanticipated way and his data showed excessive creaky voice.

the host academic institution (VENUSA) offers weekly language exchanges with native Venezuelans who are learning English. These aspects of the program offer the learner a unique opportunity to establish close relationships with native speakers. Each learner was assigned a pseudonym to be used in the written report of this dissertation. Table 3.1 presents each learner's pseudonym along with background information.

Learner	Gender	Age	Spanish major/minor	Last Spanish course taken	Grammar score out of 11 points		
					Week 0	Week 8	Week 15
Ed	M	20	Major	6th semester	9	11	7
Leah	F	19	Minor	5th semester	8	11	11
Linda	F	21	Minor	3rd semester	8	9	9
Kayla	F	21	Minor	5th semester	10	11	10
Gavin	M	21	Undeclared	4th semester	8	9	8
Anna	F	20	Minor	5th semester	7	7	7
Matt	M	20	Major	7th semester	9	11	11
Haley	F	19	Minor	6th semester	8	11	10
Emma	F	20	Major	5th semester	11	11	10
Mean	N/A	20.1	N/A	~5th semester	8.6	10.1	9.2

Table 3.1. Learner participant background information

The six female and three male learners were all between nineteen and twenty-one years of age. They were all from either Minnesota or Wisconsin and were native speakers of English. One participant, Anna, selected English as her native language, but mentioned being able to understand but not speak a tribal language of Nigeria, which was a heritage language of her family. Eight of the learners were Spanish majors or minors. One had not yet declared a major. They all had studied Spanish both at the university and during secondary school. As for previous experience abroad, two had spent six weeks in Spanish speaking countries as service learning experiences (Linda & Anna), four had travelled abroad for short vacations (Leah, Kayla, Gavin, & Emma), and three had never visited a Spanish speaking country (Ed, Matt, & Haley).

All nine learners began their semester abroad in Venezuela at an intermediate level or higher.[8] This is based on the fact that they all had completed at least one intermediate Spanish course and all answered correctly at least seven of the eleven questions on a written grammar task (adopted from Woolsey, 2006). The majority of the learners had completed a fifth semester upper-division Spanish course on composition and communication. However, one learner, Linda, had only completed a third semester intermediate Spanish course and, another, Gavin, a fourth semester intermediate course. Yet another student, Matt began the semester having completed the highest level Spanish course. He had taken an advanced elective on Human Rights in the Spanish speaking world. This Human Rights course has the fifth semester course as well as an introduction to the study of Hispanic Cultures as prerequisites. In this way it could be considered a seventh semester course. Two other students had also taken at least one course after the fifth semester course. Table 3.1 includes the last Spanish course each of the learners completed before traveling to Venezuela. These courses are listed as ordinal numbers, as opposed to by name, in order to facilitate their comparability.[9] Table 3.1 also presents each learner's score on the 11-point grammar task at each of the three times it was completed.

As can be seen in the grammar scores of Table 3.1, all nine learners began the study abroad program with a considerably high understanding of the formal grammatical

[8] It was important to establish a minimum proficiency level of at least intermediate in order to ensure the learners could successfully complete the L2 tasks. Beginners may have struggled with the intonation tasks, especially at the first recording time.

[9] Using ordinal numbers assumes an ordinal sequence of courses completed, which may not be the case for every participant.

properties of Spanish. Most learners improved their scores over the course of the semester. However, it is interesting to note the mean score actually fell between the tests taken in week 8 and week 15. Also, Ed's third test score (7 of 11) stands out as questionable especially after he scored a perfect eleven of eleven in week 8. Finally, also of note is that Anna's score did not change at all across the three completion times.

In addition to the experimental group of learners of L2 Spanish, a control group of four native speakers of Venezuelan Spanish was included for comparison purposes. This group was composed of two females and two males all between the ages of 20 and 32. Three of the four were born in Mérida, Venezuela and one was born in Caracas, Venezuela. This group served two purposes. It confirmed what has been previously documented for Venezuelan Andean and Venezuelan Coastal intonation and it provided a point of comparison that is specific to the tasks that were used with the learners of the current study.

3.3 Data collection

Both groups completed two intonation production tasks. The native speaker control group completed a background questionnaire to confirm previously mentioned characteristics and to gather other possible important information (see Appendix A). The learners did the intonation tasks before travelling to Venezuela and repeated them in the last week of their fifteen week semester abroad. Additionally, they completed English versions of the two intonation tasks at the first recording session. The learners also completed three different language contact questionnaires (cf. Freed, Dewey, Segalowitz, & Halter, 2004; see Appendices B, C, & D). These questionnaires were designed to

gather information about their Spanish experience before traveling to Venezuela, as well as their Spanish and English language use habits while in Venezuela. Finally, the learners completed an eleven-item written grammar task three times as a measure of their grammatical proficiency before and during their semester abroad (adopted from Woolsey, 2006; see Appendix E). A version of the language contact questionnaires and the grammar task were completed at each of the recording sessions, as well as one during the eighth week of the semester. The results of the grammar task were used not only to document grammar gains over the course of the semester, but also as a supplemental measure of general level of Spanish ability as was reported above.

3.3.1 Formal production task

In order to gather formal data, a contextualized reading task was adopted. This task is similar in design to what has been used in the majority of studies on Spanish intonational phonology. A contextualized reading gives the researcher the ability to control segmental and syntactic factors that are known to affect pitch movement and the readability of F0 in computer generated pitch tracks. Additionally, a reading task allows one to compare declaratives and absolute interrogatives that are lexically and syntactically alike, thus providing a comparison that is contrastive through intonation alone.

The task was presented through a PowerPoint presentation that included background information and images (cf. Henriksen et al., 2010). Due to the fact that this task requires second language production, it was important to include supplemental background information and contextual aids that go beyond typical methods of

intonational phonology. The PowerPoint presentation consisted of 84 slides divided into two sections. The first twelve slides introduced the task, provided procedure instructions, an opportunity to practice, and background information related to the conversation. The second section consisted of an ongoing conversation between the subject and his or her friend Juan. The background information of the first section used text and images to establish previous knowledge for the conversation with Juan. This knowledge included some basic information about Juan and an account of the activities that the participant had done the previous day. Consequently, each participant was prepared for his or her simulated conversation about what he or she and Juan had done the previous day. For the conversation, twenty-four slides were repeated twice each for a total of 48 read sentences, one sentence per slide. Participants took a five minute break between each set. Among the twenty-four slides, there were eight broad focus declaratives, eight absolute interrogatives, and eight distracter sentences of varying type (e.g., declaratives, pronominal interrogatives, exclamations). The declaratives and absolute interrogatives formed eight nearly identical lexical pairs (see Appendix F).[10] This allowed for direct comparison during the acoustic analysis across the two sentence types. As is illustrated below, each target sentence was accompanied by text that included Juan's side of the conversation and established a specific pragmatic context for each reading. The subjects were instructed to read the target phrase aloud after reading silently the specific context.

[10] Two pairs were not entirely identical because they reflected differences in person. For one pair, *me* was used in the declarative and *le* in the interrogative. For the other, *fui* was used in the declarative and *fue* in the interrogative. These minor differences did not affect the comparability of the intonation of the phrases.

(1) Sample lexical pair: *Leían una novela.*

a. Declarative

Contexto: Juan te pregunta "¿Qué hacían Samuel y Mariana mientras buscabas Harry Potter?"

Respondes: "Leían una novela."

b. Absolute interrogative

Contexto: Juan dice que sí nadaban, pero cuando él regresó, sus amigos ya no estaban en el mar.

Le preguntas: "¿Leían una novela?"

3.3.2 Informal production task

The informal production task is somewhat atypical in terms of Spanish intonation research. In order to encourage the subjects to produce more spontaneous data, which would require focus on meaning and attention on accomplishing the task at hand, an interactive game was designed. Much like the game that is commonly referred to as *twenty questions,* the objective of the game was for one participant to figure out the famous person, place, or thing that is known to the other participant. Simonet (2009) also used a version of twenty questions to elicit yes-no questions in a sociophonetic examination of Spanish-Catalan contact in Majorca, Spain. However, the interactive game of the current study was notably different from most versions of twenty questions. It was designed in a way that would elicit contributions from both speakers.

First, for all rounds of the game, the researcher provided the participants (one at a time) with a note card that contained a preselected famous person, place, or thing.

Preselection allowed the researcher to exert a certain amount of control over the game in hopes of more uniformity in terms of topics, difficulty, and duration. After the note card was distributed, the holder of the note card was given a few seconds to acquaint him or herself with the person, place, or thing and to think of potential hints to give the guesser. The guesser was then instructed to begin the game by asking yes-no questions to narrow down the field of possibilities. The hint giver would then respond either yes or no and would have the opportunity to provide a hint, which may be based on the question asked, or completely unrelated. The guesser was also told he or she could request a hint if and when feeling stuck.[11] The participants were instructed to let the conversation flow naturally with hints and questions when appropriate. The participants would proceed with hints and questions until the question asker discovered the correct answer. In this way, this interactive game could be considered an information-gap activity, because the learners were encouraged to cooperate and negotiate for meaning toward a common end (see Ellis & Barkhuizen, 2005 for a discussion on using information-gap activities to elicit learner data).

3.3.3 Recording procedure

Both the contextualized reading task and the hint/question game were recorded using a Marantz PMD 660 professional solid state digital recorder and a pair of Shure SM10A head-worn dynamic microphones sampled at 48K in .wav format. The close placement of the head-worn microphones allowed each participant's speech to be

[11] The addition of hints was made to the standard version of twenty questions in an effort to alleviate some of the pressure and difficulty of the task for the learners. The addition of hints also balanced the amount of language produced more equally between the two participants.

recorded with minimal interference from outside sources. It was especially important to minimize interference from the speech of the participants' interlocutor during the hint/question game. All recordings were acoustically analyzed using Praat, a software package designed for phonetic analysis.

3.4 Data analysis

For the production data, the target utterances of the contextualized reading task were extracted from the recordings in order to be separately analyzed with Praat. Accordingly, the analyzable broad focus declaratives and absolute interrogatives were extracted from the informal hint/question game, using caution to exclude any utterances that were not neutral in terms of focus and affective meaning. It should be noted that each target phrase of the formal task contained two lexically-stressed words, so the phrases would be marked at these locations and for boundary tones at a minimum. The labeling of the formal data followed the label system proposed by Henriksen et al. (2010), in that each declarative and absolute interrogative would have six potential targets (see Table 3.2). When present, the height of F0 in hertz was recorded at each potential target location. Each similar overall contour was grouped and tabulated for each participant.

Potential tonal target	Abbreviation
Initial Tone	IT
Prenuclear Low Tone	pL
Prenuclear High Tone	pH
Nuclear Low Tone	nL
Nuclear High Tone	nH
Final Tone	FT

Table 3.2. Potential tonal targets and abbreviations (system adapted from Henriksen et al., 2010)

The results of the English versions of the production tasks and the Venezuelan Andean control group were used to determine which contours could be attributed to native language influence and which to target language exposure while abroad. For the learners, the frequency of each contour was tabulated for each task at both recording sessions. The type and frequency of the contours of each learner were then compared longitudinally over time. This allowed the researcher to identify development at the individual level in terms of implementation of more native-like contours and/or increased consistency in intonational strategies. The use of two stylistically different tasks allowed for a comparison of stylistic variation. Finally, each learner's development was compared to their amount and quality of language contact and interaction.

Chapter 4

Results and Discussion

4.1 Introduction

As the main objective of this dissertation is to supplement the current scarcity of research on L2 Spanish intonation, the first goal of this chapter is to detail the L2 Spanish intonation results in a way that identifies and explains the major ways in which L2 Spanish intonation changes over time. This description of L2 Spanish intonational change will subsequently allow for a preliminary exploration of a few potentially important factors, namely: L1 transfer, stylistic/task variation, and native speaker interaction. The review of current literature in L2 intonation, L2 phonology, and study abroad presented in chapter 2 led to the proposal of four research questions, which are restated here for convenience:

1. How do the intonational patterns of learners of Spanish as a second language change over the course of a semester study abroad program for broad focus declaratives and absolute interrogatives?
2. How do the intonational characteristics of learners' native and target languages contribute to how their interlanguage intonation changes over time?
3. What is the relationship (if any) between task formality and production of L2 intonational patterns?
4. How does the amount and quality of native speaker interactions affect L2 intonational development?

This chapter is divided into four sections each of which corresponds to a research question. Each section not only presents the results of the tasks described in chapter 3, but also discusses these results in light of current literature. First, section 4.2 details the L2 Spanish intonation produced by the learners during the formal task and compares the results to previous research on L2 intonation. Section 4.3 presents the first language (L1) intonation results of both the learners and the native speakers of Spanish (i.e., L1 English and L1 Spanish) in order to discuss which characteristics of the learners' L2 Spanish intonation may be attributed to the learners' native and target languages. Then, section 4.4 presents the L2 Spanish intonation results of the informal task making comparisons to the formal results when appropriate in order to discuss stylistic/task variation in L2 Spanish intonation. Finally, section 4.5 presents the information gathered through the language contact questionnaires and informal conversations on the language contact and use habits of the learner participants in order to consider the importance of native speaker interaction on L2 Spanish intonational development.

4.2 Characterizing change in L2 Spanish intonation

In consideration of how the L2 Spanish intonation of the learner participants changed during their semester in Venezuela, this section begins by providing individual learner contour profiles of the L2 Spanish results of the formal intonation task. Then, it summarizes the declarative patterns used before the learners left the United States and at the end of their semester in Venezuela in order to focus on which patterns changed over time and for which learners they changed. Next, it does the same for the interrogative patterns. Then, it comments on changes in consistency of pattern use over time and

changes in pitch range. Finally, it connects these results to previous relevant empirical work on the L2 acquisition of intonation.

4.2.1 Individual learner contour profiles

The following learner contour profiles are presented in a speaker-by-speaker fashion and are based entirely on the results of the formal intonation task. Each speaker subsection describes the broad focus declarative and absolute interrogative intonation of each speaker in general terms and paying particular attention to each learner's most frequent pattern both before traveling to Venezuela (Time 1) and at the end of the semester (Time 2). The patterns were grouped together if they included the same general boundary movements and pitch accent movements (cf., Henriksen et al., 2010, p. 133). Each subsection includes figures that include a sample contour of the learner's most frequent pattern for each sentence type at each recording time, as well as box plot diagrams based on the F0 data extracted for each potential tonal target. The box plot diagrams include straight lines that were drawn connecting the means of each tonal target that was present. It is important to keep in mind that these drawn-in lines are not actual pitch tracks, but rather intended to give a representative idea of the most frequent pattern. The individual box plots within each diagram also allow one to see how variable the height of F0 was at each tonal target of the most frequent pattern. Additional example pitch tracks are occasionally provided to illustrate other noteworthy contours.

4.2.1.1 Learner 1 - Ed

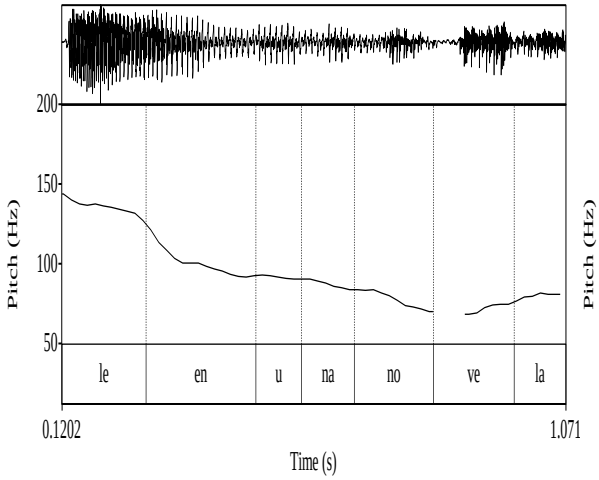
Ed's intonation in the formal task was rather inconsistent at Time 1. He employed a variety of contours in both declaratives and interrogatives. In his declaratives, he used

both rising and falling pitch accents in prenuclear position. As for his final boundary movement, his declaratives showed everything from falling to flat to rising F0. His most frequent declarative pattern started high then fell in prenuclear position, was low in nuclear position, and then rose slightly to the final tone (see Figure 4.1). 46% (6/13) of his analyzable declaratives used this pattern. Two utterances (13%) were similar to this pattern but lacked the final slight rise, which made them sound rather monotone. Ed's absolute interrogatives were also inconsistent at Time 1. While all of his fourteen analyzable interrogatives were high by the final tone, six were rather inconsistent in pitch accents before this point. Eight of the fourteen (57%), his most consistent pattern, showed rising F0 in prenuclear position, low F0 in nuclear position and a final boundary rise (see Figure 4.2).

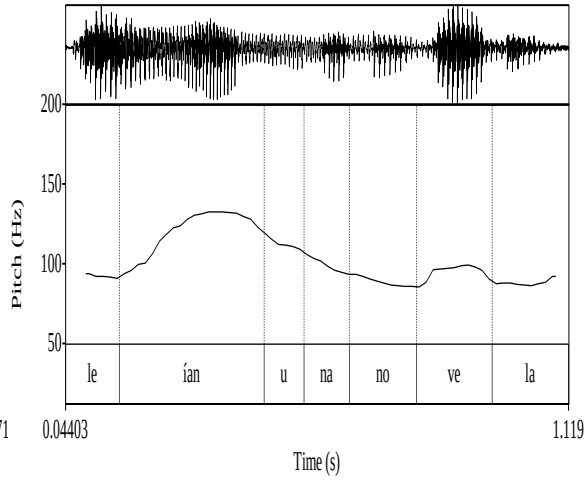
By Time 2, Ed's speech was much more fluid and consistent, as was his intonation. Whereas his most frequent declarative included a falling prenuclear accent and a slight final rise at Time 1, at Time 2 none of his declaratives had falling prenuclear accents. His most frequent pattern used rising prenuclear and nuclear pitch accents and a low final tone (see Figure 4.1). This pattern was also quite consistent, as it was produced in 88% (14/16) of his declaratives. Ed's other two declaratives showed low F0 in nuclear position (12%). His interrogatives were also remarkably more consistent. At Time 2, his most frequent pattern was employed in 94% of his interrogatives (15/16), as opposed to 57% at Time 1. Ed's most frequent Time 2 interrogative was similar in terms of contour to his most frequent pattern at Time 1 (see Figure 4.2). The box plot diagrams in Figure

4.1 represent Ed's most frequent declarative patterns and those in Figure 4.2 represent his most frequent interrogative.

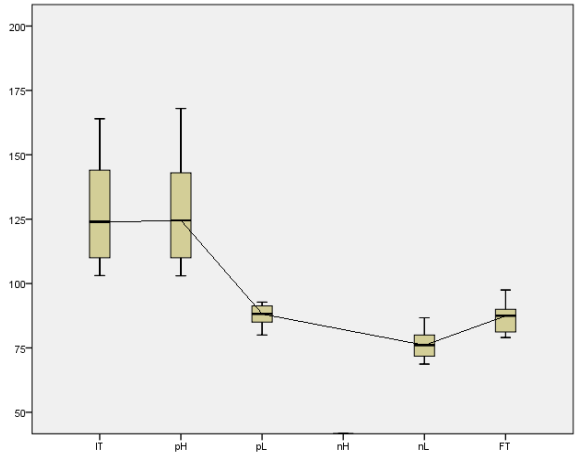
Example Declarative Time 1 - Ed
"Leían una novela."[12]



Example Declarative Time 2 - Ed
"Leían una novela."



Declaratives Time 1 - Ed
6 of 13 utterances (46%)



Declaratives Time 2 - Ed
14 of 16 utterances (88%)

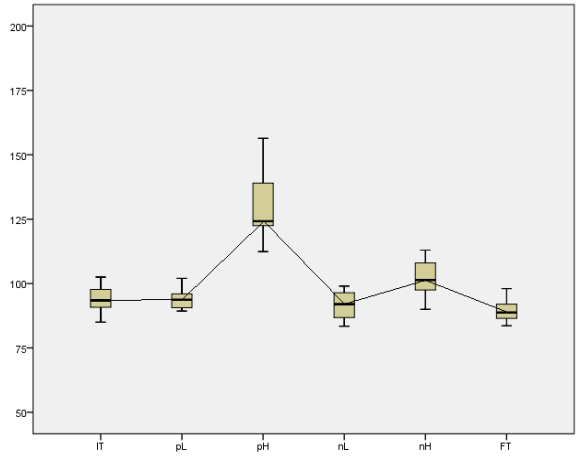
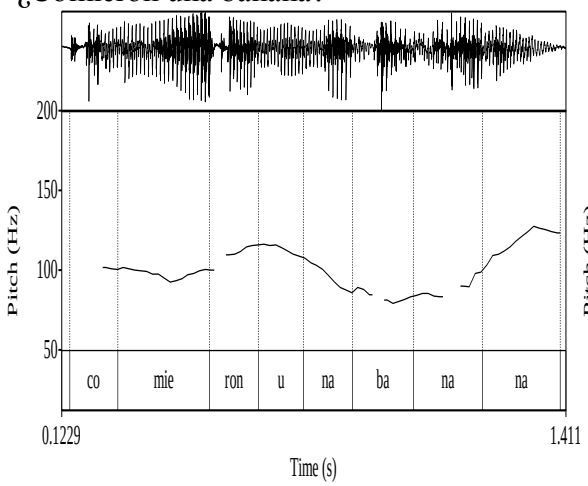


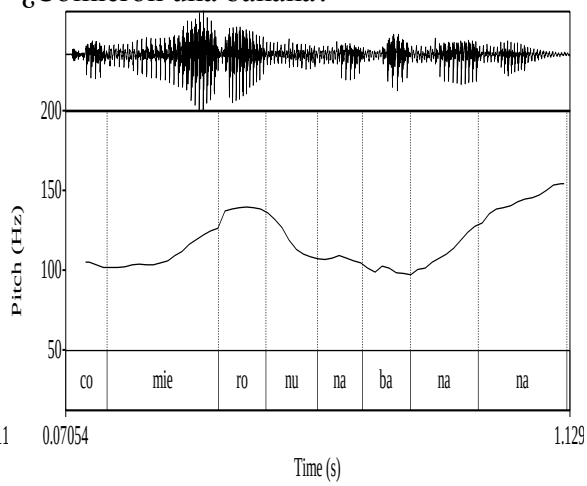
Figure 4.1. Ed's Most Frequent Declarative Pattern at Times 1 and 2

[12] In the example declarative contour of Figure 4.1, it should be noted that the learner actually pronounced [leen] instead of [leían].

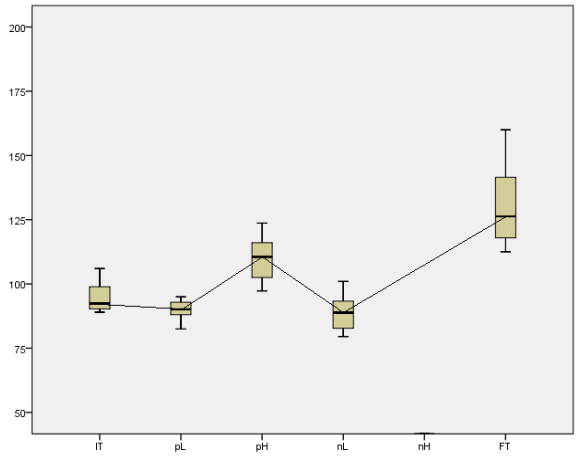
Example Interrogative Time 1 - Ed
"¿Comieron una banana?"



Example Interrogative Time 2 - Ed
"¿Comieron una banana?"



Absolute Interrogatives Time 1 - Ed
8 of 14 utterances (57%)



Absolute Interrogatives Time 2 - Ed
15 of 16 utterances (94%)

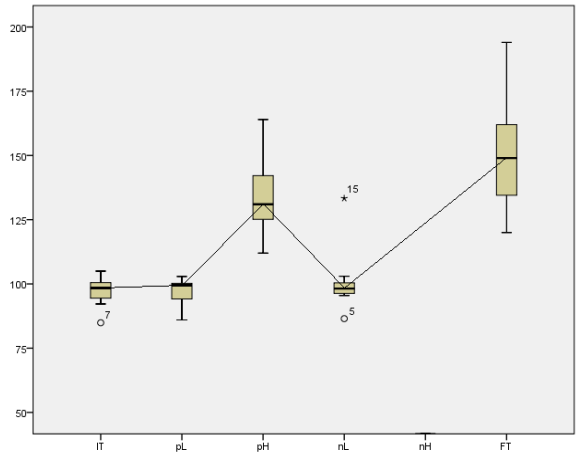


Figure 4.2. Ed's Most Frequent Absolute Interrogative Pattern at Times 1 and 2

4.2.1.2 Learner 2 - Leah

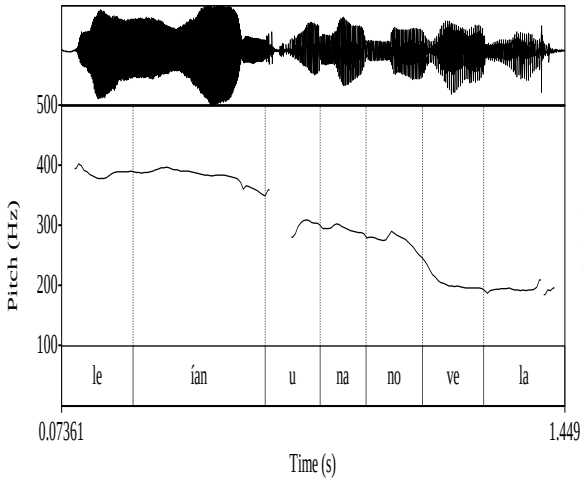
At Time 1, Leah's speech was relatively fluid and confident. Even though her utterances were not choppy, her intonation was not very consistent in terms of using a single contour type for her broad focus declaratives and absolute interrogatives. She

employed a particularly wide array of contours for the declarative phrases. Her most frequent pattern was used only 27% of the time (4/15). This pattern used a high plateau throughout prenuclear position, F0 then fell to a nuclear low tone, and remained low at the final tone (see Figure 4.3). In addition to the high plateau, rising and falling pitch accents were also common in prenuclear position. Three declaratives (20%) showed rising pitch in prenuclear position, rising pitch in nuclear position, and then low final F0. Three other declaratives used falling pitch accents in prenuclear position, low F0 in nuclear position, and then remained low to the final tone. Leah's Time 1 absolute interrogatives were somewhat more consistent at 63% (10/16). They showed a rise in prenuclear position, a low tone in nuclear position, and then a high final tone (see Figure 4.4). Also notable in Figure 4.4 is a surprisingly large box plot representing the peak of the prenuclear rise (pH) in Leah's Time 1 interrogatives. This large box plot is reflective of the fact that some of Leah's prenuclear rises peaked considerably higher than others.

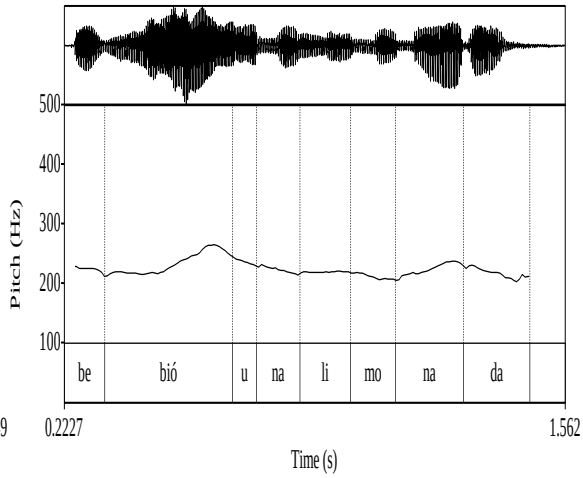
At Time 2, Leah's declaratives did not use any falling pitch accents. In contrast, she consistently used rising pitch accents in prenuclear position. Her most common pattern used rising pitch accents in both prenuclear and nuclear position followed by a low final boundary tone (see Figure 4.3). 60% of her declaratives (9/15) used this pattern. Her absolute interrogatives were also markedly different by Time 2. Her most common pattern showed rising F0 in prenuclear position and a rising-falling or circumflex nuclear pitch accent with low final F0 (see Figure 4.4). Some of these circumflex interrogatives had clear prenuclear rises followed by lower F0 leading up to the rise of the circumflex pattern. Others had low F0 through the prenuclear stressed syllable. Figure 4.5 compares

three of Leah's circumflex interrogatives and Leah's most common declarative pattern at Time 2. As is apparent in Figure 4.5, a constant feature of Leah's circumflex pattern is that its peak was considerably higher than the peaks of her declarative utterances. This circumflex boundary tone was used in 50% of Leah's Time 2 absolute interrogatives (8/16). Seven of Leah's interrogatives (44%) used the prenuclear rise, nuclear low, high final tone pattern similar to her most common pattern at Time 1. The box plot diagrams in Figures 4.3 and 4.4 contrast Leah's most common declarative and interrogative patterns respectively.

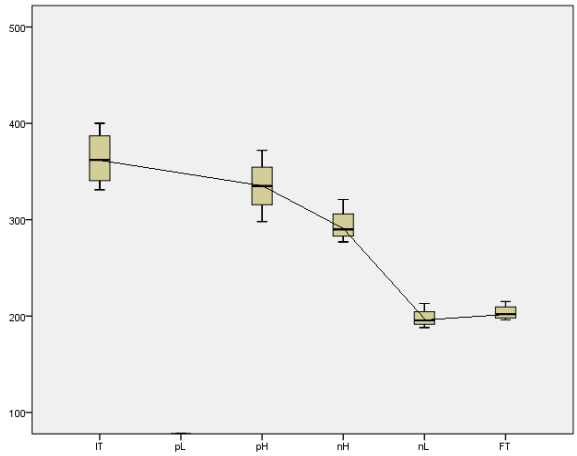
Example Declarative Time 1 - Leah
"Leían una novela."



Example Declarative Time 2 - Leah
"Bebió una limonada."



Declaratives Time 1 - Leah
4 of 15 utterances (27%)



Declaratives Time 2 - Leah
9 of 15 utterances (60%)

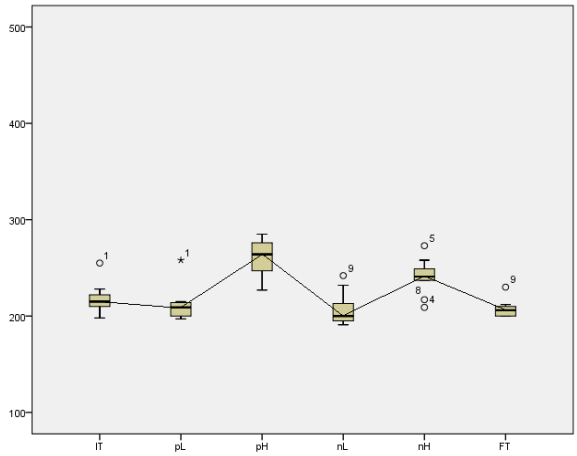
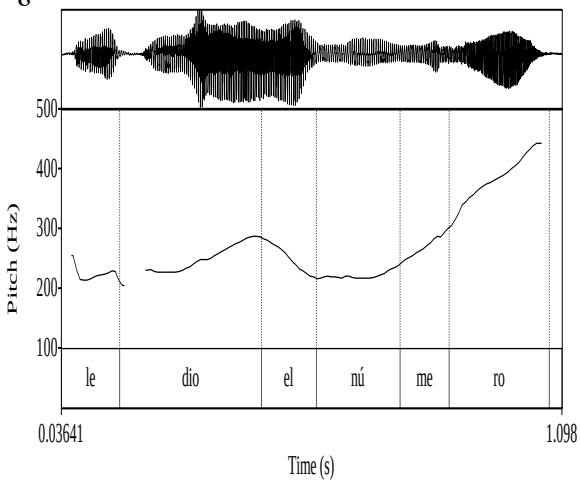
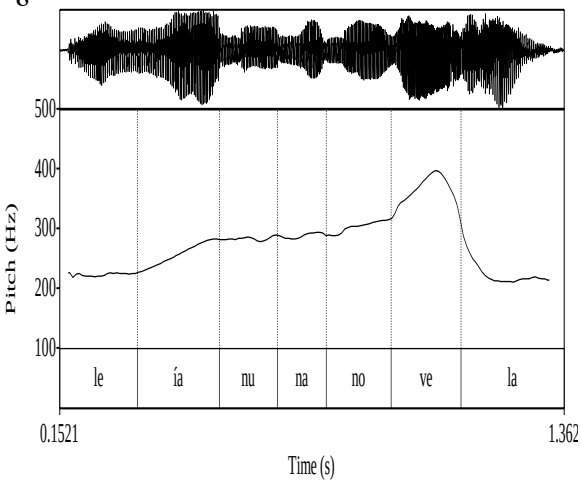


Figure 4.3. Leah's Most Frequent Declarative Pattern at Times 1 and 2

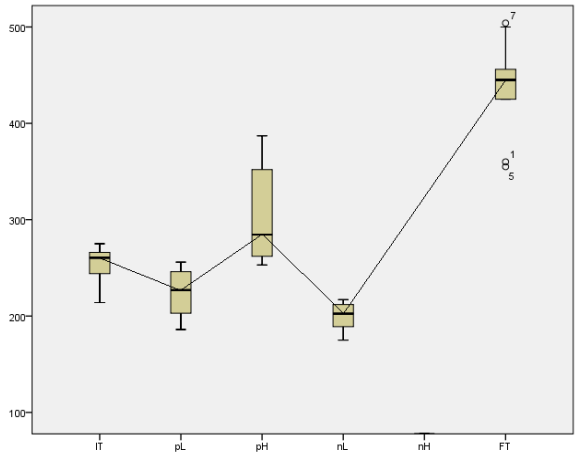
Example Interrogative Time 1 - Leah
"¿Le dio el número?"



Example Interrogative Time 2 - Leah
"¿Leían una novela?"



Absolute Interrogatives Time 1 - Leah
10 of 16 utterances (63%)



Absolute Interrogatives Time 2 - Leah
8 of 16 utterances (50%)

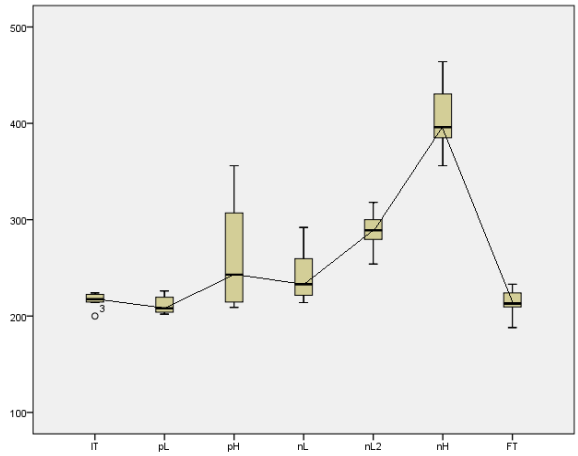
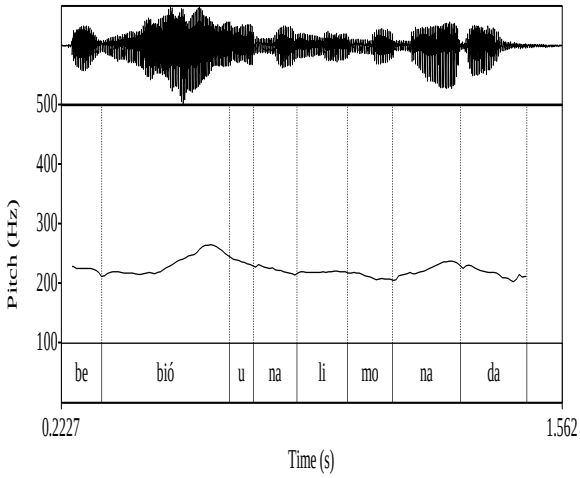
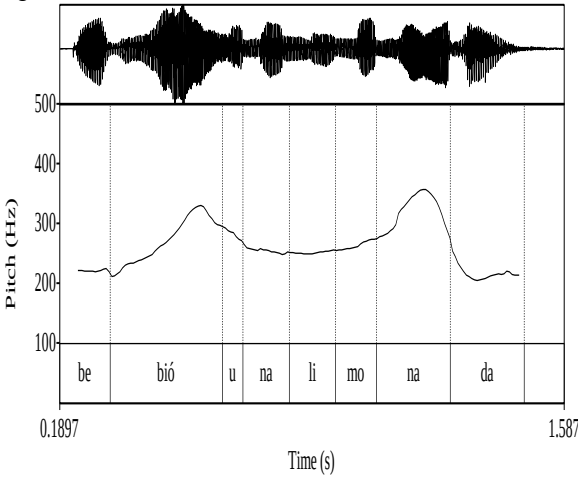


Figure 4.4. Leah's Most Frequent Absolute Interrogative Pattern at Times 1 and 2

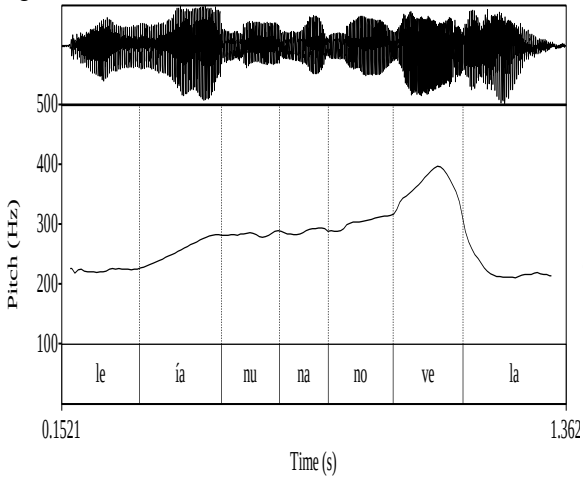
Example Declarative Time 2 - Leah
"Bebió una limonada."



Ex. Rise, Low, Circumflex Time 2 - Leah
"¿Bebió una limonada?"



Example Rise, Circumflex Time 2 - Leah
"¿Leían una novela?"



Example Circumflex Time 2 - Leah
"¿Salió normal?"

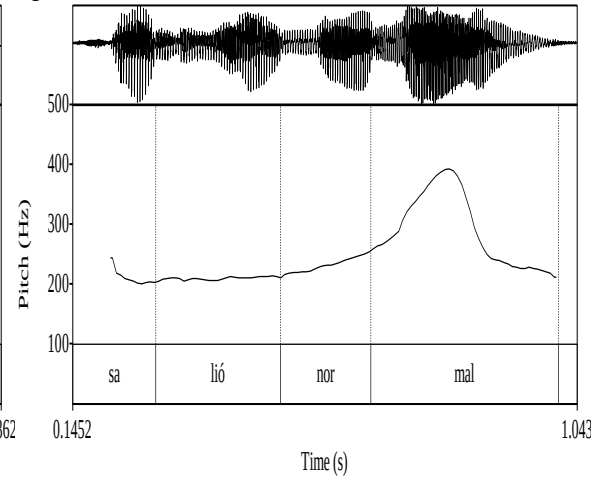


Figure 4.5. Comparison of Leah's Time 2 Declarative and Circumflex Patterns

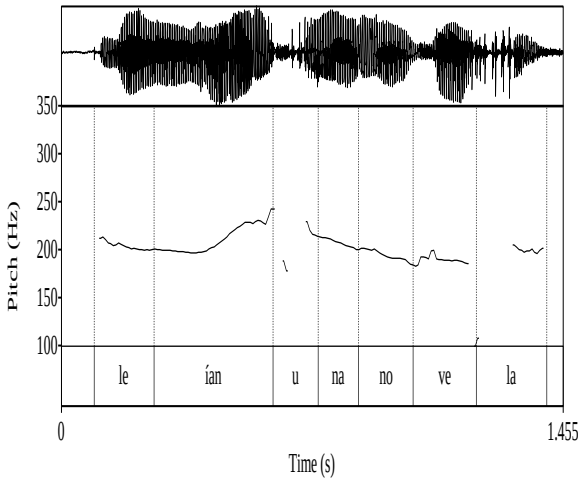
4.2.1.3 Learner 3 - Linda

At Time 1, most of Linda's production during the formal task was unsure and hesitant. Her intonation was highly inconsistent. More specifically, her statements and questions did not consistently use pitch accents in all of the locations they would be

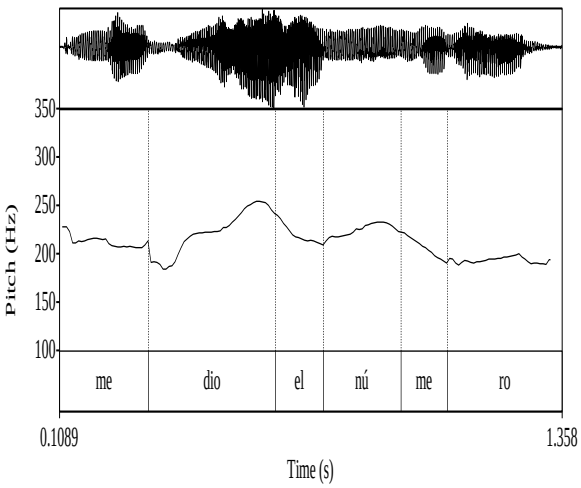
expected. Furthermore, the pitch accents that were used were inconsistent in their alignment. Her most frequent declarative pattern used a rising pitch accent to mark the prenuclear stressed syllable, F0 was low in the nuclear stressed syllable, and then remained flat to the boundary tone (see Figure 4.6). This contour was produced in 36% (4/11) of her analyzable declaratives. Only 18% (2/11) of her declaratives used a rising pitch accent with the nuclear stressed syllable. One utterance (9%) used a final boundary rise. As for her absolute interrogatives, her most frequent contour employed a prenuclear rising pitch accent, had low F0 in nuclear position, and then rose to the final tone (see Figure 4.7). This pattern was produced in 57% (8/14) of her analyzable interrogatives.

By Time 2, both Linda's declaratives and her interrogatives consistently used rising pitch accents in prenuclear position. Her declaratives also more frequently contained rising pitch accents on the nuclear stressed syllable. The alignment of her pitch accents was also much more consistent in that her rises routinely began at the onset of the stressed syllable. Her most frequent declarative pattern, which was produced in 67% of cases (10/15), consisted of rising pitch accents on both stressed syllables followed by a low boundary tone (see Figure 4.6). Linda's most frequent absolute interrogative pattern at Time 2 was the same general pattern as Time 1 (see Figure 4.7). However, at 88% (14/16), this contour was produced much more consistently. The box plot diagrams in Figure 4.6 represent Linda's most frequent declarative patterns and those in Figure 4.7 represent her most frequent interrogatives.

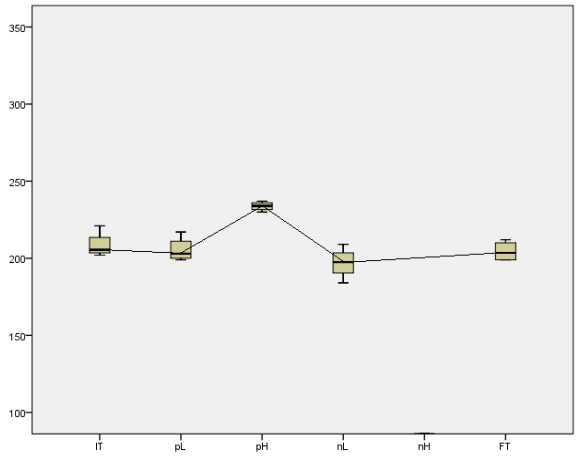
Example Declarative Time 1 - Linda
"Leían una novela."



Example Declarative Time 2 - Linda
"Me dio el número."



Declaratives Time 1 - Linda
4 of 11 utterances (36%)



Declaratives Time 2 - Linda
10 of 15 utterances (67%)

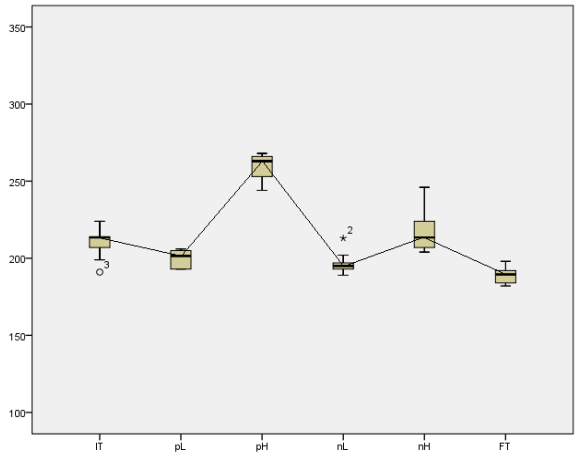
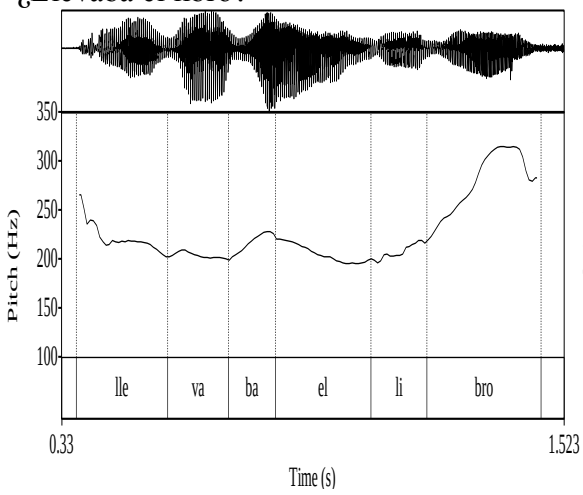
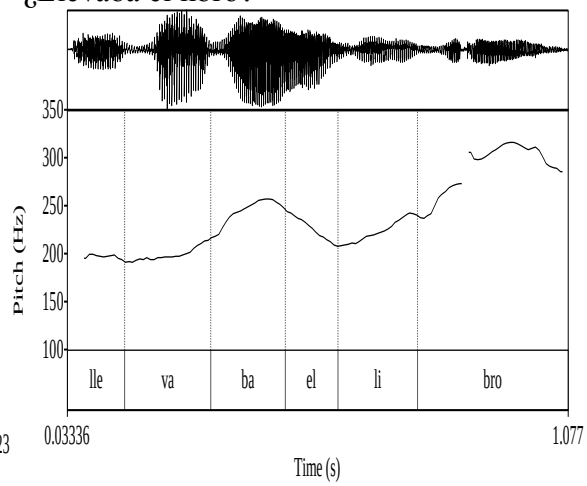


Figure 4.6. Linda's Most Frequent Declarative Pattern at Times 1 and 2

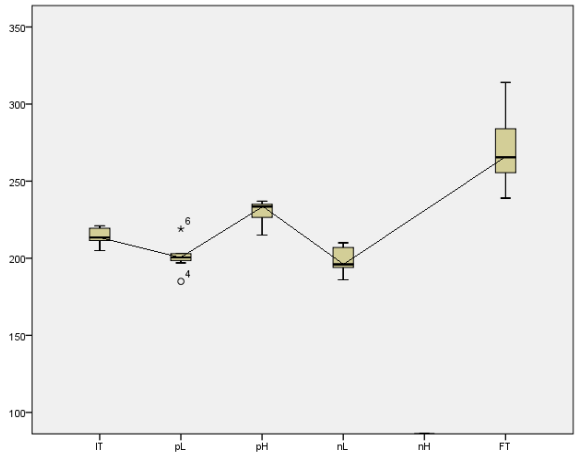
Example Interrogative Time 1 - Linda
"¿Llevaba el libro?"



Example Interrogative Time 2 - Linda
"¿Llevaba el libro?"



Absolute Interrogatives Time 1 - Linda
8 of 14 utterances (57%)



Absolute Interrogatives Time 2 - Linda
14 of 16 utterances (88%)

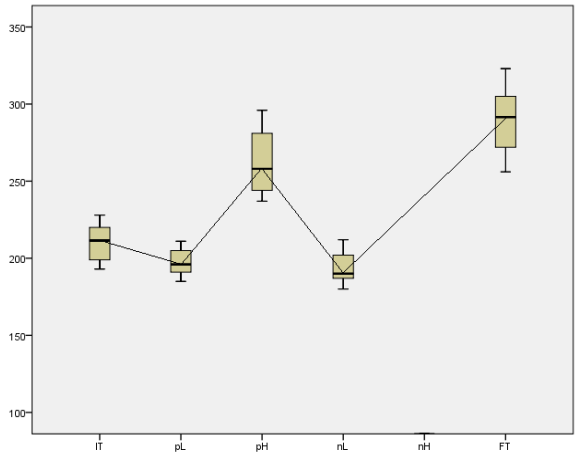


Figure 4.7. Linda's Most Frequent Absolute Interrogative Pattern at Times 1 and 2

4.2.1.4 Learner 4 - Kayla

At Time 1, Kayla's speech was choppy and hesitant during the formal task. Likewise, her intonation lacked consistency. First, like Linda, both her statements and questions did not consistently show pitch accents where they might be expected. While

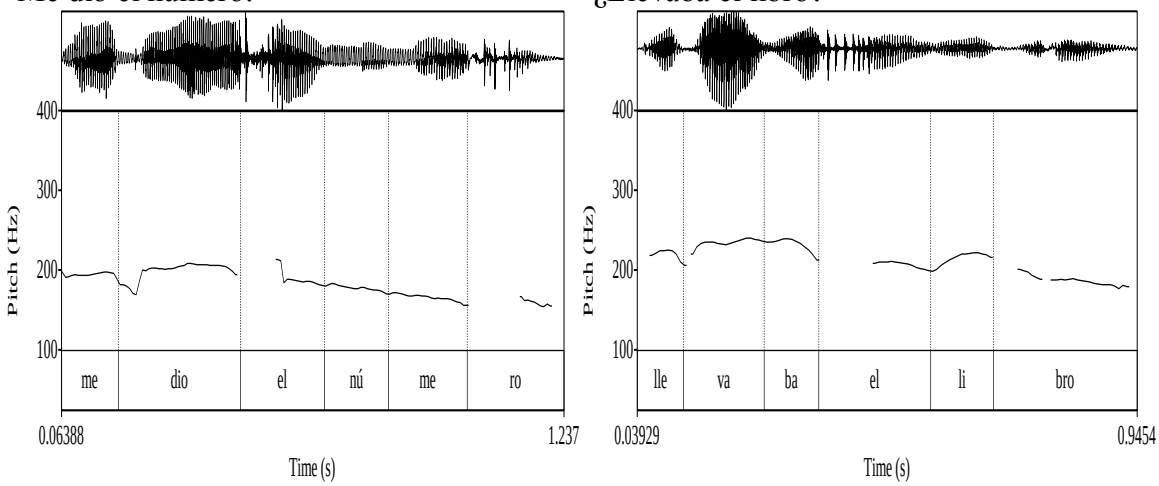
her most frequent declarative and interrogative patterns did use rising prenuclear pitch accents, the alignment of these rises was inconsistent. Moreover, F0 was often flat or falling in prenuclear position. That being said, her most frequent declarative pattern did use a prenuclear rise, and then F0 was low through nuclear position and to the final tone (see Figure 4.8). 47% (7/15) of her analyzable declaratives used this pattern. Four of her declaratives (27%) showed rises in both prenuclear and nuclear position before a low final tone. Her most frequent absolute interrogative showed a prenuclear rise, low F0 in nuclear position, and then rose to the final tone (see Figure 4.9). This pattern was produced in 56% (9/16) of her analyzable interrogatives.

Kayla's formal task intonation was much more consistent by Time 2. This increase in consistency was easily noticeable in her alignment. As can be seen in the Time 2 example contours in Figures 4.8 and 4.9, the vast majority of her tones were anchored at the onset of stressed syllables. Furthermore, there was a significant increase in the frequency of her most frequent patterns for both declaratives and interrogatives. In the case of the declaratives, her most frequent pattern was employed in eleven of fifteen (73%) analyzable utterances. Additionally, this pattern employed rising pitch accents in both prenuclear and nuclear position before a low final tone (see Figure 4.8), while her most frequent pattern (47%) at Time 1 did not use a rise in nuclear position. At Time 2, only two (13%) of her declaratives used this flat nuclear pattern. Her most frequent interrogative pattern was similar in terms of its contour at Times 1 and 2 (see Figure 4.9), but was more consistent in terms of frequency moving from 56% to 73% by Time 2. Notably, along with prenuclear rises, Kayla's other four interrogatives used circumflex

patterns in nuclear position. Figure 4.10 shows an example circumflex interrogative and a box plot diagram representing her four circumflex pitch tracks. A final noteworthy point is that her overall average pitch seems to be higher by Time 2. In her most frequent patterns, the mean F0 of the recorded tones at Time 1 was 179 for declaratives and 199 for interrogatives. At Time 2, the means were 214 for declaratives and 249 for interrogatives. The box plot diagrams of figures 4.8 and 4.9 represent Kayla's most frequent declarative and interrogative patterns respectively and show higher overall pitch at Time 2.

Example Declarative Time 1 - Kayla
"Me dio el número."

Example Declarative Time 2 - Kayla
"¿Llevaba el libro?"



Declaratives Time 1 - Kayla
7 of 15 utterances (47%)

Declaratives Time 2 - Kayla
11 of 15 utterances (73%)

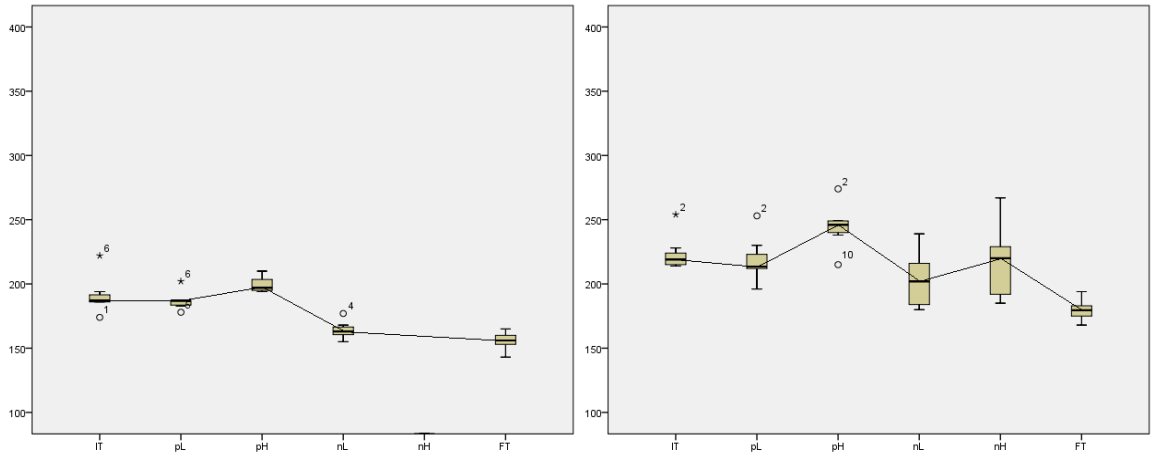
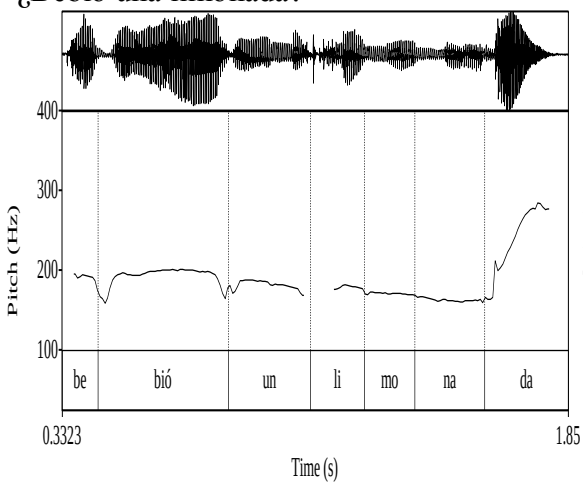
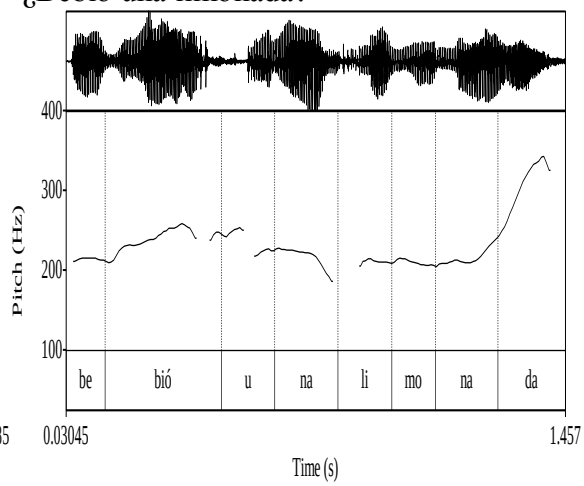


Figure 4.8. Kayla's Most Frequent Declarative Pattern at Times 1 and 2

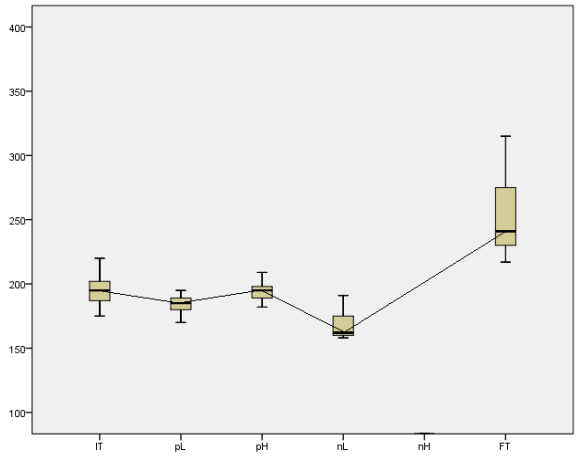
Example Interrogative Time 1 - Kayla
"¿Bebió una limonada?"[13]



Example Interrogative Time 2 - Kayla
"¿Bebió una limonada?"



Absolute Interrogatives Time 1 - Kayla
9 of 16 utterances (56%)



Absolute Interrogatives Time 2 - Kayla
11 of 15 utterances (73%)

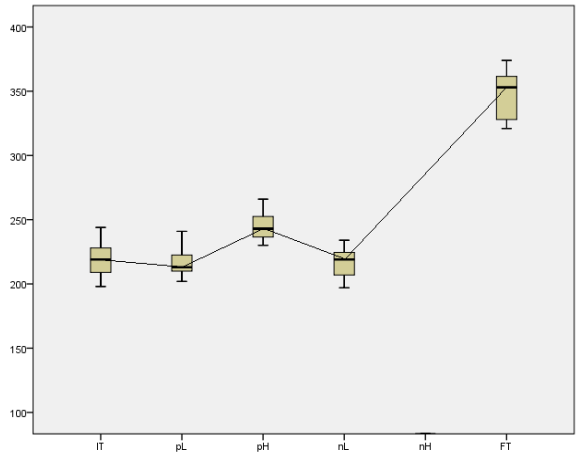


Figure 4.9. Kayla's Most Frequent Absolute Interrogative Pattern at Times 1 and 2

[13] It should be noted that Kayla pronounced "un limonada" instead of "una limonada".

Example Circumflex Time 2 - Kayla
"¿Salió normal?"

Circumflex Interrogatives Time 2 - Kayla
4 of 15 utterances (27%)

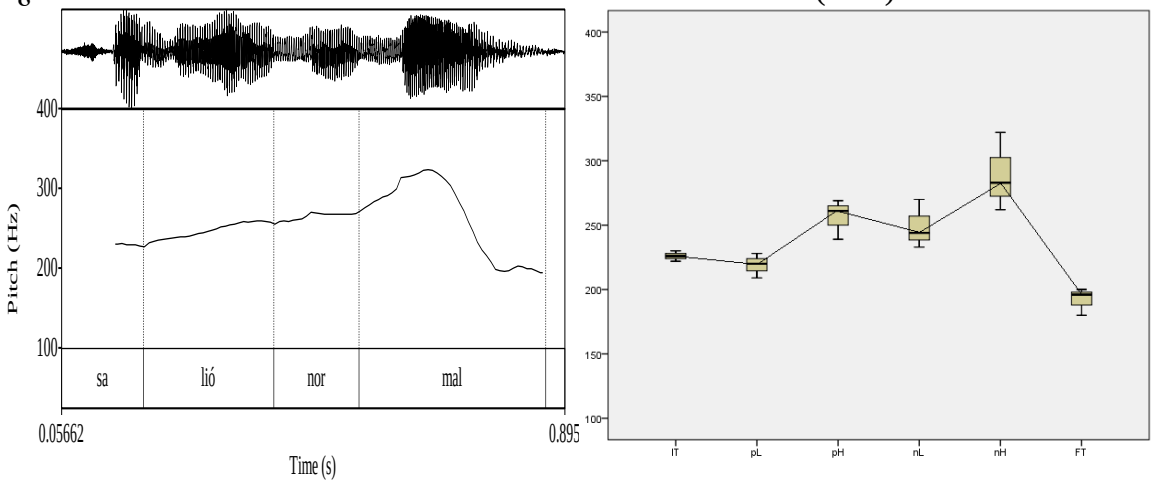


Figure 4.10. Kayla's Circumflex Absolute Interrogatives at Time 2

4.2.1.5 Learner 5 - Gavin

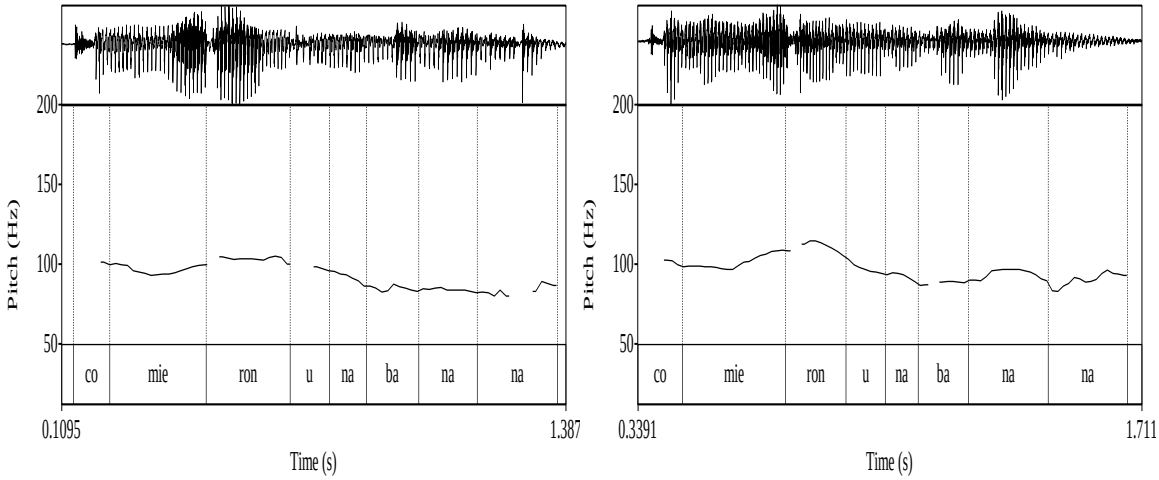
At Time 1, the majority of Gavin's declaratives and absolute interrogatives used rising pitch accents to mark the prenuclear stressed syllable. However, his intonation was less consistent in nuclear position. After the rising prenuclear pitch accent, his most frequent declarative pattern showed low F0 during the nuclear stressed syllable and remained flat to the boundary tone (see Figure 4.11). This contour was produced in 54% (6/11) of his analyzable declaratives. The other 46% (5/11) showed very subtle rises at the nuclear stressed syllable. As for his interrogatives, his most frequent contour included a prenuclear rising pitch accent, low F0 in nuclear position, which began rising toward a high final tone around the nuclear stressed syllable (see Figure 4.12). This pattern was produced in 75% (12/16) of his interrogatives. Of the other four interrogatives, three

lacked discernible pitch accents in prenuclear position and one showed flat F0 in nuclear position through the boundary tone.

By Time 2, both Gavin's declaratives and interrogatives became impressively more consistent. All twelve (100%) of his analyzable declaratives used rising pitch accents in both prenuclear and nuclear position, before a low final tone (see Figure 4.11). Additionally, his declaratives became more consistent in terms of pitch accent alignment and pitch height. The tightness of the Time 2 box plots in Figure 4.11 is reflective of this consistency in pitch height. The overall contour of Gavin's most frequent interrogative pattern was the same at Time 1 and Time 2 (see Figure 4.12). That said this pattern was used more frequently at Time 2 (87%, 13/15). The other two interrogatives (13%) used circumflex patterns in nuclear position (see Figure 4.13 for an example circumflex contour). The box plot diagrams in Figure 4.11 represent Gavin's most frequent declarative patterns and those in Figure 4.12 represent his most frequent interrogatives.

Example Declarative Time 1 - Gavin
"Comieron una banana."

Example Declarative Time 2 - Gavin
"Comieron una banana."



Declaratives Time 1 - Gavin
6 of 11 utterances (54%)

Declaratives Time 2 - Gavin
12 of 12 utterances (100%)

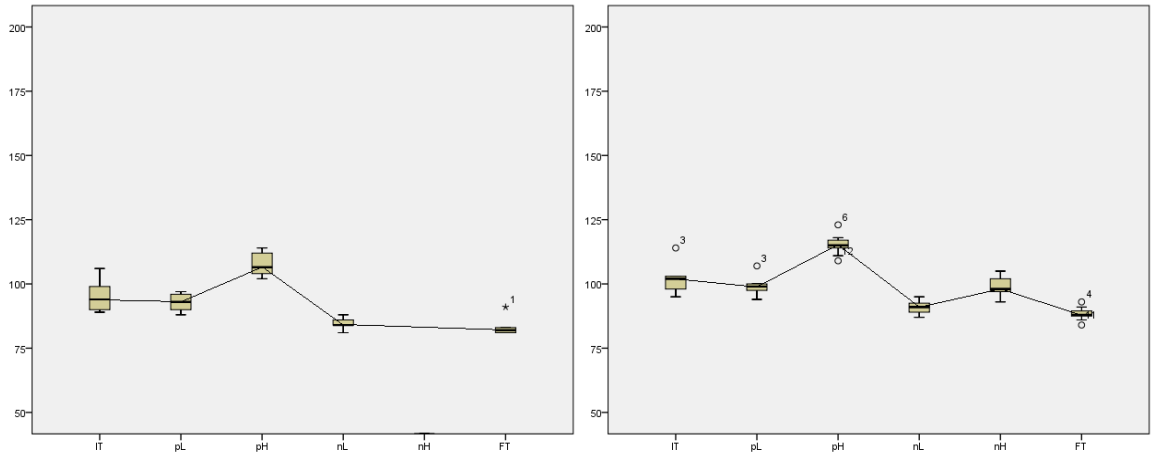
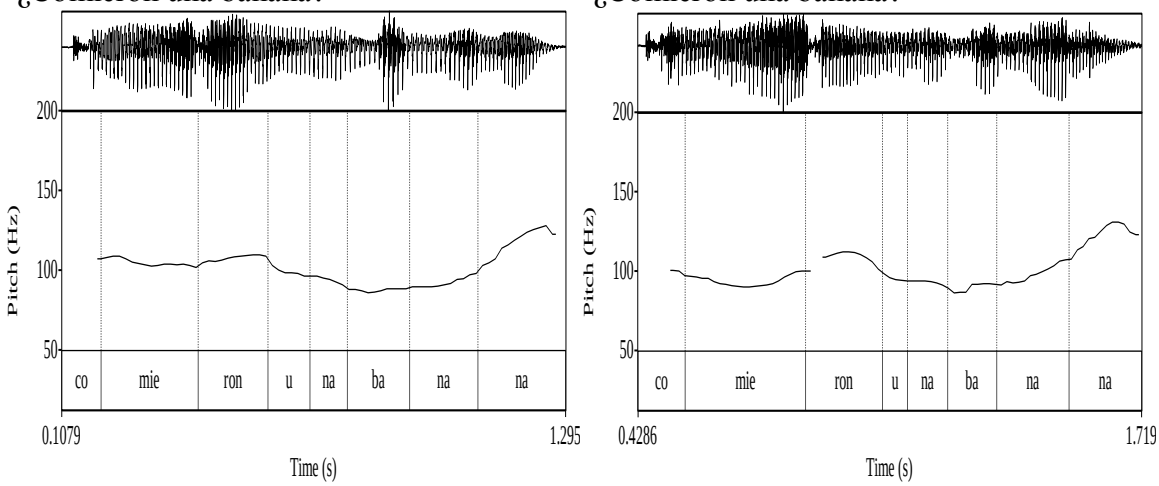


Figure 4.11. Gavin's Most Frequent Declarative Pattern at Times 1 and 2

Example Interrogative Time 1 - Gavin
"¿Comieron una banana?"

Example Interrogative Time 2 - Gavin
"¿Comieron una banana?"



Absolute Interrogatives Time 1 - Gavin
12 of 16 utterances (75%)

Absolute Interrogatives Time 2 - Gavin
13 of 15 utterances (87%)

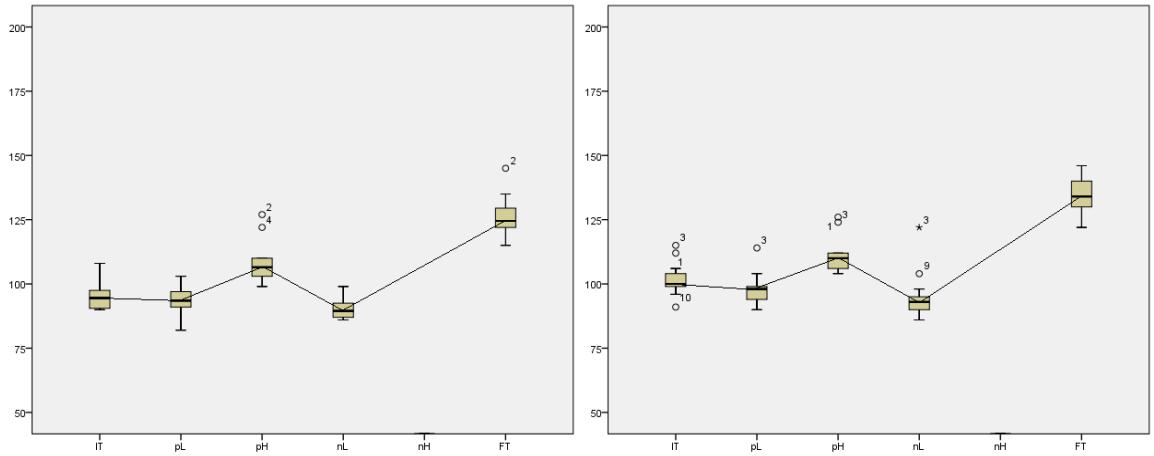


Figure 4.12. Gavin's Most Frequent Absolute Interrogative Pattern at Times 1 and 2

Example Circumflex Time 2 - Gavin
"¿Bebió una limondada?"

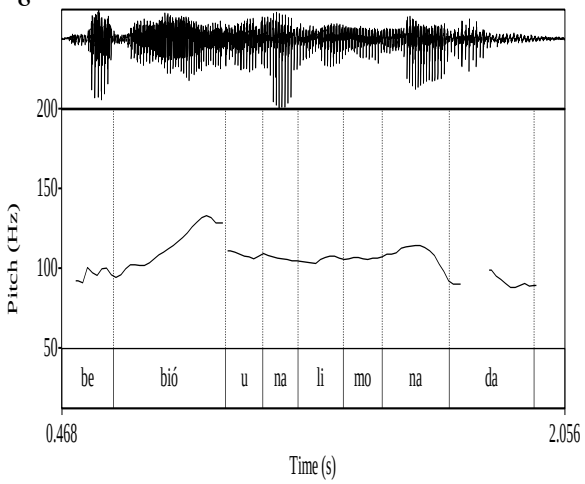


Figure 4.13. Example of Gavin's Circumflex Absolute Interrogative Time 2

4.2.1.6 Learner 6 - Anna

At Time 1, the majority of Anna's utterances used rising prenuclear pitch. This was the case for nine of thirteen analyzable declaratives and ten of fourteen interrogatives. Her other utterances had flat F0 or were falling gradually in prenuclear position. Her most common declarative pattern used the prenuclear rise followed by low F0 in nuclear position. Seven of thirteen (54%) of her analyzable declaratives also included a slight rise to the final tone (see Figure 4.14). Two more (15%) were very similar but remained flat and low through the final tone. In the seven with a slight final rise, the final tone was on average 14 Hz higher than the low nuclear tone.[14] Anna's most common interrogative pattern also used rising pitch in prenuclear position and had low

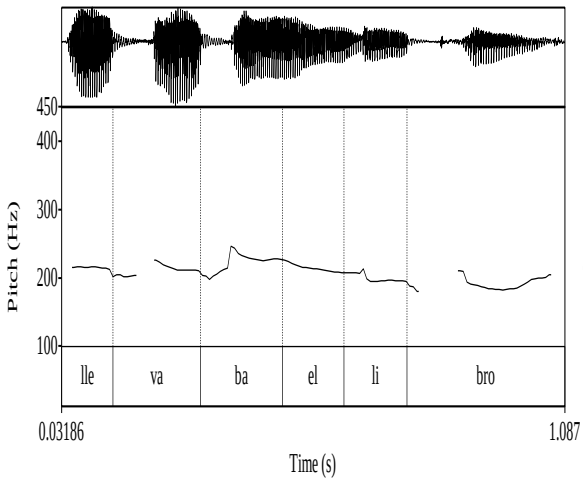
[14] Whether or not this slight final boundary rise would constitute a meaningful difference is outside of the scope of this dissertation, so these seven were considered separately from the other two considering they appear to be phonetically different.

F0 in nuclear position, but was then followed by a high final tone (see Figure 4.15). This pattern was found in 71% (10/14) of Anna's analyzable interrogatives.

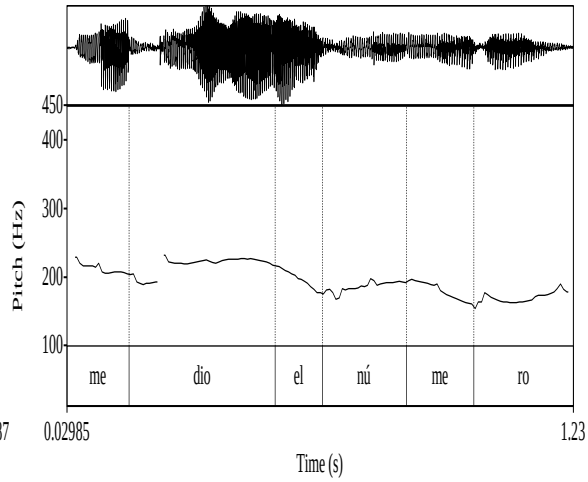
At Time 2, Anna's most frequent declarative pattern was different. Seven of sixteen (44%) of her declaratives had rising pitch accents in both prenuclear and nuclear position before a low final tone. At 44% this pattern was produced less frequently than Anna's most frequent declarative pattern at Time 1 (54%). While some of Anna's other Time 2 declaratives showed low F0 through nuclear position, none of them used the slight final rise that was characteristic of Anna's most frequent pattern at Time 1. That said, Anna did produce two declarative utterances with large final boundary rises, which was characteristic of her typical interrogative pattern.[15] As for her absolute interrogatives, her most common pattern at Time 2 was similar to her most common pattern at Time 1. This was the pattern of 81% of her analyzable interrogatives (13/16). As illustrated in the box plots that represent Anna's final tones in Figure 4.15, the height of her final tone did not vary as much at Time 2. In other words, the steepness of her final boundary rise was more consistent.

[15] These two utterances with large final boundary rises were likely misreadings of the broad focus declarative prompt.

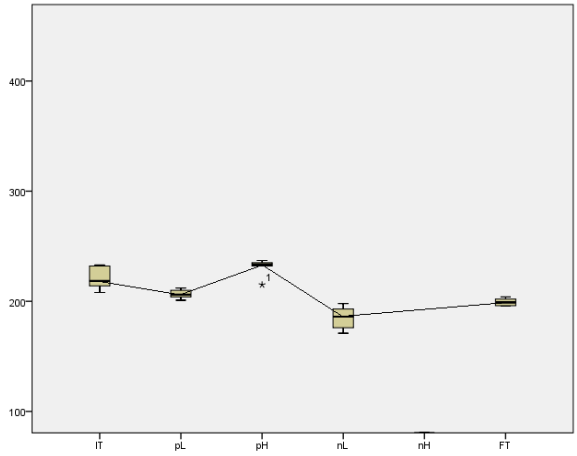
Example Declarative Time 1 - Anna
"Llevaba el libro."



Example Declarative Time 2 - Anna
"Me dio el número."



Declaratives Time 1 - Anna
7 of 13 utterances (54%)



Declaratives Time 2 - Anna
7 of 16 utterances (44%)

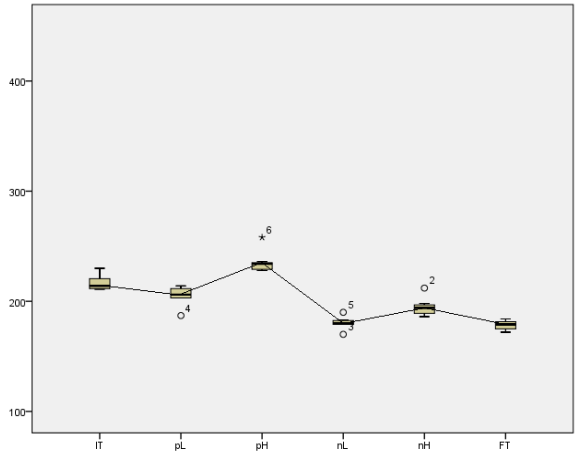
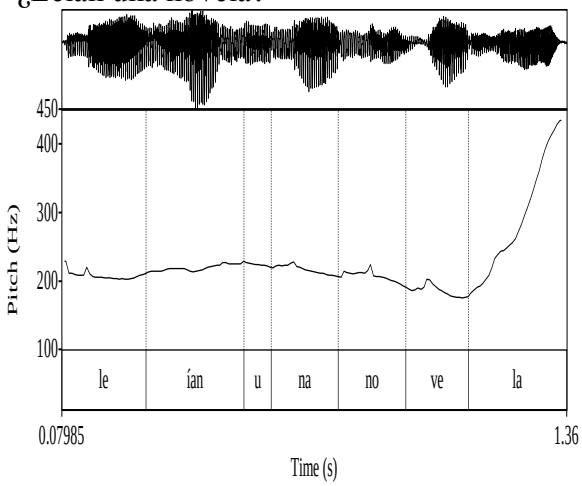
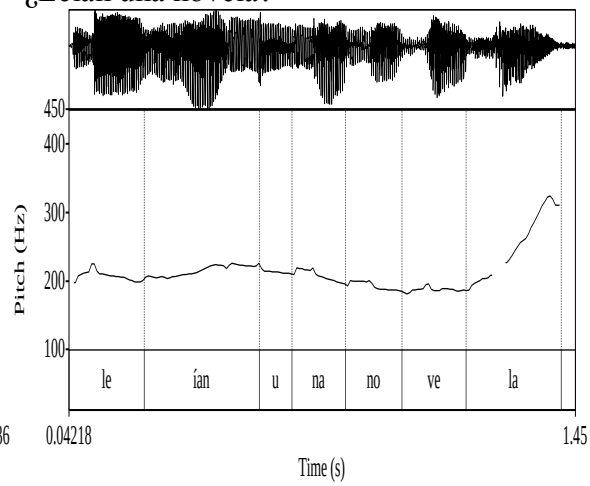


Figure 4.14. Anna's Most Frequent Declarative Pattern at Times 1 and 2

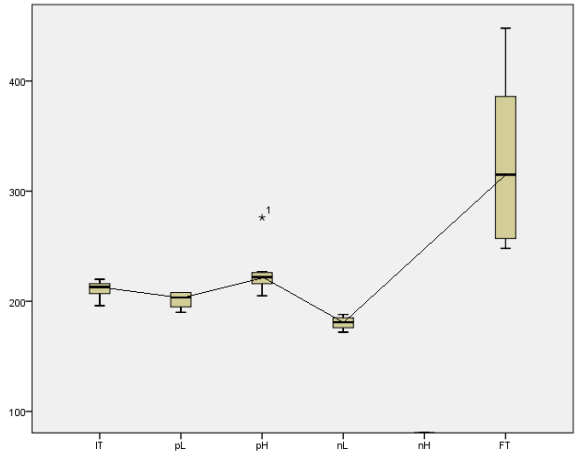
Example Interrogative Time 1 - Anna
"¿Leían una novela?"



Example Interrogative Time 2 - Anna
"¿Leían una novela?"



Interrogatives Time 1 - Anna
10 of 14 utterances (71%)



Interrogatives Time 2 - Anna
13 of 16 utterances (81%)

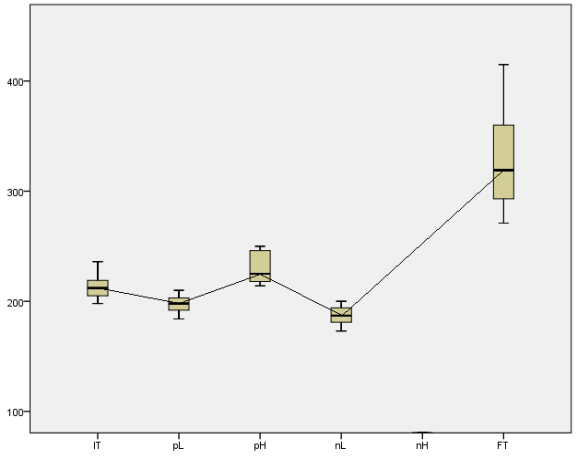


Figure 4.15. Anna's Most Frequent Absolute Interrogative Pattern at Times 1 and 2

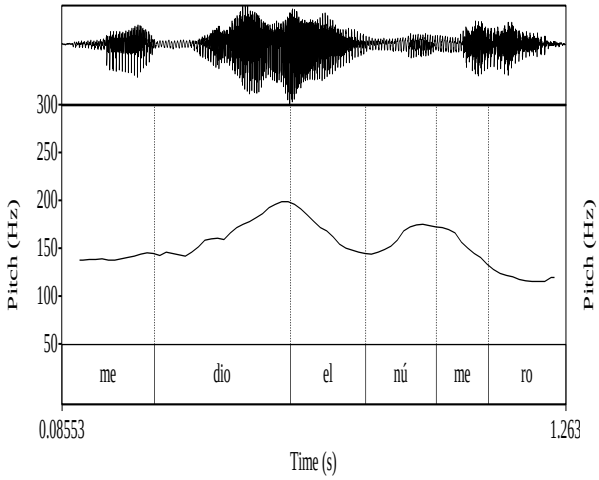
4.2.1.7 Learner 7 - Matt

Matt's speech production was fairly fluid and confident at Time 1. His intonation also reflected a higher ability and more confidence than most of the learners in the sense that it sounded more natural. More specifically, his alignment was more consistent at Time 1 than many other learners. However, he was not very consistent in his employment

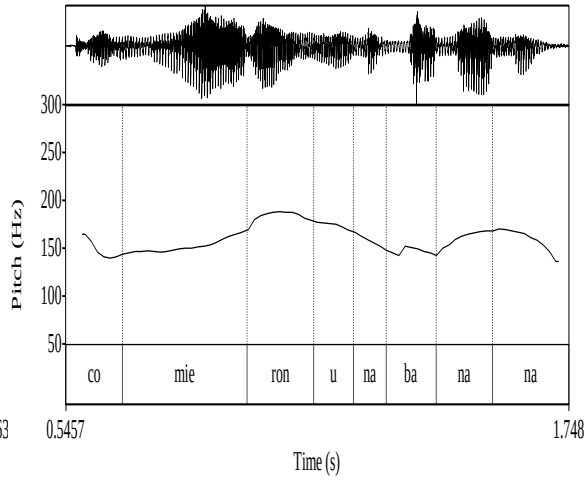
of a particular pattern type for declaratives and interrogatives. He used rising, falling, as well as flat pitch movements in prenuclear and nuclear position for his declaratives. His most common declarative pattern had clear rising pitch accents in prenuclear and nuclear position, and a low final tone (see Figure 4.16). Figure 4.16 also shows downstepping, as the nuclear peak of this pattern was consistently lower than the prenuclear peak. Despite the consistency within this pattern, it was only employed in seven of Matt's fifteen analyzable declaratives (47%). His Time 1 interrogatives were similar in terms of the consistency of their alignment and in the fact that the most frequent pattern was employed in less than half his analyzable interrogatives (42%). Five interrogatives showed clear prenuclear rises, low nuclear F0, and a high final tone (see Figure 4.17). The box plots of Figure 4.17 also show relative consistency in terms of pitch height.

Matt's intonational production was not markedly different at Time 2. Like Time 1, his most frequent declarative pattern used rising prenuclear and nuclear pitch accents with downstepping, before a low final tone (see Figure 4.16). The rate at which he produced this pattern only increased slightly from 47% at Time 1 to 53% at Time 2. Similarly, his most frequent interrogative pattern was generally the same pattern type at Time 1 and Time 2 (see Figure 4.17). This pattern increased in frequency from 42% to 62% at Time 2.

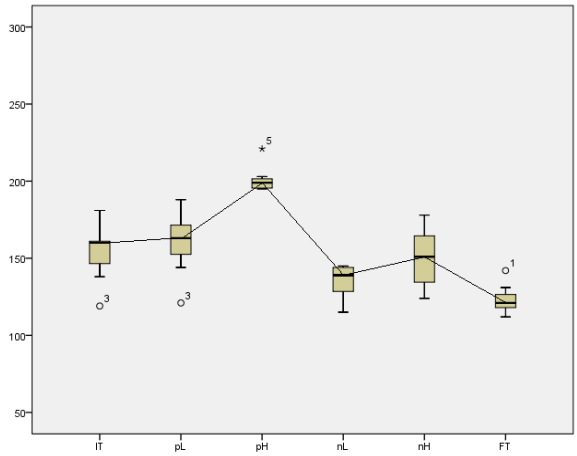
Example Declarative Time 1 - Matt
"Me dio el número."



Example Declarative Time 2 - Matt
"Comieron una banana."



Declaratives Time 1 - Matt
7 of 15 utterances (47%)



Declaratives Time 2 - Matt
8 of 15 utterances (53%)

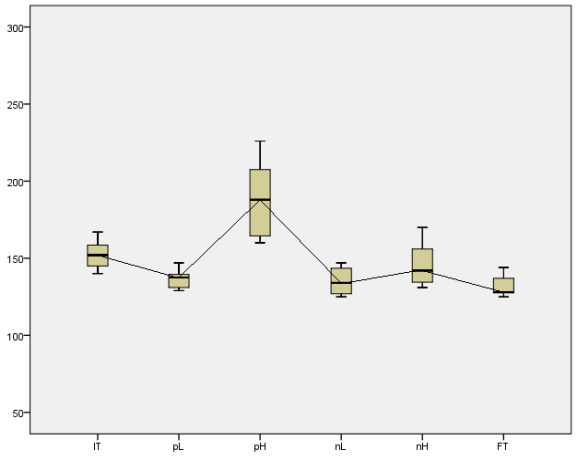
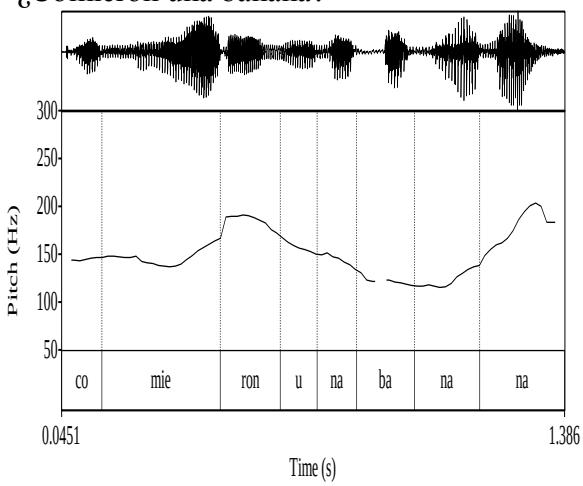
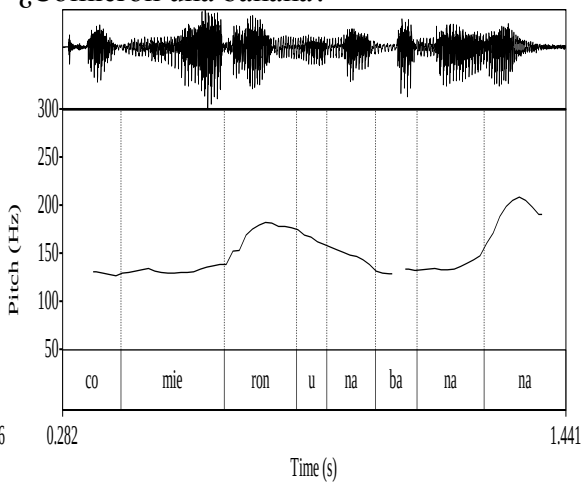


Figure 4.16. Matt's Most Frequent Declarative Pattern at Times 1 and 2

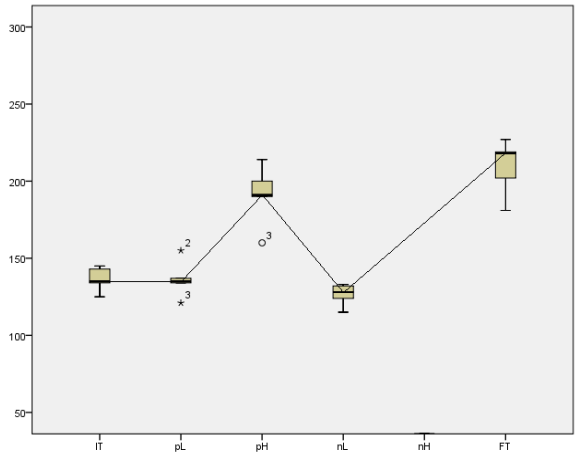
Example Interrogative Time 1 - Matt
"¿Comieron una banana?"



Example Interrogative Time 2 - Matt
"¿Comieron una banana?"



Absolute Interrogatives Time 1 - Matt
5 of 12 utterances (42%)



Absolute Interrogatives Time 2 - Matt
10 of 16 utterances (62%)

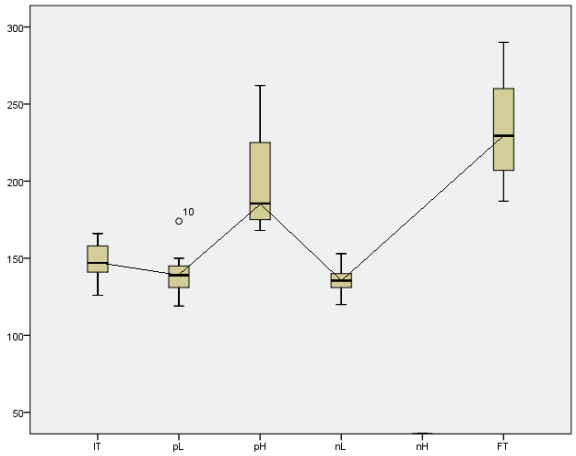


Figure 4.17. Matt's Most Frequent Absolute Interrogative Pattern at Times 1 and 2

4.2.1.8 Learner 8 - Haley

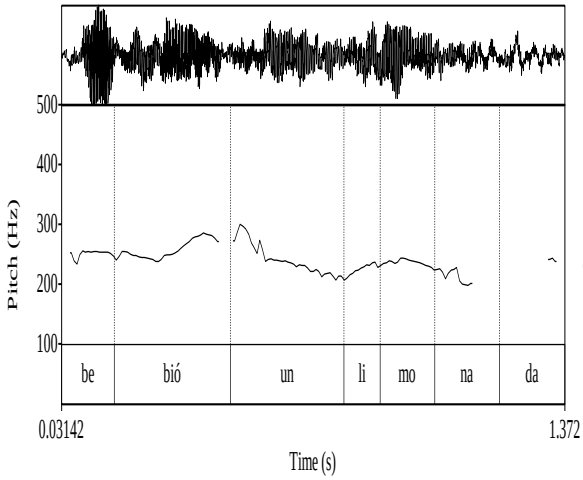
Haley's formal data was particularly difficult to analyze at Time 1. While inconsistent choppy speech and creaky voice was present at Time 1 for a few other learners, the majority of their utterances could be analyzed with confidence. In Haley's

case, even after removing four unusable utterances, her remaining Time 1 declaratives were still difficult to analyze because of creaky voice. She seems to have produced two patterns commonly. The first and most common pattern used a rising pitch accent in prenuclear position, a slight rise in nuclear position and a low final tone. That said, as can be seen in Figure 4.18, many of her declaratives were particularly creaky at the end of the utterance. It will also be noticed in Figure 4.18, that she appears to have used a rising pitch accent on the preantepenultimate syllable /li/, which is typically a stressed syllable in the English word "lemonade", although in English this word only has three syllables. This rising, rising, low pattern occurred in 42% (5/12) of her analyzable declaratives. Another four declaratives (33%) were similar in that they contained a prenuclear rise and a low final tone, but were low as opposed to rising in nuclear position. Creaky voice was not as common in Haley's Time 1 interrogatives. Her most frequent interrogative pattern showed prenuclear rises, low F0 in nuclear position and high final tones (see Figure 4.19). Thirteen of her interrogatives used this pattern (81%).

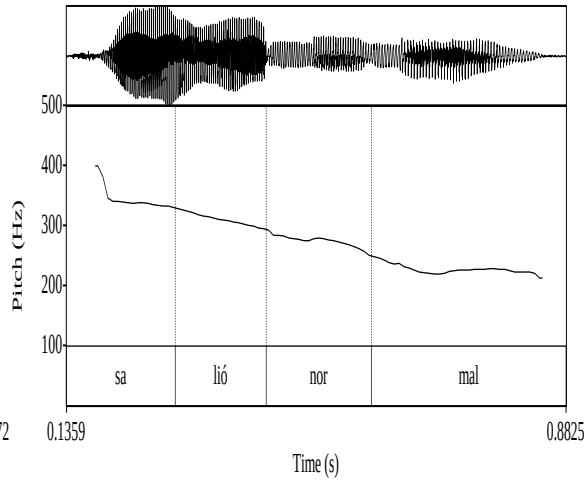
There were no issues in analyzing Haley's formal data at Time 2. In fact, all 32 declaratives and interrogatives were analyzable. Haley's most frequent declarative pattern had changed by Time 2. This pattern used falling intonation in prenuclear position, low F0 in nuclear, which stayed relatively flat until the low final tone (see Figure 4.18). Nine of sixteen (56%) of her declaratives showed this pattern. Most of her other declaratives used prenuclear rises, but, as was the case at Time 1, some of them used nuclear rises (3/16) and some were low in nuclear position (3/16). Haley's most frequent interrogative pattern used a rising prenuclear accent, low F0 in nuclear position and a final boundary

rise (see Figure 4.19). This pattern was generally similar to the most frequent pattern at Time 1, but was even more consistent at Time 2 (94%). While the pattern was similar, the prenuclear rises were noticeably different. The peak of the Time 1 rise was much higher and sounded more exaggerated. As can be seen in Figure 4.19, the Time 1 peak was often nearly as high as the high final tone.

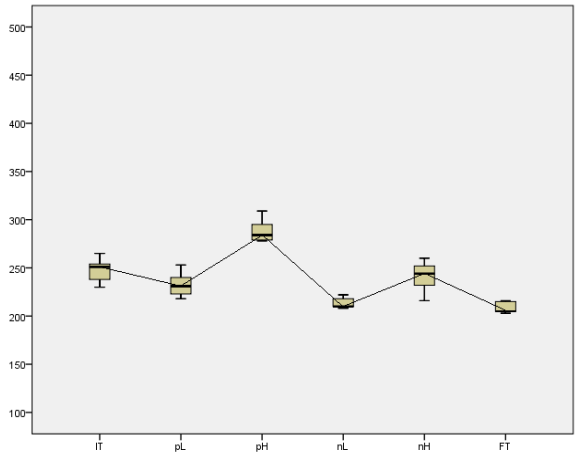
Example Declarative Time 1 - Haley
"Bebió una limonada."[16]



Example Declarative Time 2 - Haley
"Salió normal."



Declaratives Time 1 - Haley
5 of 12 utterances (42%)



Declaratives Time 2 - Haley
9 of 16 utterances (56%)

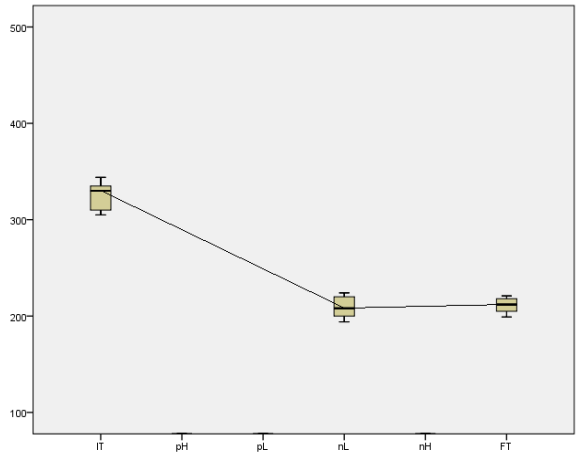
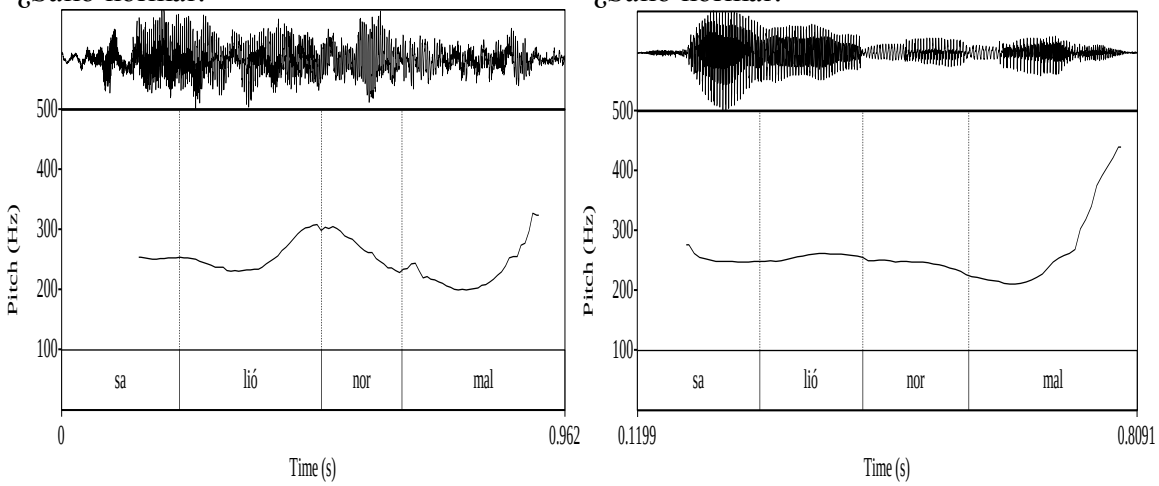


Figure 4.18. Haley's Most Frequent Declarative Pattern at Times 1 and 2

[16] It should be noted that Haley pronounced "un limonada" instead of "una limonada".

Example Interrogative Time 1 - Haley
"¿Salió normal?"

Example Interrogative Time 2 - Haley
"¿Salió normal?"



Absolute Interrogatives Time 1 - Haley
13 of 16 utterances (81%)

Absolute Interrogatives Time 2 - Haley
15 of 16 utterances (94%)

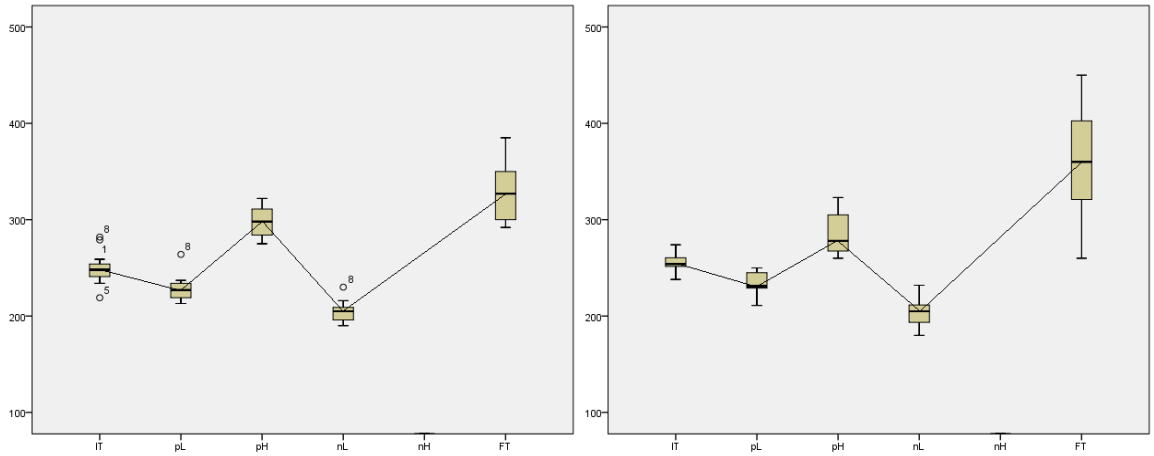


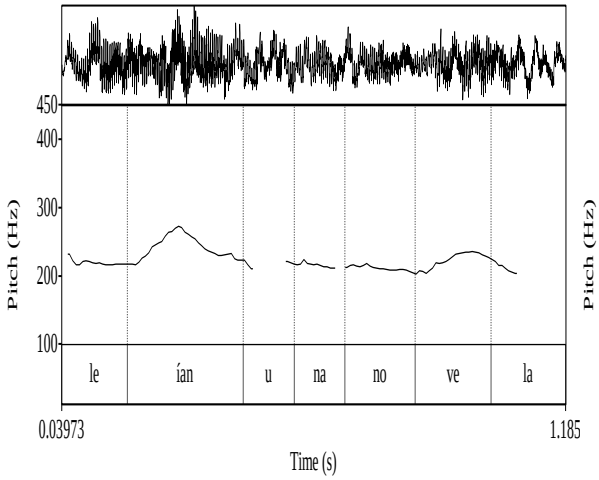
Figure 4.19. Haley's Most Frequent Absolute Interrogative Pattern at Times 1 and 2

4.2.1.9 Learner 9 - Emma

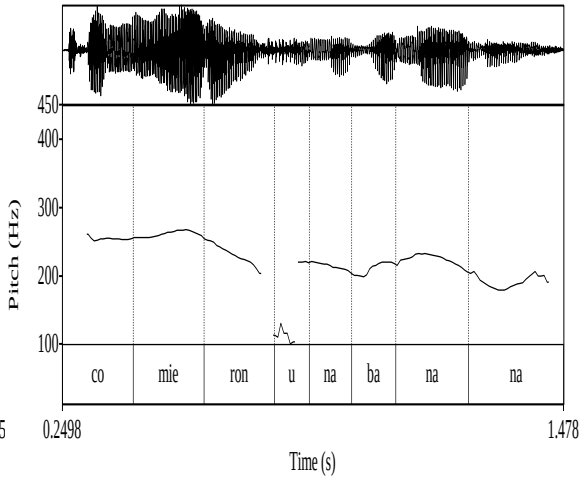
Emma's formal task production was similar to Matt's formal task production. At Time 1, Emma's production and intonation were relatively fluid and her alignment was already fairly consistent. However, like Matt, she used a variety of declarative patterns

and was not overly consistent in her interrogative patterns. Her most frequent Time 1 declarative pattern used rising prenuclear and nuclear pitch accents and a low final tone (see Figure 4.20). Her most frequent interrogative pattern had a prenuclear rise, a low nuclear tone, and a high final tone (see Figure 4.21). Nine of fourteen analyzable interrogatives showed this pattern and the other five were similar in nuclear position but used low, flat F0 in prenuclear position. Her most frequent Time 1 pattern types were also her most frequent pattern types at Time 2. The main difference between Time 1 and Time 2 was found in the consistency of the interrogatives. Her most frequent declarative pattern only increased from 53% (8/15) to 56% (9/16) from Time 1 to Time 2 (see Figure 4.20). Her most frequent interrogative pattern was 100% (16/16) consistent at Time 2, opposed to 64% (9/14) at Time 1 (see Figure 4.21). Figure 4.21 also shows that the mean peak of the prenuclear rise of her interrogative pattern was higher at Time 2.

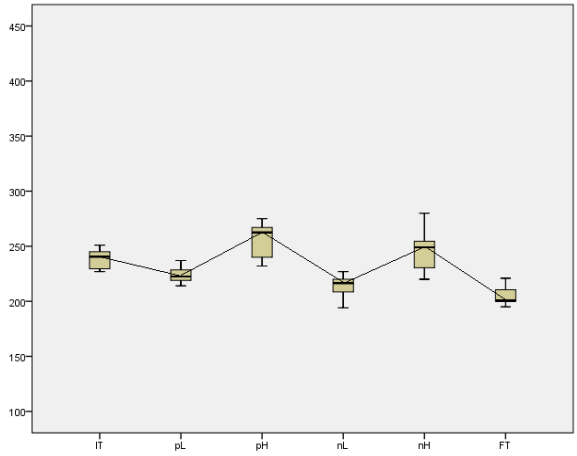
Example Declarative Time 1 - Emma
"Leían una novela."



Example Declarative Time 1 - Emma
"Comieron una banana."



Declaratives Time 1 - Emma
8 of 15 utterances (53%)



Declaratives Time 2 - Emma
9 of 16 utterances (56%)

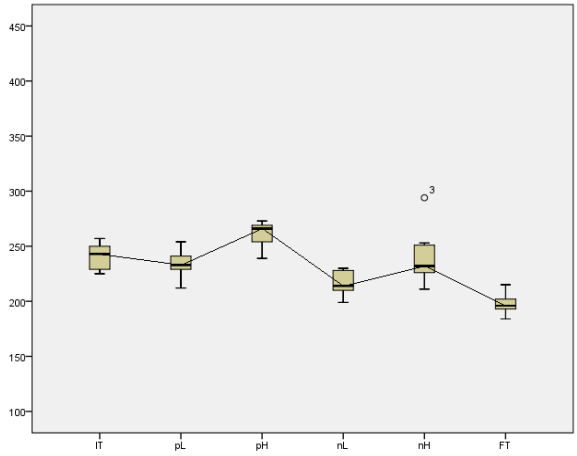
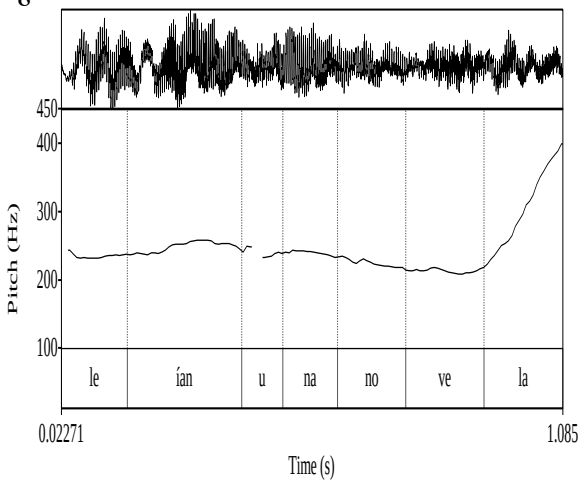
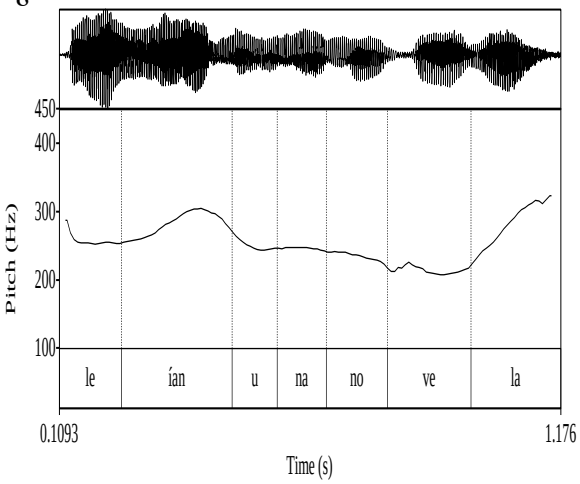


Figure 4.20. Emma's Most Frequent Declarative Pattern at Times 1 and 2

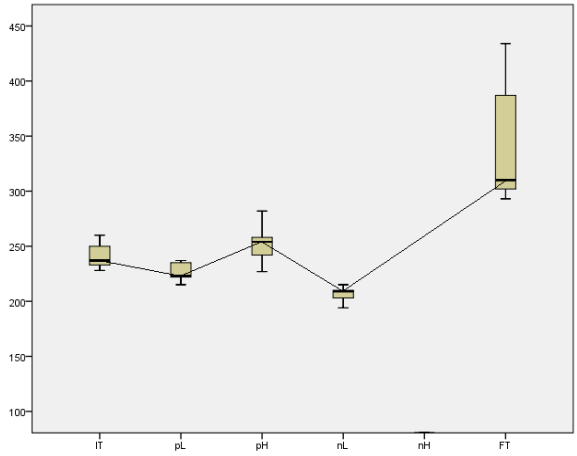
Example Interrogative Time 1 - Emma
"¿Leían una novela?"



Example Interrogative Time 2 - Emma
"¿Leían una novela?"



Interrogatives Time 1 - Emma
9 of 14 utterances (64%)



Interrogatives Time 2 - Emma
16 of 16 utterances (100%)

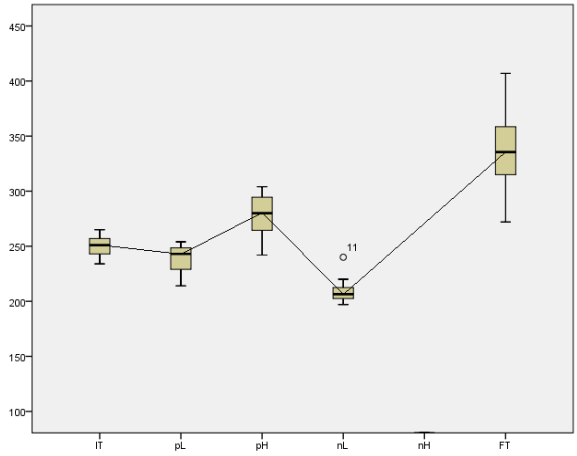


Figure 4.21. Emma's Most Frequent Absolute Interrogative Pattern at Times 1 and 2

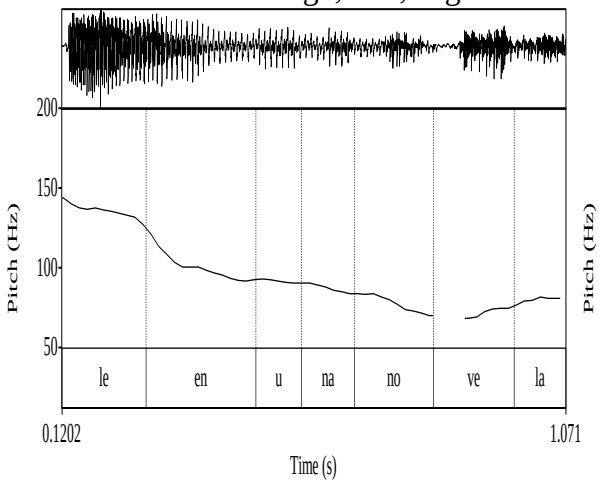
4.2.2 Declarative pattern change over time

The above individual learner contour profiles described four different declarative patterns which were used most frequently at Time 1 (see Figure 4.22). While four general patterns can be identified, there was certainly some variation in how these patterns were realized phonetically. Accordingly, some of the four may not be meaningfully different from each other. The first of the four patterns was Ed and Leah's most frequent declarative contour. For this pattern, F0 was high in prenuclear position, low in nuclear position, and then rose slightly to the final tone. This pattern will be referred to as the *high, low, slight rise* contour. The fact that the pitch of this pattern began high in initial position as opposed to beginning low then rising to a prenuclear peak makes it markedly different from the most common pattern of the other seven learners.

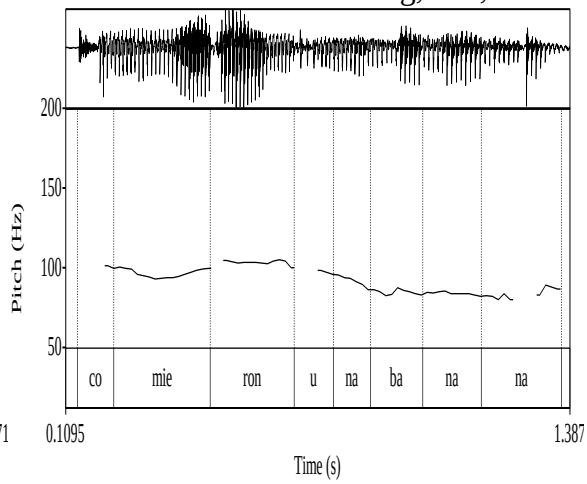
While they varied in nuclear position and at the final boundary tone, all seven of the other learners used rising prenuclear pitch accents in their most frequent pattern. The most common pattern of three learners (Linda, Kayla, and Gavin) was characterized by low F0 throughout nuclear position and the final boundary tone. Thus, after the salient prenuclear rise, from around the beginning of the nuclear stressed word their tone was low and rather flat or slightly falling to the final tone. This pattern will be referred to as the *rising, low, low* contour. The third common pattern, which was Anna's most frequent, also used a prenuclear rise followed by a nuclear low, but then slightly rose to the final tone. Accordingly, it will be called the *rising, low, slight rise* contour. Finally, the most frequent patterns of Matt, Haley, and Emma was a contour that used rising pitch accents in both prenuclear and nuclear position, and then fell to the final tone, or a *rising, rising,*

low contour. Example contours of these four patterns are reproduced in Figure 4.22 for ease of reference.

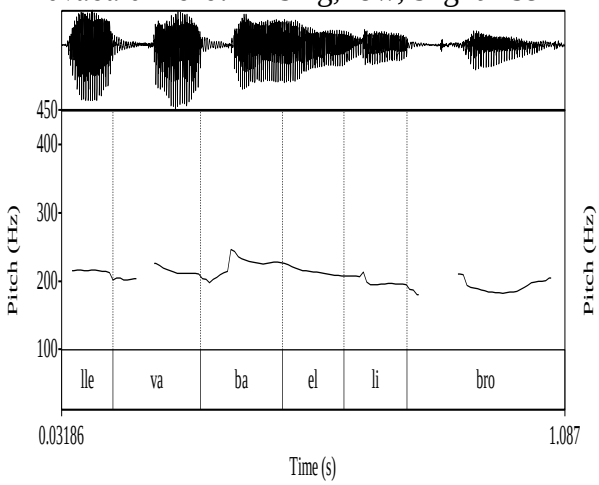
Example Declarative Time 1 - Ed
"Leían una novela." -high, low, slight rise



Example Declarative Time 1 - Gavin
"Comieron una banana." -rising, low, low



Example Declarative Time 1 - Anna
"Llevaba el libro." -rising, low, slight rise



Example Declarative Time 1 - Matt
"Me dio el número." -rising, rising, low

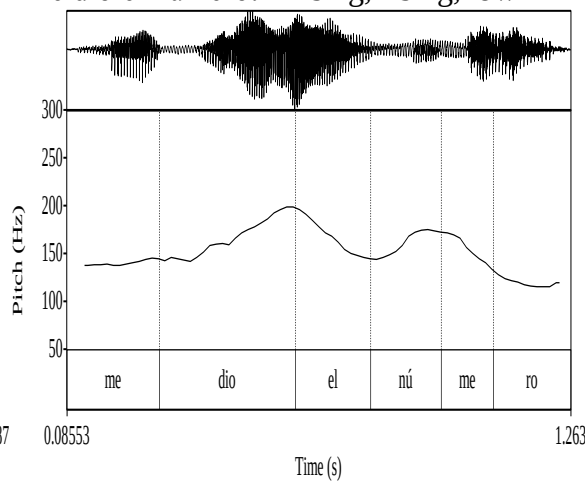


Figure 4.22. Examples of the four declarative patterns that were most frequent patterns at Time 1

At Time 2, eight of the nine learners used the same general contour as their most frequent declarative pattern. This contour, like Matt, Haley, and Emma's most frequent Time 1 pattern, used rising pitch accents in prenuclear and nuclear positions before

falling to a low final tone (see Figure 4.23). Therefore, six learners, Ed, Leah, Linda, Kayla, Gavin and Anna had adopted this pattern as their new most frequent by Time 2. For the other two learners, Matt and Emma, this pattern was already their most frequent pattern at Time 1. Haley, on the other hand, changed from this pattern at Time 1 to a pattern which started high at the initial tone, gradually fell to a nuclear low pitch accent, and then stayed low until the final tone (see Figure 4.23). This pattern will be referred to as the *high, low, low* contour. Haley was the only learner to use this contour as her most frequent declarative pattern at Time 2.

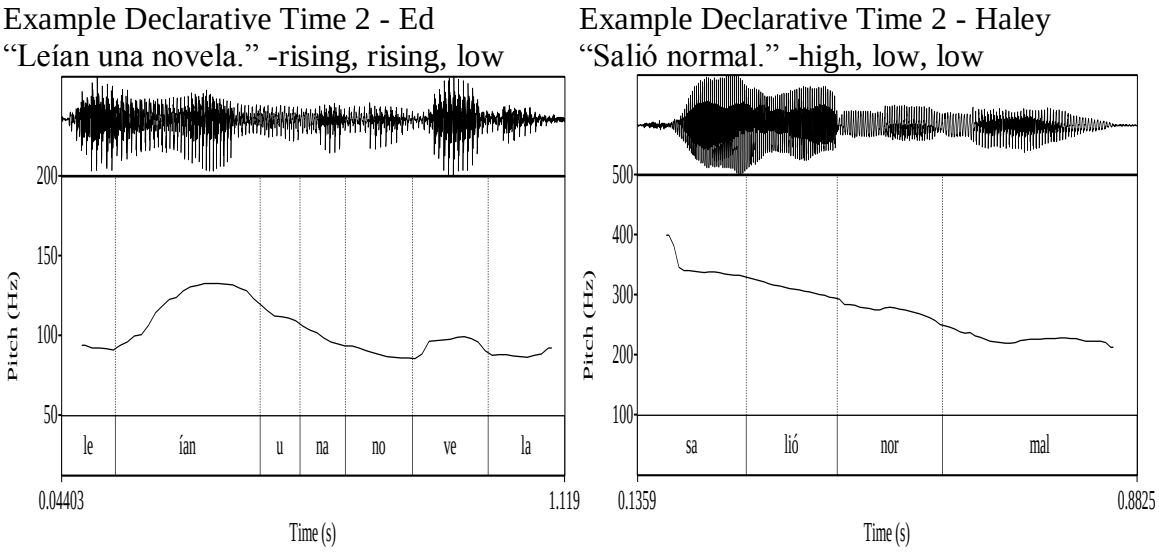


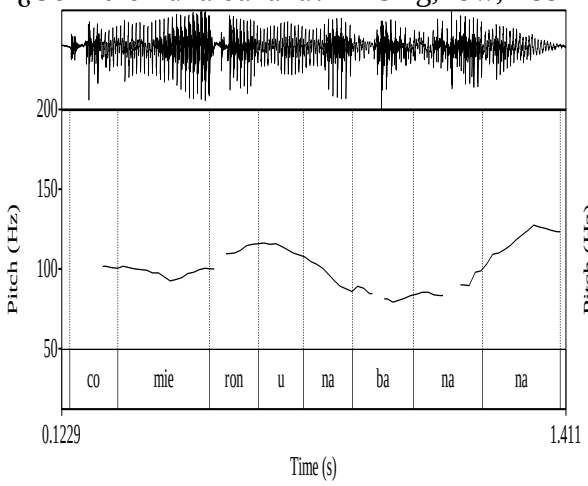
Figure 4.23. Examples of the two declarative contours that were most frequent patterns at Time 2

4.2.3 Absolute interrogative pattern change over time

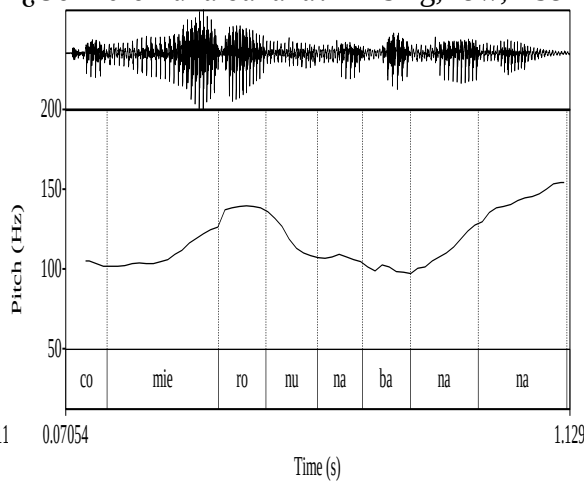
All nine learners had in common the same general contour as their most common interrogative pattern at Time 1, albeit at very different rates of frequency, as will be discussed below in section 4.2.4. This contour started low, was rising to a prenuclear peak, low in nuclear position before rising sharply to a high final tone (see Figure 4.24).

This pattern will be referred to as the *rising, low, rise* contour. Only one of the nine learners had adopted a new interrogative contour as her most common pattern by Time 2. At Time 2, Leah most frequently employed a contour which showed a circumflex final boundary movement (see Figure 4.24).

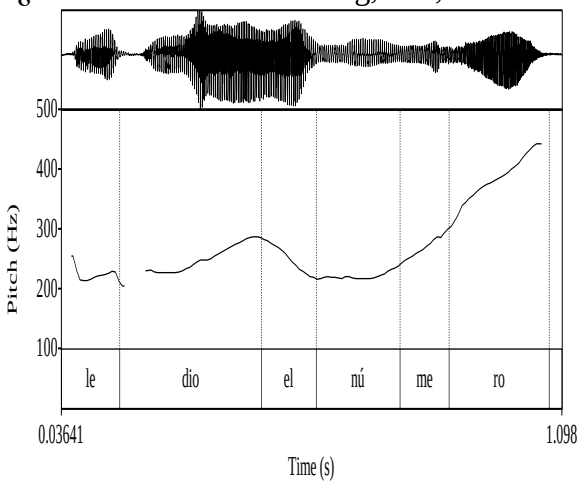
Example Interrogative Time 1 - Ed
"¿Comieron una banana?" -rising, low, rise



Example Interrogative Time 2 - Ed
"¿Comieron una banana?" -rising, low, rise



Example Interrogative Time 1 - Leah
"¿Le dio el número?" -rising, low, rise



Example Interrogative Time 2 - Leah
"¿Bebió una limonada?" -Rise, Circumflex

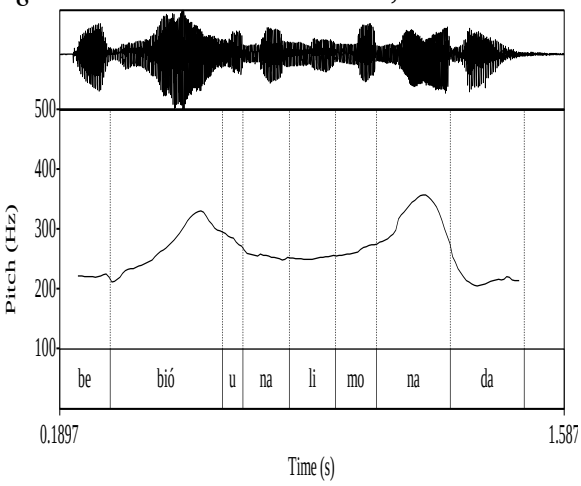


Figure 4.24. Examples of the most common interrogative patterns at Times 1 and 2

4.2.4 Changes in consistency and pitch range over time

Even when new patterns were not adopted by Time 2, the formal results clearly show an increase in consistency over time. For example, Ed's preferred interrogative pattern went from 57% at Time 1 to 94% at Time 2, an increase of 37%. As for his declaratives, he not only changed patterns, but used his new pattern 42% more frequently at Time 2. There were only two exceptions to the tendency to increase consistency by Time 2. Anna's declarative pattern was 10% less consistent and Leah's interrogative pattern was 13% less consistent. In both cases, these learners had changed patterns. Table 4.1 illustrates the change over time of the most frequent pattern for declaratives and absolute interrogatives in terms of consistency and whether or not a different pattern was adopted.

	Declaratives				Interrogatives			
Learner	Time 1	Time 2	Pattern	+/-	Time 1	Time 2	Pattern	+/-
Ed	46%	88%	diff	+42%	57%	94%	same	+37%
Leah	27%	60%	diff	+33%	63%	50%	diff	-13%
Linda	36%	67%	diff	+31%	57%	88%	same	+31%
Kayla	47%	73%	diff	+26%	56%	73%	same	+17%
Gavin	54%	100%	diff	+46%	75%	87%	same	+12%
Anna	54%	44%	diff	-10%	71%	81%	same	+10%
Matt	47%	53%	same	+6%	42%	62%	same	+20%
Haley	42%	56%	diff	+14%	81%	94%	same	+13%
Emma	53%	56%	same	+3%	64%	100%	same	+36%
Total	45%	66%		+21%	63%	81%		+18%

Table 4.1. Change in percentage of contours represented by the most frequent pattern

The results of several learners also showed changes in pitch range over time even when they did not necessarily adopt new most frequent patterns. The most dramatic example of this change is Kayla's use of an overall higher pitch range by Time 2. As detailed above in subsection 4.3.1.4, her mean declarative F0 in Hz went from 179 to 199

and her mean for interrogatives went from 214 to 249. This difference in pitch range is noticeable in the box plot diagrams of Figures 4.8 and 4.9 above. As opposed to a higher overall pitch range, many learners tended to use steeper prenuclear rises at Time 2 when their Time 1 and Time 2 most frequent patterns both had a rising prenuclear pitch accent. Linda, Kayla, and Gavin's declaratives and interrogatives, and Ed's interrogatives all showed a higher average of prenuclear peaks (pH) at Time 2. The difference in Gavin's average peak height was not as dramatic as the others. In the case of Linda, Kayla, and Ed, the average F0 value of the valley (pL), which preceded the prenuclear peak (pH), was nearly the same over time. The higher peak, therefore, made for a steeper rise on average in the prenuclear pitch accent. Kayla's prenuclear rises were also steeper at Time 2 despite the fact that the average F0 of her valleys was also higher, as the average F0 of her peaks was even higher yet. Matt's prenuclear rise also became steeper on average due to a lower average F0 valley at Time 2. Anna and Emma's declarative and interrogatives, and Matt and Haley's interrogatives, which all had prenuclear rises at both times, did not show steeper rises by Time 2. The patterns not mentioned here did not include prenuclear rises at both Times 1 and 2 for comparison. For example, Leah's most frequent declarative pattern did not have a prenuclear rise at Time 1, but did at Time 2.

4.2.5 Summary and discussion

In summary, the above descriptions of changes in L2 Spanish intonation over time have revealed three notable changes: (1) the adoption of a new preferred pattern, (2) an increase in consistency in pattern use, and (3) an expanded pitch range in certain cases. Perhaps the most important and common way L2 intonational patterns change over time

is the adoption of a different contour for declaratives and absolute interrogatives. Once again, seven of the nine learners changed patterns. One of these seven, Leah, adopted a new pattern for both declaratives and absolute interrogatives. Only two of the nine learners did not adopt different contours as their most frequent by Time 2. The question of why certain patterns were changed over time and others were not will be addressed in the following section on native and target language intonational characteristics (section 4.3).

In addition to the adoption of new patterns, the results suggest a semester abroad also frequently leads to an increase in consistency in declarative and absolute interrogative pattern use. These findings are in line with previous research on the development of L2 intonation. For example, Ramsey's (1997) cross-sectional investigation of L2 French intonation found that advanced learners used more native-like contours than beginners. Also, the advanced learners were more consistent in their use of specific contours to communicate the sentence types investigated. But, as was the case for Anna's declaratives and Leah's interrogatives, the adoption of a new preferred pattern may come at a cost of consistency.

Using a longitudinal approach similar to the one adopted in this dissertation, Henriksen et al. (2010) also observed these two developmental tendencies. Of their four learner participants, one learner did not change her preferred patterns, but did increase her consistency for all three sentence types investigated (declarative, absolute interrogatives, & pronominal interrogatives). The other three learners had adopted certain new patterns as most frequent after seven weeks studying abroad in León, Spain. Like the

participants of the current study, these three learners also tended to increase their consistency over time. There were three exceptions, however: the declaratives and pronominal interrogatives of one learner, and the absolute interrogatives of another. Like the two exceptions found in this study, in all three cases, the decrease in consistency came with the adoption of a different pattern. These findings show that the L2 acquisition of new intonational contours may be considered a variable process during which the incorporation of new target language items may, at least temporarily, result in an L2 system with increased variability (cf., Ellis, 1999; Preston, 1993).

A notable difference between Henriksen et al. and this study is the length of time spent studying abroad. Whereas the learners of the former spent seven weeks in León, Spain, the learners in the current study spent fifteen weeks in Mérida, Venezuela. This difference in time could be responsible for the fact that Henriksen et al. found relatively more exceptions to the tendency to increase consistency. It would be expected that more time immersed in the target language would lead to greater increases in consistency. In addition, a comparison of the declarative and absolute interrogative data of the two studies shows what appear to be considerable consistency differences for the declaratives.[17] In Henriksen et al., after seven weeks the four participants' preferred declarative pattern was used at percentage rates of 47%, 42%, 48%, and 50%. After fifteen weeks, the current study's participants used their preferred declarative pattern an

[17] Comparing the results of the current study to Henriksen et. al (2010) may not be an apples-to-apples comparison because the learners of these two studies participated in different study abroad programs and may have started at different proficiency levels.

average rate of 66%, ranging from 44% to 100% (see Table 4.1 above for all nine percentages).

In addition to strong evidence that the adoption of new patterns and an increase in consistency over the course of a semester abroad are frequent occurrences, the results have found some evidence for changes in pitch range over time. Kayla's entire average pitch range seems to have become higher over time and some learners began using steeper prenuclear rises by Time 2. Kelm's (1995) investigation of L2 Spanish intonation and L2 English intonation showed that both native English speakers of L2 Spanish and native Spanish speakers of L2 English tend to use a more reduced pitch range when speaking their L2. The results of Kelm (1995) together with the longitudinal results of this dissertation suggest that intonational change over time may lead to a more expansive pitch range in the L2. Kelm hypothesized that learners are more cautious with their L2 intonation. As discussed in the individual learner contours above, many learners in this study most definitely showed hesitancy in their L2 intonation at Time 1, but by Time 2 they were much more consistent in pattern use, and when their contours had rising prenuclear accents at both times these accents tended to become more salient with steeper rises. Future research should systematically address pitch range and vacillation within that range as a potential measure of L2 intonational development over time.

One possibly fruitful avenue for future research would be to investigate reduced pitch range and limited pitch vacillation as potential productions of developmental errors. According to Major's Ontogeny Model (1986, 1987a, 2001), developmental errors are any interlanguage feature that is not characteristic of the target language or due to the

learner's native language (Major, 1986, p. 461). Typical developmental errors include substitutions, insertions, deletions, etc. As opposed to transfer errors which simply become less prevalent over time, developmental errors are said to be infrequent during early stages of L2 development, increase substantially in middle stages, and then decrease in later stages. A reduced pitch range and the use of flat pitch and/or nonuse of pitch accents where they might be expected could be considered deviations from the target language which are not due to the learner's native language. In this sense, they could be further investigated to see which of these characteristics of L2 intonation fit into Major's Ontogeny Model of L2 phonology.

4.3 Native language comparison data

Many characteristics of the learners' native (English) and target (Spanish) languages can be observed in the interlanguage Spanish intonation described in the previous section. As would be expected, the L2 Spanish intonation showed fewer native language characteristics at Time 2 than at Time 1 and the specifics of Venezuelan Andean Spanish intonation were more prominent at Time 2. This section begins by summarizing the English intonational patterns that were employed by the learners when they performed a translated version of the formal task (subsection 4.3.1). Then, in subsection 4.3.2, it presents the results of the four native Spanish speaking Venezuelans as a means to confirm previous literature on Venezuelan intonation and provide a detailed account of the specific intonational characteristics of the variety of Spanish with which the learner participants had contact. After this native language comparison data is presented, certain intonational characteristics of the learners' L2 Spanish intonation are

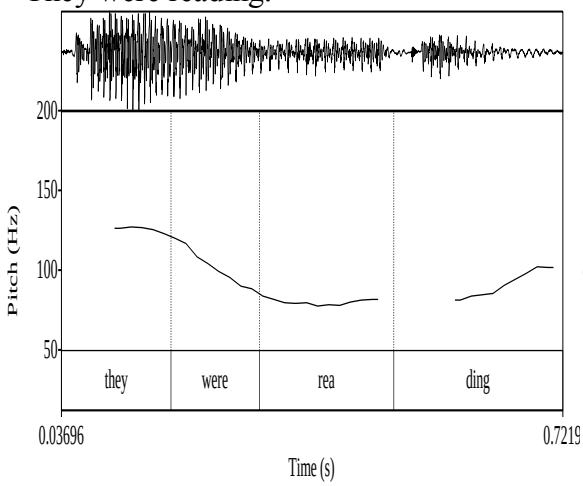
attributed to the learners' native and target languages first for declaratives (subsection 4.3.3) and then for absolute interrogatives (subsection 4.3.4). Finally, in subsection 4.3.5, these findings are summarized and then discussed in relation to previous research and current models of L2 phonology.

4.3.1 Learners' L1 English intonation

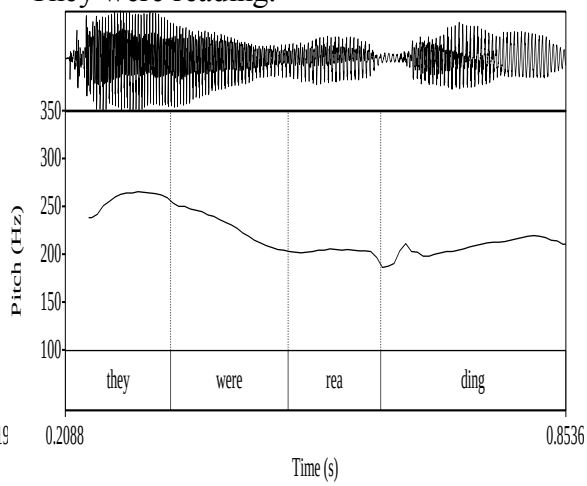
The learners were relatively consistent in the intonational contours they used for the declaratives of the English formal task. The most common declarative pattern started high and peaked, or started at a mid level and rose to a prenuclear peak, F0 then fell gradually to a low nuclear pitch accent, and then rose slightly or remained flat to the final tone. Figure 4.25 provides three versions of this pattern for comparison. Ed's example contour shows this pattern as starting high but without a noticeable rise to that initial high pitch. Linda's example shows F0 starting at a mid level then rising to the high prenuclear pitch accent and then is otherwise similar to Ed's example. Kayla's example shows rising prenuclear pitch similar to Linda's, but is distinct from the other two in that the low nuclear pitch seems to remain flat through nuclear position to the final tone. The version with the final slight rise was particularly common in the formal declaratives of Ed, Leah, Linda, Anna, Emma, and Haley. Kayla and Matt preferred flat F0 from nuclear position to final tone. While Gavin also used this pattern, he preferred a different contour which had relatively flat F0 in prenuclear position before rising to a high nuclear pitch accent and then falling to the final tone. An example of this contour is also shown in Figure 4.25.

All learners showed considerable consistency in the use of one particular pattern for the English absolute interrogatives. This pattern had relatively flat F0 leading to a low nuclear pitch accent, which was followed by a large final rise. An example of this pattern as produced by Linda is shown in Figure 4.26 alongside an example of her declarative pattern with the slight final rise for comparison purposes. Linda's declarative and interrogative examples are clearly different in terms of final F0 height and steepness of the final boundary rise.

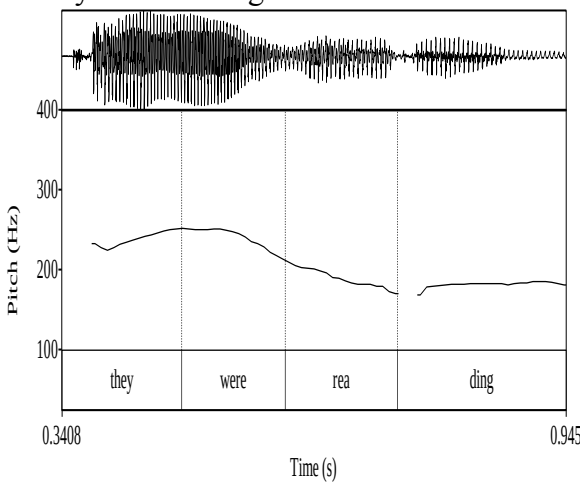
Example English Declarative - Ed
"They were reading."



Example English Declarative - Linda
"They were reading."



Example English Declarative - Kayla
"They were reading."



Example English Declarative - Gavin
"They had a banana."

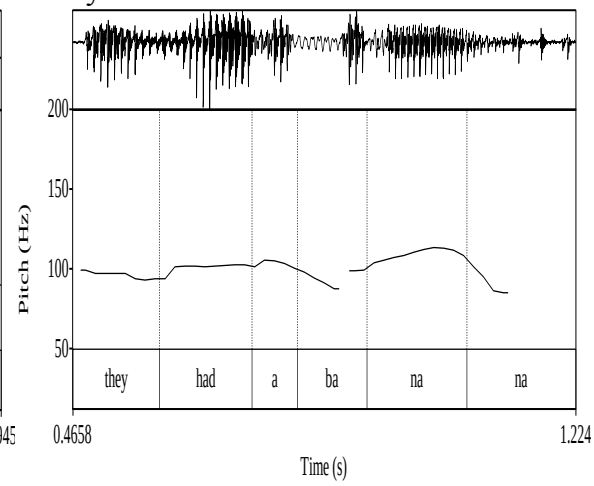


Figure 4.25. Comparison of English formal declarative intonation

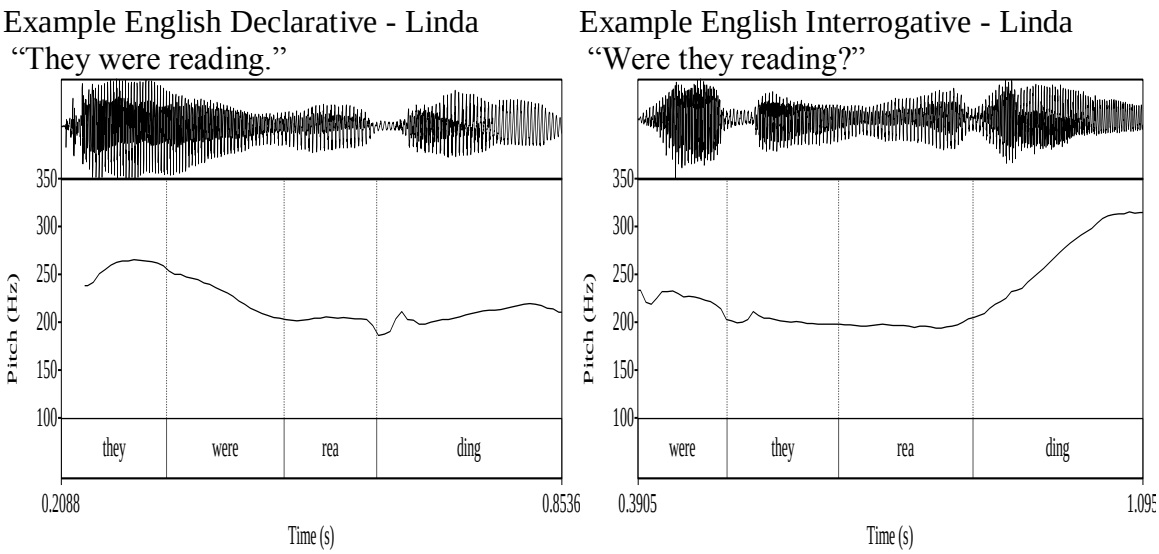


Figure 4.26. Example English Declarative and Absolute Interrogative - Linda

4.3.2 Native-speaking Venezuelan Andean contours

The intonation of four native speakers of Venezuelan Spanish was used to confirm previous research on Venezuelan intonation was accurate for the study abroad context used in this dissertation. Furthermore, three of these native speakers were close friends of the learner participants of this study (Marcos, Dora, and Rosa) and one was an instructor and dean of students at the language institute in Mérida, Venezuela where they studied (Luis). Accordingly, they represent a small but authentic sample of the native speaker input the learners received while in Venezuela. The four native speakers were recorded performing the same formal and informal tasks that were used with the learners. The formal data provides the phonetic detail necessary to confirm previous research and make comparisons to the L2 Spanish data; and the informal task shows that these

intonational characteristics are also observed in an informal context which would be more comparable to the learners' intonational input while in Venezuela.

4.3.2.1 Native-speaking Formal Intonation

Three of the four native speakers used broad focus declarative and absolute interrogative intonation patterns that resembled what has been described in previous literature on Venezuelan Andean intonation (cf. Astruc et al., 2010; Méndez et al., 2008; Méndez, 2010; Mora, 1993). In their broad focus declaratives, F0 began to rise at or near the onset of the prenuclear stressed syllable and peaked post-tonically. F0 tended to remain high for one or two unstressed syllables depending on the number of intervening syllables before the nuclear stressed syllable. F0 then began to fall one or two syllables before the nuclear stressed syllable in order to begin rising again at the nuclear stressed syllable. The peak of this rising nuclear pitch accent occurred during the stressed syllable and then F0 would fall to a low boundary tone (see Figures 4.27, 4.28, & 4.29).

As for the absolute interrogatives, the overall pattern employed by three of the four native speakers was similar to the declarative pattern. As can be seen in Figures 4.27, 4.28, and 4.29, the major difference in the two contours was the height of the peaks. All three speakers consistently used higher interrogative peaks in both prenuclear and nuclear positions. While there was some variability in the interrogative peak height of all three speakers, Marcos and Luis particularly exaggerated the height of the nuclear peak (see Figures 4.27 & 4.28). Dora tended to realize the two peaks at similar height (see Figure 4.29).

Example Broad Focus Declarative - Marcos
"Leían una novela."

Example Absolute Interrogative - Marcos
"¿Leían una novela?"

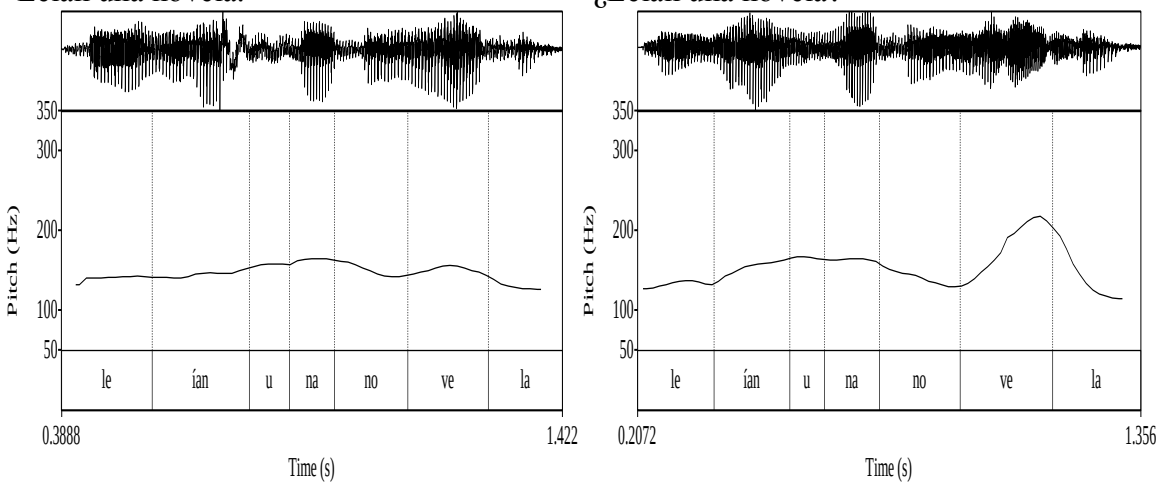


Figure 4.27. Example Native Speaker Contours - Marcos

Example Broad Focus Declarative - Luis
"Leían una novela."

Example Absolute Interrogative - Luis
"¿Leían una novela?"

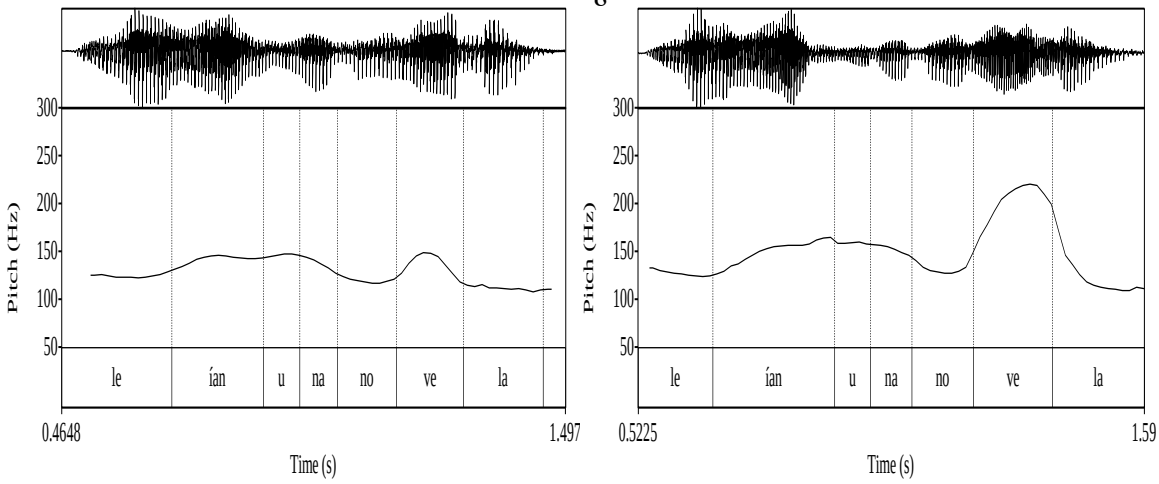


Figure 4.28. Example Native Speaker Contours - Luis

Example Broad Focus Declarative - Dora
"Leían una novela."

Example Absolute Interrogative - Dora
"¿Leían una novela?"

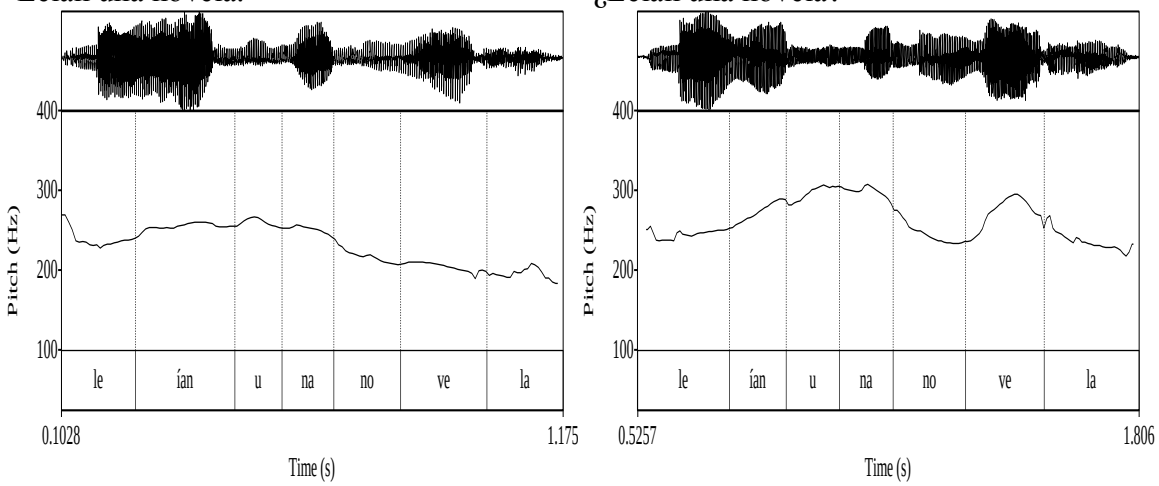


Figure 4.29. Example Native Speaker Contours - Dora

Rosa, the fourth native speaker whose intonation was analyzed for this study, used patterns which resemble what has been described for Caribbean Spanish (Alvord, 2010; Sosa, 1999). Sosa (1999) refers to this pattern as a circumflex pattern in his description of the absolute interrogatives of Caracas, Venezuela, Havana, Cuba, and San Juan, Puerto Rico. However, as can be seen in Figure 4.30, this pattern differs from the Venezuelan Andean circumflex pattern in that F0 does not fall to a low tone between the prenuclear and nuclear stressed syllables, but rather only dips slightly before rising again to the nuclear peak. This pattern is perceptibly quite different than the Venezuelan Andean pattern.

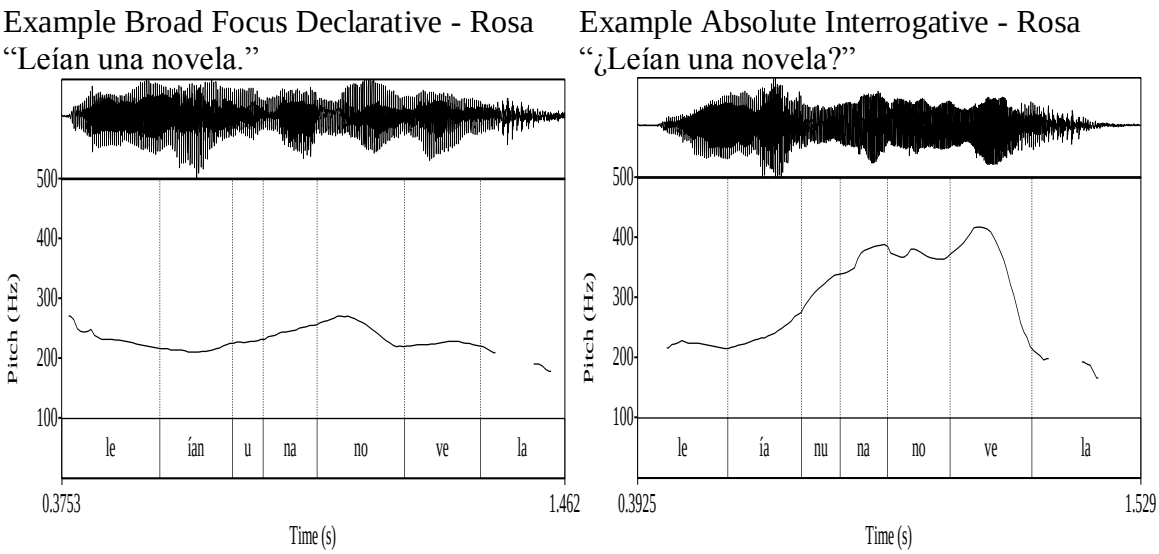


Figure 4.30. Example Native Speaker Contours - Rosa

The native speaker who produced this pattern, Rosa, was born in Caracas. Although she was living in Mérida and had spent significant portions of her life in both Caracas and Mérida, she maintained that her variety of Spanish was still Caraqueño. The results of a native speaker from Caracas are included here in large part because of the considerable population of Caraqueños in Mérida. Many of the learners who participated in this study had contact with speakers from Caracas and/or other parts of Coastal Venezuela such as Maracaibo. To a lesser extent, some also had contact with speakers from Colombia. That being said, the majority of the learners were mostly in contact with natives of Mérida and the greater Venezuelan Andean region.

A final observation from the formal data of the native speakers is that these patterns do seem to become altered under the pressures of tonal crowding. In his investigation of the intonation of Miami Cuban Spanish, Alvord (2010) found a tendency

to omit the first peak in Cuban-Style interrogatives in which there was zero or one intervening unstressed syllables before the nuclear stressed syllable. While the current study did not systematically address issues of tonal crowding and the discussion of tonal crowding is outside its scope, tonal crowding did affect the phonetic realization of both the Venezuelan Andean and Caraqueño contours in the two utterances with only one intervening unstressed syllable (i.e., *¿Le **dio** el **nú**mero?* & *¿sa**lió** nor**mal**?*). Figure 4.31 shows example contours produced by Marcos (Venezuelan Andean) and Rosa (Caraqueño). Under these circumstances the difference between the two patterns is not as clear, as the crowding may prevent the F0 of the Venezuelan Andean pattern from falling noticeably between the prenuclear and nuclear stressed syllables.

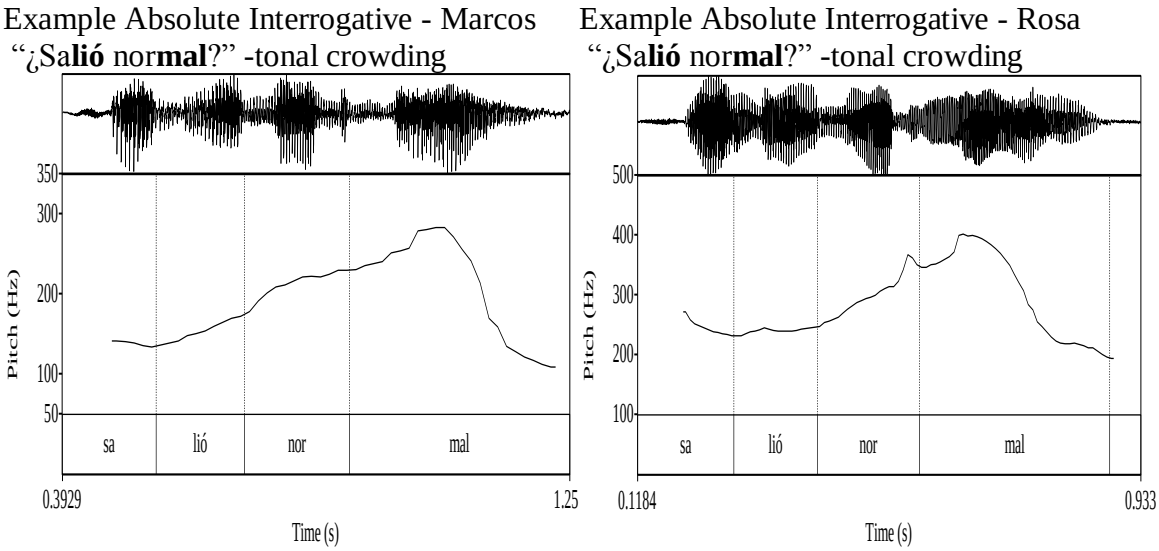


Figure 4.31. Example Absolute Interrogative Contours in a tonal crowding context

The broad focus declarative and absolute interrogative patterns reported above were produced with great consistency by the native speakers during the formal task. In other words, the inconsistency in pattern type that was characteristic of the intonation of

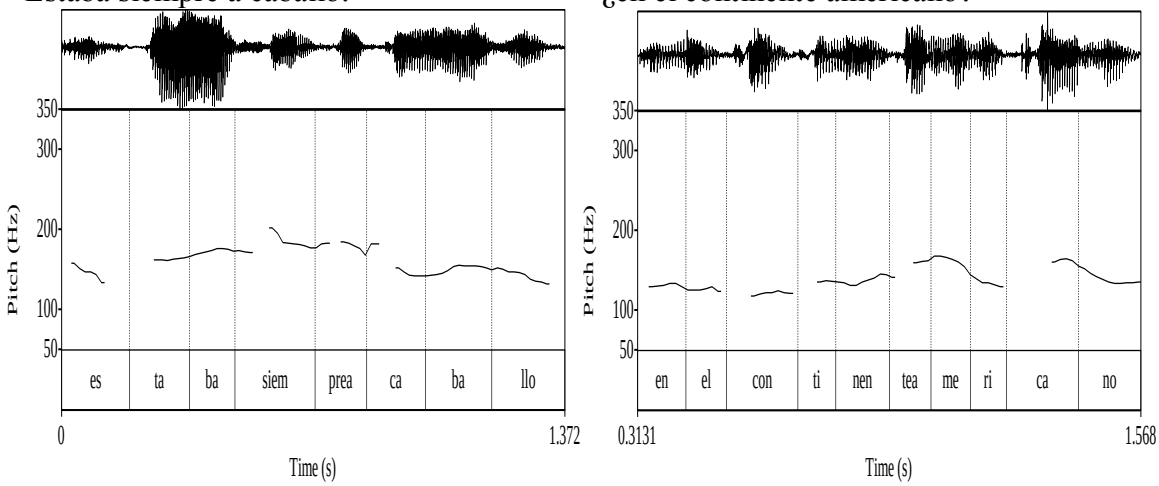
the learners particularly at Time 1 but also at Time 2 in some cases was not observed in the native Spanish speaker formal data indicating that this is part of the L2 learning process and not representative of native variation.

4.3.2.2 Native-speaking Informal Intonation

During the informal intonation task, the four native speakers frequently produced the patterns described in previous literature and confirmed above in the formal task. However, the informal contours were more variable in two ways. First, the height of the peaks was more varied within the broad focus declarative and absolute interrogative patterns (see Figure 4.32). Second, given the free nature of the speech in this task the speakers also produced other patterns which expressed meaning other than neutral broad focus declaratives and absolute interrogatives. When asking yes-no questions, there were a couple of cases of final rises as well as some cases of falling patterns that appeared to resemble the normal pattern for declaratives. These cases occurred predominantly in situations where the speaker had reason to anticipate a particular answer or express some sort of bias. As such, they were not considered neutral absolute interrogatives. The circumflex pattern was much more frequent overall and was clearly the pattern of choice to express absolute interrogative meaning.

Example Informal Declarative - Marcos
"Estaba siempre a caballo."

Example Informal Interrogative -Marcos
"¿en el continente americano?"



Example Informal Declarative - Marcos
"Eran dos hombres."

Example Informal Interrogative -Marcos
"¿Ah, es un hombre?"

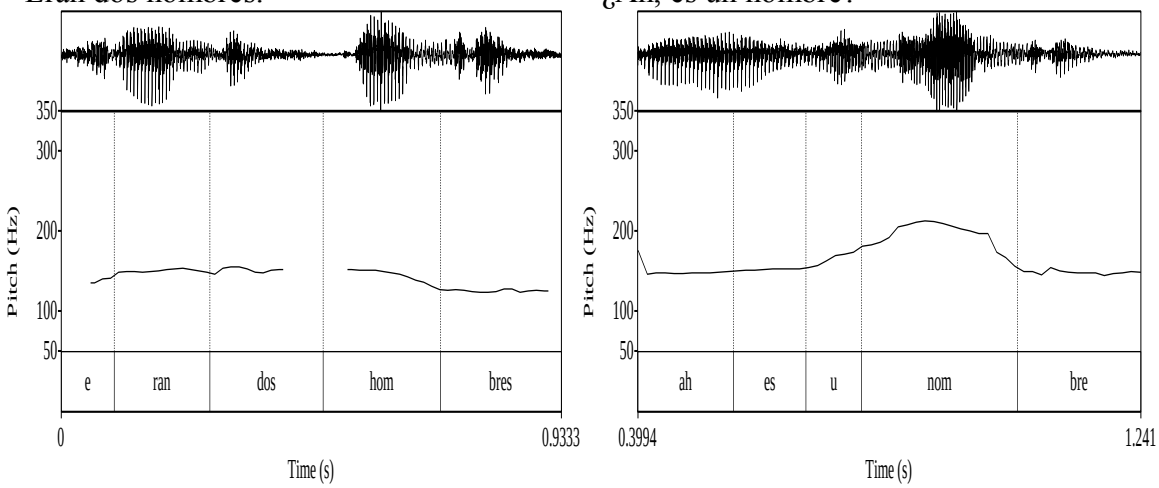


Figure 4.32. Example Informal Broad Focus Declarative and Absolute Interrogative

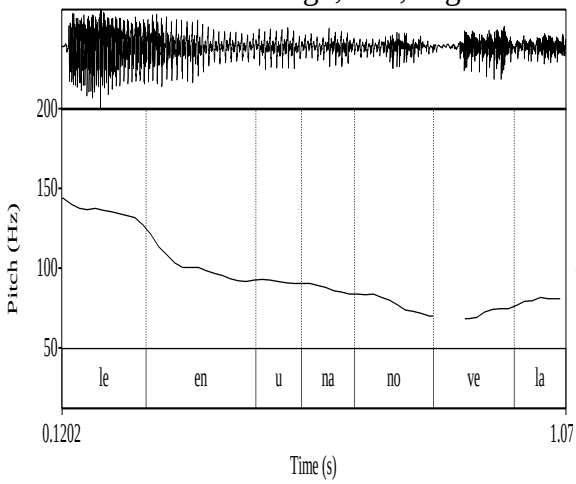
4.3.3 Declarative native and target language characteristics

Several intonational characteristics of the learners' native and target languages described above can be observed in their L2 Spanish declaratives. Beginning with Time 1, the formal L2 Spanish results detailed in the previous section revealed four prominent

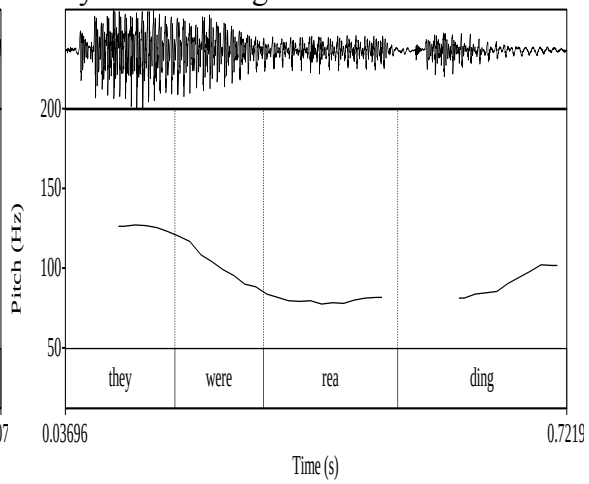
declarative contours: Ed and Leah's *high, low, slight rise* pattern; Linda, Kayla, and Gavin's *rising, low, low* pattern; Anna's *rising, low, slight rise* pattern; and Matt, Haley, and Emma's *rising, rising, low* pattern.

Two characteristics of Ed and Leah's pattern are likely related to their L1 English intonation. The first is the fact that F0 was low in nuclear position, after initially being high. The second characteristic is a final slight rise. Both these characteristics resemble a nuclear configuration previous literature on English intonation has described as a narrow low-rising (e.g., Levis, 2002) or L*L-H% in the ToBI transcription system (e.g., Pierrehumbert & Hirschberg, 1990). Furthermore, these characteristics of Ed and Leah's L2 Spanish intonation were also present in the English results of this study. Figure 4.33 shows examples of Ed's Time 1 declarative pattern, his English pattern, and an example of an L*L-H% narrow low-rising pattern adopted from Levis (2002). The second half of the latter should be the focus for comparison with Ed's patterns.

Example Declarative Time 1 - Ed
"Leían una novela." -high, low, slight rise



Example English Declarative - Ed
"They were reading."



Example English L*L-H% narrow low-rising pattern in a declarative sentence
"I don't want to talk to anyone" - adopted from Levis (2002)

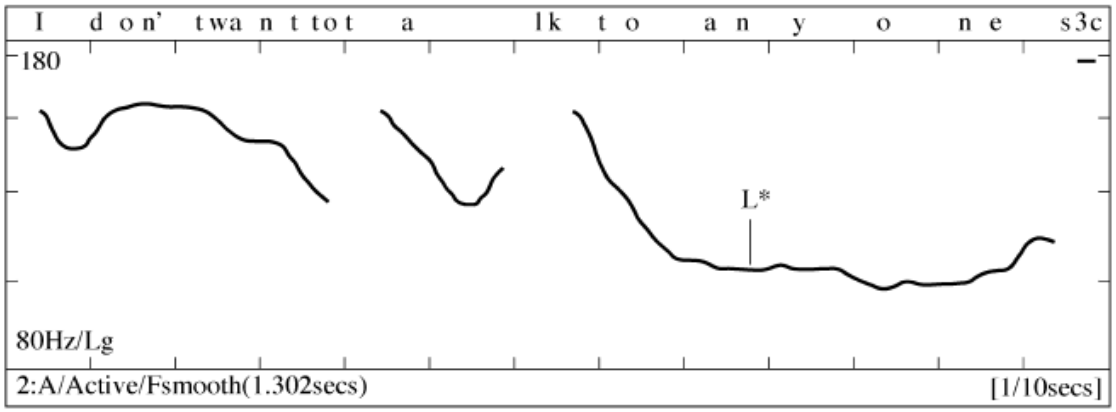


Figure 4.33. Comparison of similarities among Ed's Time 1 declarative pattern, his English pattern, and the L*L-H% narrow low-rising pattern of English

Anna's Time 1 declarative pattern shares with Ed and Leah's pattern the use of low F0 through nuclear position and the final slight rise. Despite the fact that her pattern is quite different from Ed and Leah's in prenuclear position, the nuclear portion of her pattern may also show signs of L1 English influence, as it also resembles the L*L-H% nuclear configuration. Particularly the final slight rise makes this contour seem a likely

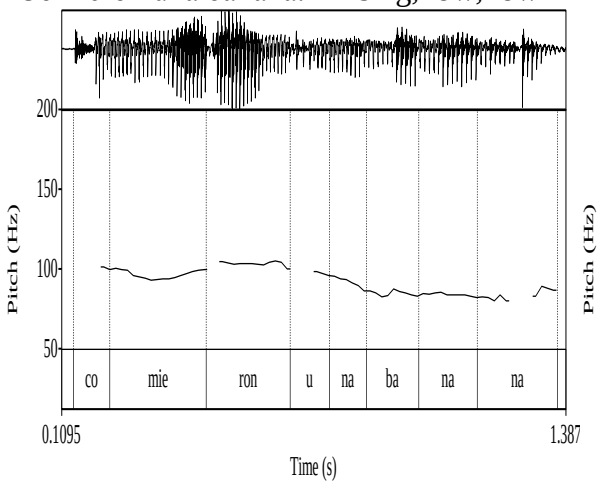
product of English influence.[18] Without the final slight rise, the nuclear configuration would not only resemble common English patterns, but also Spanish. Some varieties of Spanish are reported to use a low pitch accent on the nuclear stressed syllable of broad focus declaratives (e.g., de-la-Mota, Butragueño, & Prieto, 2010; Gabriel et al., 2010; López-Bobo & Cuevas-Alonso, 2010; Willis, 2005). In other words, a low nuclear pitch accent could be attributed to either language. Low F0 in nuclear position was also characteristic of Linda, Kayla, and Gavin's pattern.

The use of rising pitch accents found in prenuclear position, which was seen in many of the learners' patterns, is a characteristic found in both English and Spanish. This is also true of the rising nuclear pitch accents found in Matt, Haley, and Emma's Time 1 pattern. Therefore, either or both languages may have contributed to their use. However, it is clear that by Time 2 the vast majority of learners (8 of 9) preferred a declarative pattern with rising pitch accents in prenuclear *and* nuclear position and a low final boundary tone (i.e., *rising*, *rising*, *low*). This declarative pattern, as well as the example Time 2 declarative patterns for each learner, resembles the broad focus declarative pattern of Venezuelan Andean Spanish. Therefore, the fact that Matt and Emma did not adopt a different declarative pattern is not surprising, because this pattern was already their most frequent at Time 1. Figure 4.34 shows Gavin's Time 1 declarative as an example with a prenuclear rise and low, flat F0 in nuclear position above an English example produced by Kayla of similar type. The right-hand column of Figure 4.34 compares Gavin's Time 2 declarative above a Venezuelan Andean declarative pattern,

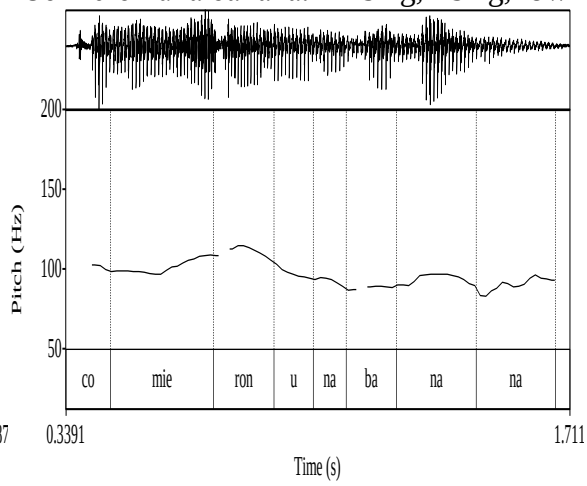
[18] Final slight rises are also a characteristic of the H*L-H% or falling-rising contour mentioned in chapter 2's review of English intonation in section 2.2.1.

both of which have rising prenuclear and nuclear pitch accents and a low final tone. With the addition of the rising nuclear pitch accent, Gavin's example Time 2 declarative is more native-like, as it bears a closer resemblance to the Venezuelan Andean example pitch track.

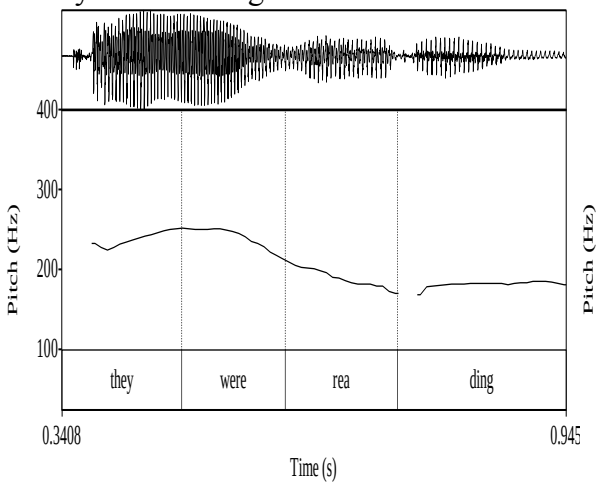
Example Declarative Time 1 - Gavin
"Comieron una banana." -rising, low, low



Example Declarative Time 2 - Gavin
"Comieron una banana." -rising, rising, low



Example English Declarative - Kayla
"They were reading."



Example Venezuelan Declarative - Marcos
"Leían una novela."

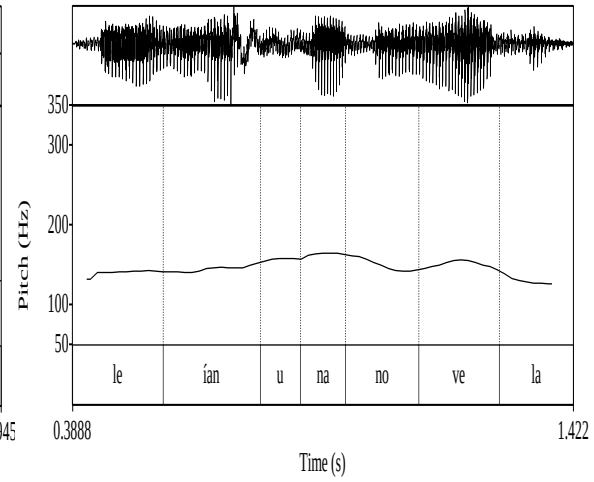


Figure 4.34. Example contours of declarative change over time as similar to an English pattern at Time 1 and a Venezuelan Andean pattern at Time 2

One important difference between the learner and native speaker patterns is the alignment of the prenuclear peak. While the learner prenuclear peak occurred frequently either within the stressed syllable or in the following syllable, the native speaker peak was realized post-tonically often occurring one to three unstressed syllables later, depending on the number of intervening unstressed syllables before the nuclear stressed syllable.

Overall then, some of the major changes from Time 1 to Time 2 were a change from high to rising prenuclear F0 (Ed and Leah), a change from low to rising nuclear F0 (Ed, Leah, Linda, Kayla, Gavin, and Anna), and the disappearance of the final slight rise (Ed, Leah, and Anna). All of these changes represent a reduction in intonational characteristics common to American English in favor of Venezuelan Andean intonational characteristics. Matt and Emma began the semester with a *rising, rising, low* pattern that already resembled Venezuelan Andean but increased the frequency in which they used it. The one exception to this strong tendency to adapt or increase the *rising, rising, low* pattern was Haley. While Haley's most common Time 1 pattern used rising F0 in nuclear position, her Time 2 pattern started high at the initial tone and then was low in nuclear position through the final tone.

4.3.4 Absolute interrogative native and target language characteristics

It is more difficult to attribute particular intonational characteristics to either English or Spanish in the interrogative patterns used at Times 1 and 2. At Time 1 all nine learners predominantly used a pattern with rising prenuclear pitch, a low nuclear pitch accent, and a boundary rise to a high final tone. The low-rising final boundary movement

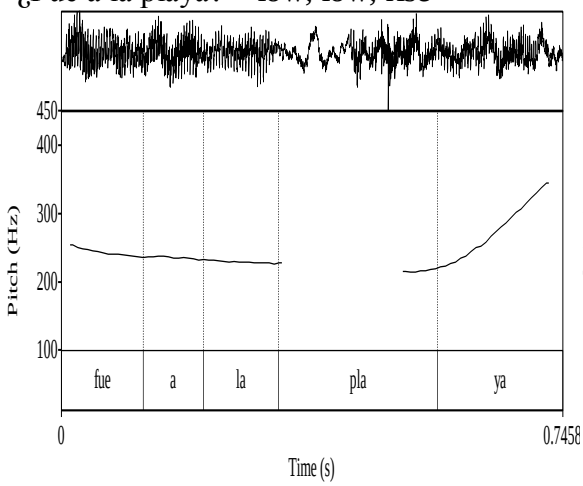
is common for absolute interrogatives in American English and many varieties of Spanish. High or rising prenuclear pitch accents are also common in American English, though their realization is not as systematic as what has been found in most research on Spanish. In fact, the English absolute interrogative pattern produced by the learners of this study showed low, flat F0 in prenuclear position. Likewise, the second most frequent Time 1 interrogative pattern of the learners' Spanish had flat F0 in prenuclear position.

As detailed above, eight of the nine learners increased the consistency of their predominant absolute interrogative pattern over the course of the semester abroad. This increased consistency reflected a decrease in the use of a pattern with low and relatively flat prenuclear F0 in favor of the pattern with a prenuclear rise. Three of these eight learners increased the consistency of this pattern despite the fact that they also incorporated some use of a circumflex boundary movement. Furthermore, the circumflex boundary movement of these three learners was often coupled with a prenuclear rising pitch accent. Additionally, the one learner who lost interrogative consistency from Time 1 to Time 2 did so while adopting a circumflex pattern as most frequent. In sum, all nine learners more systematically used prenuclear rising pitch accents in their formal absolute interrogatives by Time 2, which made their intonation more like the target language.

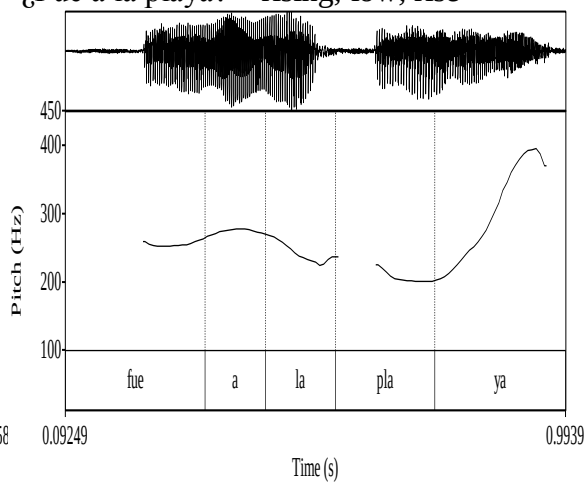
Figure 4.35 shows examples taken from Emma's Formal Time 1, Time 2, and English data showing how she had fully incorporated a prenuclear rise in her interrogatives by Time 2. At Time 1, Emma produced nine absolute interrogatives with prenuclear rises and five with low, flat prenuclear F0. It can be noticed that her English interrogative also lacked a prenuclear rise. At Time 2, all sixteen of her absolute

interrogatives included prenuclear rises. Figure 4.35 also includes an example absolute interrogative of Madrid Spanish adapted from Face (2007). This example is provided for ease of comparison to the absolute interrogative pattern which is common to many varieties of Spanish, of course, Venezuelan Andean not being one of them.

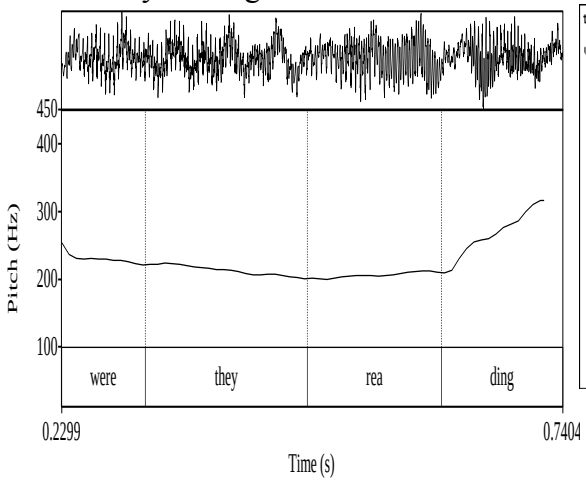
Example Interrogative Time 1 - Emma[19]
"¿Fue a la playa?" -low, low, rise



Example Interrogative Time 2 - Emma
"¿Fue a la playa?" -rising, low, rise



Example English Interrogative - Emma
"Were they reading?"



Absolute Interrogative - Madrid Spanish
"¿Mariana miraba la luna?" - Face (2007)

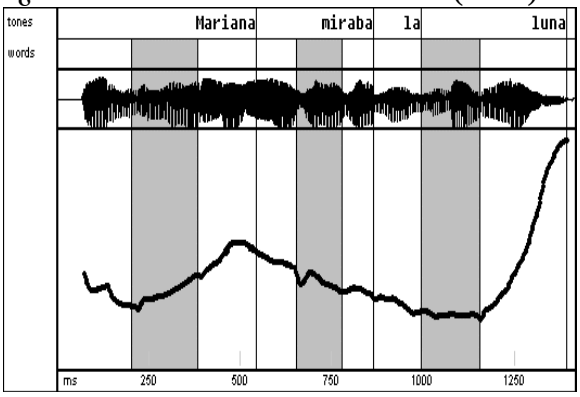
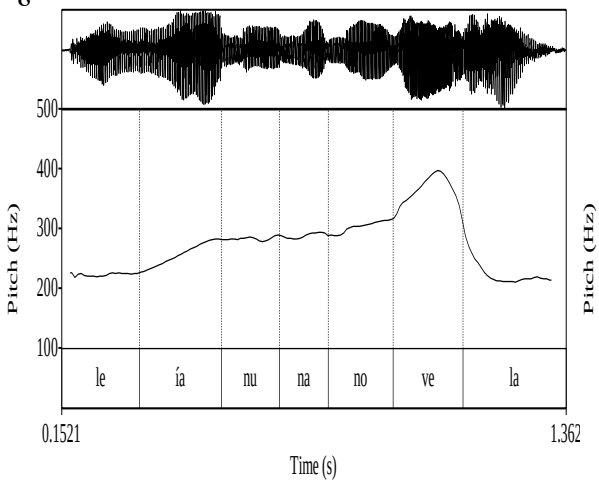


Figure 4.35. Example contours of interrogative change over time as similar to an English pattern at Time 1 and an example Target Language pattern at Time 2. The example target language pattern is adopted from Face (2007) and is an example of Madrid Spanish.

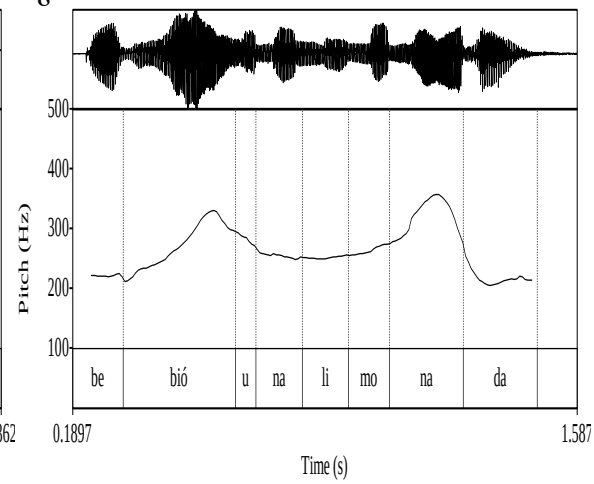
[19] When observing Figure 4.35, it should be remember that this example Time 1 interrogative pattern does not represent Emma's most frequent interrogative pattern. Her most frequent Time 1 pattern had a prenuclear rise. This pattern which lacks a prenuclear rise is shown here to illustrate the fact that, while it was present at Time 1, it was completely replaced by Time 2.

In addition to the increased use of rising prenuclear pitch accents in absolute interrogatives, the Time 2 data also clearly showed an increased use of circumflex final boundary movements, albeit in fewer numbers. While this pattern was the most frequently produced formal interrogative pattern for only one of the nine learners at Time 2, five learners did produce some circumflex interrogatives. The circumflex boundary movement is a feature that is clearly associated with the target language, in this case the target dialect. It may be possible that some varieties of English make use of a similar pattern to communicate specific pragmatic meanings, but the circumflex is definitely not commonly used in English absolute interrogatives (Liu & Xu, 2007; Seong et al., 2002; Thompson, 1995). Furthermore, Trimble (2013) showed that native English speaking learners of L2 Spanish without exposure to the circumflex absolute interrogative had difficulty discerning its sentence type when comparing declaratives and interrogatives. Figure 4.36 shows two example contours of Leah's Time 2 interrogative circumflex pattern above an example contour produced by Luis, a native Venezuelan Andean speaker, from the current study and an example contour adopted from Astruc et al. (2010).

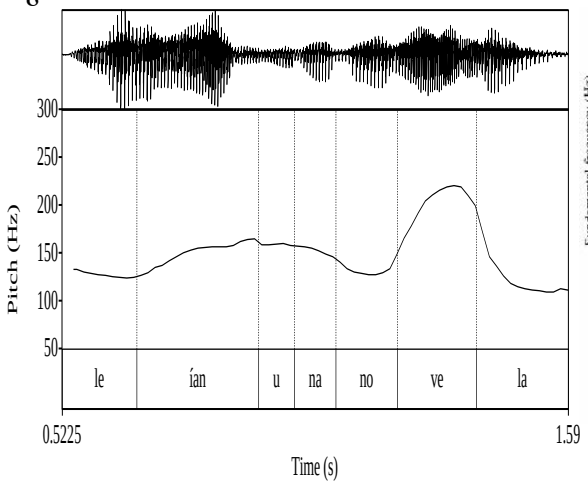
Ex. Circumflex Inter. Time 2 - Leah
"¿Leían una novela?"



Ex. Circumflex Inter. Time 2 - Leah
"¿Bebió una limonada?"



Ex. Native Speaker Interrogative - Luis
"¿Leían una novela?"



Ex. Circumflex Inter.-Venezuelan Andean
"¿Comes mandarinas?"- Astruc et al. (2010)

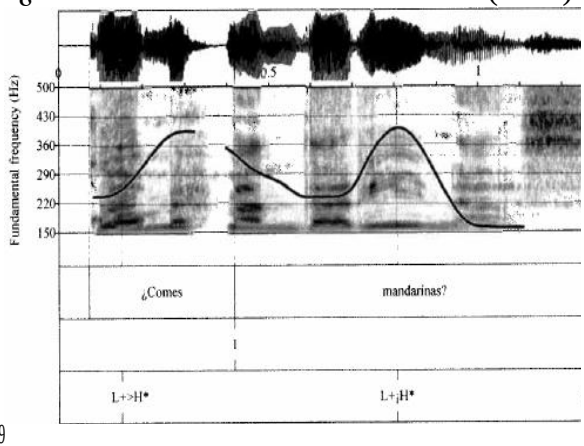


Figure 4.36. Example contours of interrogative change over time as the Time 2 incorporation of the Venezuelan Andean circumflex absolute interrogative pattern

4.3.5 Summary and discussion

Considering the changes in the learners' L2 Spanish intonation in conjunction with their native and target languages has revealed several Time 1 characteristics that were likely products of L1 transfer: high initial tones, falling prenuclear F0, and final

slight rises in declaratives. The Time 2 data showed a dramatic reduction of these features. Previous research on L2 intonation has also documented a decrease in L1 transfer as part of the L2 acquisition of intonation (cf. McGory, 1997; Kelm, 1987, 1995; Nibert, 2005). Moreover, a major finding of Ramsey's (1997) dissertation was that advanced learners showed less L1 transfer than beginning learners in terms of the declarative, absolute interrogative, and pronominal interrogative contours they produced. The reduction of transfer errors over time is also a central postulate of Major's Ontogeny Model (1986, 1987a, 2001).

In addition to the reduction of L1 transfer over time, the data show intonational change in terms of increased use of target language features, such as prenuclear rising pitch accents and some incorporation of the circumflex boundary movement by certain learners. A closer look at the tendency to increase usage of these two particular intonational features provides some insight into whether L2 intonation, and potentially other suprasegmental features by extension, may fit well into models of L2 phonology which have been developed through research on segmental features. As reported in chapter 2, Flege's equivalence classification (1987) and Speech Learning Model (1995) make predictions about how easily target language phones will be perceived by learners based on comparisons with their native language. According to these models, phones that are *identical* are easily transferred into interlanguage, phones that are completely *new* are easily perceived by learners, but phones that are *similar* but not identical are often overlooked.

The increased use of rising pitch accents to mark stressed syllables prenuclearly in declaratives and absolute interrogatives seems to be compatible with Flege's Speech Learning Model (SLM). Rising prenuclear pitch accents are intonational features which are used commonly in English intonation, even though they are not typically used in broad focus declaratives. According to Pierrehumbert and Hirschberg (1990), the L+H accents, L*+H and L+H*, are used by the speaker "to convey the salience of some scale…linking the accented item to other items salient in [the hearer's] mutual beliefs (p. 294). L+H* in particular is used most often to "mark a correction or contrast" (p. 296). While these rising pitch accents may not be phonetically identical to the rising pitch accents used prenuclearly in Venezuelan Andean broad focus declaratives and absolute interrogatives, which are analyzed as L+>H* in Astruc et al.'s (2010) Sp-ToBI analysis, they do resemble them. In this way, when learners begin using prenuclear rising pitch accents in their L2 Spanish, they seem to be easily re-categorizing an aspect of their L1.

However, the main difference between the English rise and the Venezuelan Andean rise appears to be that the Venezuelan Andean peak is delayed into subsequent unstressed syllables. Considering these rises in Flege's model, they might be categorized as similar but not phonetically identical. Thus, Flege's model would predict that learners would overlook the delayed peak, which appears to be a phonetic difference, and expect learners to have trouble establishing a new phonetic category for this rise. As pointed out above at the end of subsection 4.3.3, the learner participants of this study did realize their prenuclear peaks earlier than native speakers. Their tendency to use earlier peaks may be evidence they have overlooked the phonetic difference in the two languages.

The circumflex pattern represents a rather unique phonological feature whose acquisition may be only partially explainable with SLM. On the one hand, it seems clear it should be considered a new feature. As discussed in the previous subsection (4.3.4), it is certainly perceptually very different than the typical absolute interrogative pattern in English. This newness would lead us to expect learners to easily perceive its differences and to be able to establish a new phonetic category in their L2 Spanish with relative ease. The data from the five learners who adopted some circumflex use support this premise to a certain extent. For example, by Time 2 Leah's formal data showed she had already adopted the circumflex pattern as her most frequent absolute interrogative after only fifteen weeks. Additionally, her circumflex boundary movements from the formal task were consistently realized with the same alignment as native speakers. Yet, her prenuclear rising pitch accents still tended to peak within the stressed syllable, suggesting she may have failed to acquire the delayed peak of native speakers (See Figure 4.37).

Example Declarative Time 2 - Leah
"Bebió una limonada."

Example Circumflex Time 2 - Leah
"¿Bebió una limonada?"

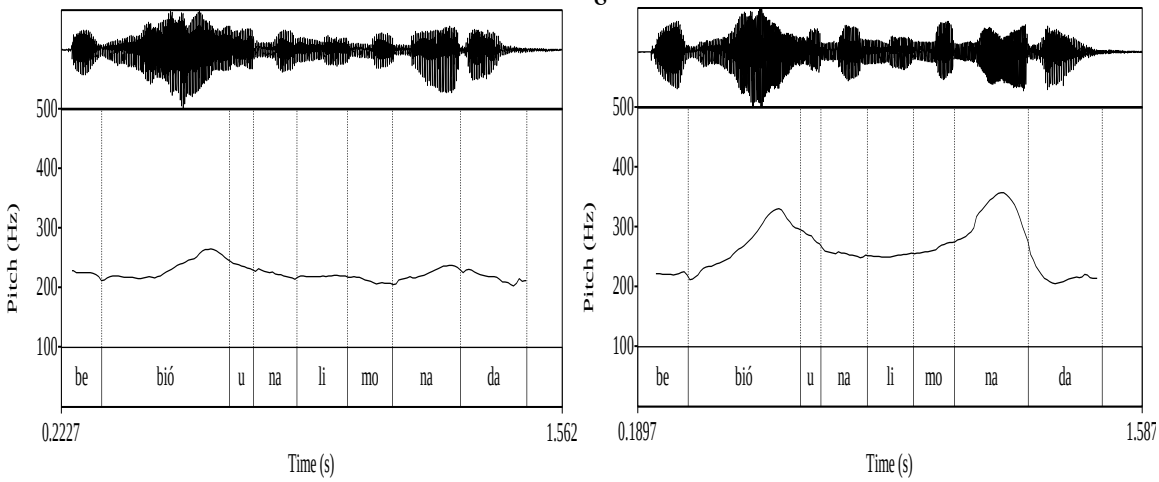


Figure 4.37. Examples showing prenuclear rises with early peaks in Leah's Time 2 Declarative and Circumflex Patterns

On the other hand, four learners in this study did not produce any circumflex patterns, despite the fact it might be considered a *new* and perceptibly salient feature. Many varieties of Spanish do not use a circumflex pattern for absolute interrogatives. The fact that relatively more Spanish dialects employ a final boundary rise in absolute interrogatives makes it very likely that the learners of this study had had extensive exposure to the absolute interrogative final rise before traveling to Venezuela. In that sense, the four learners who did not produce any circumflex patterns may have simply more strongly internalized the final boundary rise as the Spanish absolute interrogatives before traveling abroad than the five who did acquire it to varying degrees. However, this explanation is questionable given the fact that most of the learner participants began at similar proficiency levels and had come from the same region of the United States. In other words, there probably was not enough variation in their previous input and experience with Spanish to claim that these four learners in particular had more deeply internalized the final boundary rise for absolute interrogatives. The question of why some learners began using this new circumflex pattern in a relatively short amount of time (fifteen weeks) and others did not will be further discussed in the following sections.

4.4 Stylistic/task variation

Section 4.4 is divided into three subsections. The first provides a description of the declarative and interrogative intonation produced by the nine learners during the informal task. The purpose of the first subsection is not only to document the L2 intonation produced in a more informal conversational context, but also to make explicit comparisons to the learner's formal L2 intonation when possible. This subsection also

provides information about the proficiency levels of each learner as a way to supplement information from their previous course enrollment and the written grammar task. The informal task may more accurately reflect their speaking abilities. The learners' speaking proficiency may be an important factor in their propensity to adopt new L2 intonational features. The second subsection focuses on the Time 2 absolute interrogative pattern use observed in the informal data providing a quantitative summary which allows for a statistical comparison across the two stylistically different tasks. Finally, the third subsection discusses the significance of stylistic/task variation in L2 Spanish intonation in relation to previous research in variationist SLA.

4.4.1 Informal individual learner profiles

Before discussing the learner informal intonation in a speaker-by-speaker description, it is important to recognize that the results of this section are complicated for a number of reasons. First, while in many ways the results of an informal interactive-type task are advantageous in second language acquisition research, conversational data is particularly challenging in the study of intonation. As mentioned in previous chapters, intonational phonologists have preferred a laboratory approach which can control for emotional and pragmatic factors that can affect intonation. Furthermore, free speech inevitably produces many voiceless consonants which consequently result in gaps in computer generated representations of intonational contours. Free speech also naturally contains hesitations and inaccuracies. The potential for gaps in readable intonational contours is magnified when dealing with learners speaking their second language.

Learner L2 speech may be more prone to hesitation and creaky voice than native speech simply because learners tend to be less confident in their ability to express themselves.

For these reasons, this study takes a conservative approach to reporting and interpreting the informal results. First, the informal results presented here focus mostly on final boundary movements, because, with very few exceptions, final boundary falls, rises, and circumflex patterns were easily recognizable. Furthermore, even in cases where the learners' speech was choppy and unsure through the majority of their speech turn, they usually delivered a clear final boundary tone to indicate the end of their speech turn. Additionally, extra caution was used when extracting both declaratives and interrogatives in an effort to minimize potential effect of pragmatic meaning. In other words, any utterances that were not very clear cases of broad focus declaratives or absolute interrogatives were excluded. As a result, depending on the learner and the recording session (Time 1 or Time 2), in some cases the number of extracted utterances was quite small (i.e., as low as two utterances in some cases). Declaratives were particularly venerable, given that truly neutral broad focus declaratives may be rare in conversational games and certain learners did not give very many hints to begin with, depending on their proficiency level and personality.

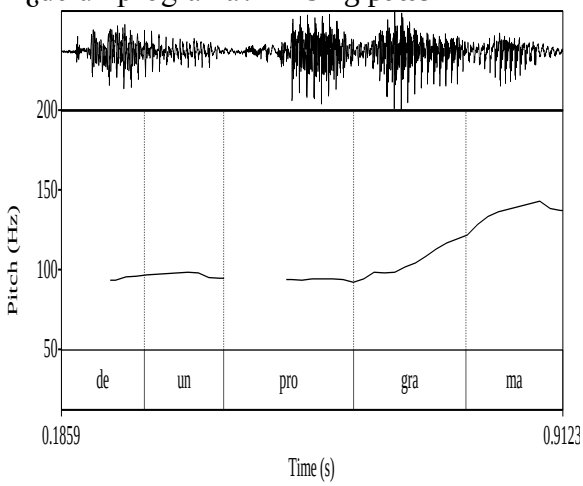
In addition to descriptions of each learner's informal intonation, each subsection includes specific frequency information for Time 2 absolute interrogatives. The frequency of rising and circumflex final boundary movements in Time 2 absolute interrogatives will be of interest in the following discussion of stylistic variation across tasks. The first five learner profiles presented here include example pitch tracks

illustrating Time 2 informal absolute interrogative rising and circumflex patterns as produced by Ed, Leah, Linda, Kayla, and Gavin. These examples allow for comparison of the two distinct patterns these learners used in the informal task. It should be noted that some of the contours are missing portions of the pitch track due to unvoiced consonants. As the remaining four learners did not show variation in Time 2 interrogative pattern use, their profiles do not include example contours.

4.4.1.1 Learner 1 - Ed

Ed was at a higher level of proficiency than his partner at Time 1, so he tended to carry the conversation during the informal task. Ed's informal declaratives, like his formal declaratives, showed both falling final boundary movements and slight rises at Time 1. However, the slight rise that was characteristic of his most frequent Time 1 formal declaratives was not found at Time 2 in either task. As for his question intonation, at Time 1 he consistently used a final rise for his absolute interrogatives, but there was considerable variation in final pitch height. His Time 2 absolute interrogatives showed a mix of final rises (54%, 7/13) and circumflex boundary movements (46%, 6/13). Figure 4.38 shows an example of each of his informal Time 2 absolute interrogative patterns.

Ex. Informal Time 2 Interrogative - Ed
"¿de un programa?" -rising pattern



Ex. Informal Time 2 Interrogative - Ed
"¿Es un, una ciudad?" -circumflex pattern

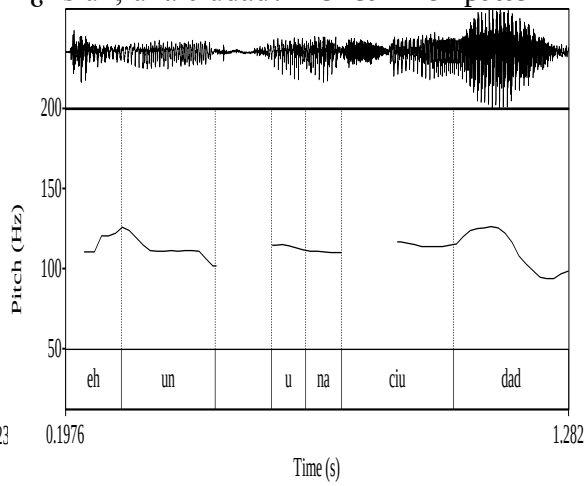
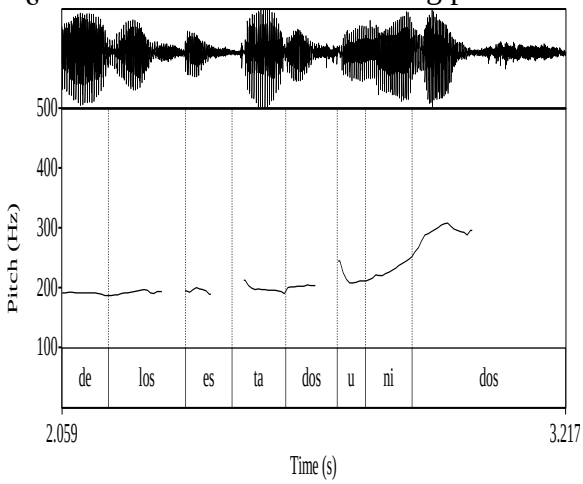


Figure 4.38. Example Time 2 Informal Absolute Interrogatives - Ed

4.4.1.2 Learner 2 - Leah

Leah's Time 1 informal task showed that she was already a confident speaker and at a higher level of proficiency than her informal task partner. That said, her utterances included a large amount of creaky voice. Her Time 1 declaratives showed a majority of final falls, but also a couple final slight rises. Most of the hints she gave at Time 2 were not broad focus declaratives, but the two that were confidently neutral used falling final boundary movement. All of her absolute interrogatives at Time 1 used final rises, while at Time 2 she used six circumflex patterns (37.5%) in addition to ten final rises (62.5%). Figure 4.39 shows Time 2 examples of her rising pattern, which was categorical at Time 1, and her circumflex pattern, which made up 37.5% of her informal absolute interrogatives at Time 2.

Ex. Informal Time 2 Interrogative - Leah
"¿de los Estados Unidos?" -rising pattern



Ex. Informal Time 2 Interrogative - Leah
"¿Está vivo?" -circumflex pattern

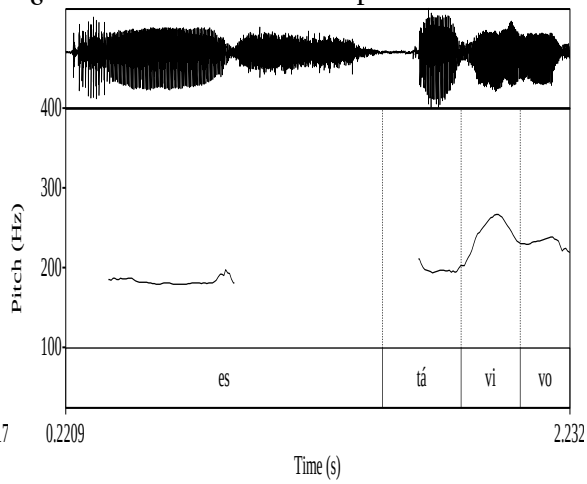
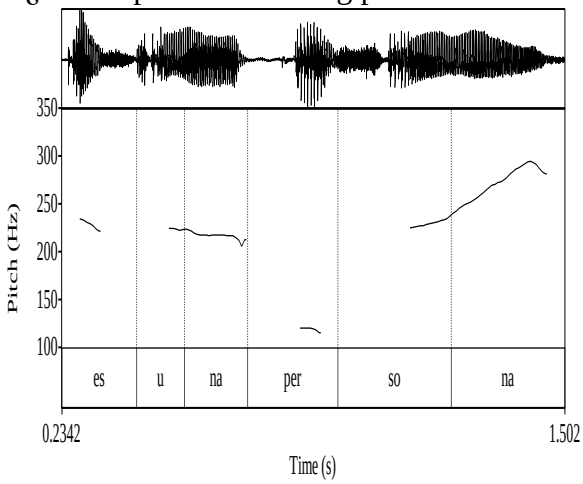


Figure 4.39. Example Time 2 Informal Absolute Interrogatives - Leah

4.4.1.3 Learner 3 - Linda

At Time 1, Linda was at a noticeably lower proficiency level than her partner. Probably because of her level, she offered very few hints during the informal task. Only two of her broad focus declaratives could be reliably analyzed, one of which showed flat F0 from the nuclear position to the final tone and one that showed a final boundary fall. At Time 2, she produced four clear falling final boundary movements. Three of them showed evidence of downstepping, which was not apparent in her Time 1 declaratives. Her Time 1 informal interrogatives tended to sound unconfident and had relatively flat pitch before nuclear position, but they always used a clear final rise. Her Time 2 interrogatives used a majority of final rises (64%, 9/14) but also a definite presence of circumflex final boundary movements (36%, 5/14). Figure 4.40 shows an example of each of her informal Time 2 absolute interrogative patterns.

Ex. Informal Time 2 Interrogative - Linda
"¿Es una persona?" -rising pattern



Ex. Informal Time 2 Interrogative - Linda
"¿Es una persona?" -circumflex pattern

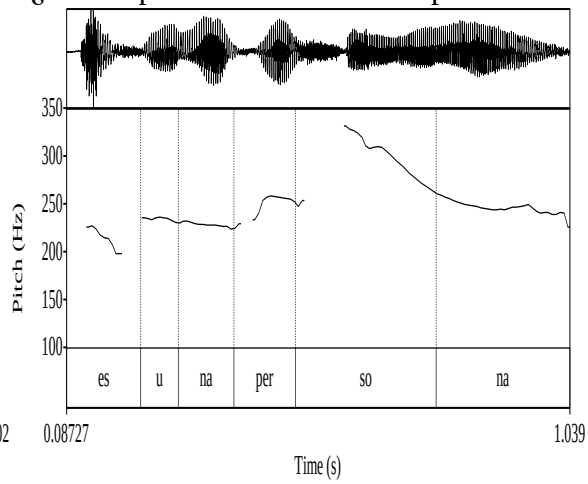
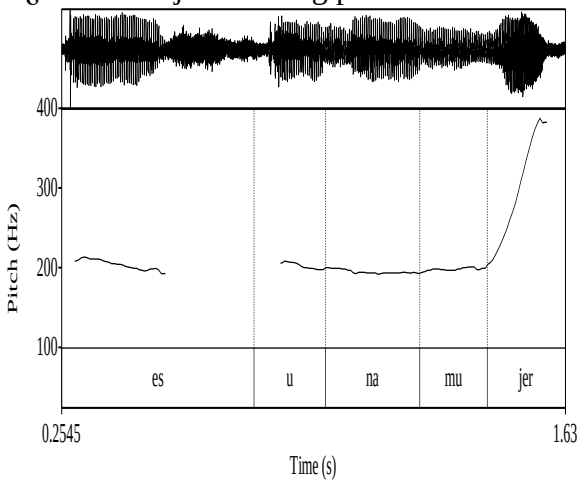


Figure 4.40. Example Time 2 Informal Absolute Interrogatives - Linda

4.4.1.4 Learner 4 - Kayla

Kayla also produced very few broad focus declaratives at Time 1 and Time 2. Her lesser amount of production was probably more reflective of her personality than of her proficiency level, as she and her partner were at similar levels. Her analyzable declaratives at both Time 1 and Time 2 showed falling final boundary movements. All of her Time 1 absolute interrogatives had final rises, but at Time 2 she produced nine rises (75%) and three circumflex final boundary movements (25%). Example Time 2 contours are shown in Figure 4.41.

Ex. Informal Time 2 Interrogative - Kayla
"¿Es una mujer?" -rising pattern



Ex. Informal Time 2 Interrogative - Kayla
"¿Es una persona?" -circumflex pattern

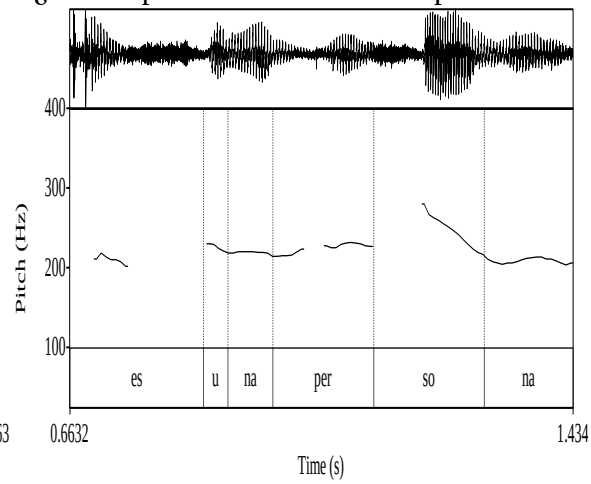


Figure 4.41. Example Time 2 Informal Absolute Interrogatives - Kayla

4.4.1.5 Learner 5 - Gavin

Gavin was partnered with a learner who was at a higher proficiency level and was also more eager to use Spanish than he was. While Gavin only produced three analyzable broad focus declaratives at Time 1, it is noteworthy that two of them used low flat F0 through nuclear and final positions. The other showed a clear falling final boundary movement. At Time 2, some of his declaratives were also flat through nuclear and final positions, but in the utterances with more than one stressed syllable the F0 height of the nuclear low tone was consistently lower than prenuclear F0 (i.e., downstepping). Gavin also produced clear falling boundary movements at Time 2. His absolute interrogatives were all rising at Time 1, but at Time 2 he used a 50/50 mix of rises and circumflex patterns producing six of each (see Figure 4.42).

Ex. Informal Time 2 Interrogative - Gavin "¿una mujer?" -rising pattern

Ex. Informal Time 2 Interrogative - Gavin "¿un jugador?" -circumflex pattern

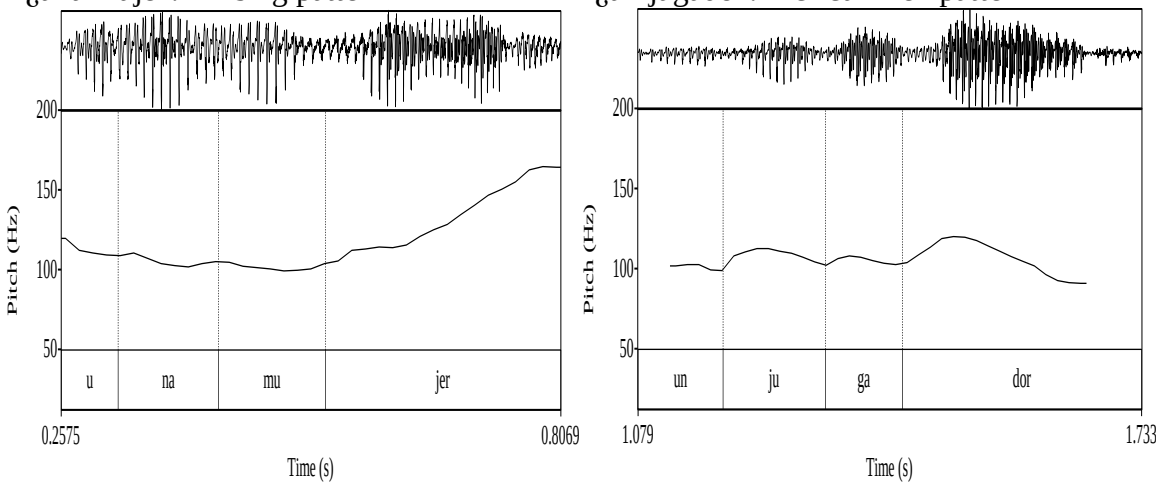


Figure 4.42. Example Time 2 Informal Absolute Interrogatives - Gavin

4.4.1.6 Learner 6 - Anna

At Time 1, Anna was at a similar proficiency level as her partner. Her speaking ability was near the mean for the group. All three of Anna's Time 1 analyzable broad focus declaratives used final slight rises. On the other hand, her Time 2 declaratives showed a majority of falling final boundary movements. Her absolute interrogatives did not show major changes between Times 1 and 2. They consistently used final rises with varying steepness.

4.4.1.7 Learner 7 - Matt

Matt was clearly a competent and expressive speaker of Spanish at Time 1. He was at a higher level of proficiency than his partner and tended to control the conversation. The intonational analysis revealed that his L2 intonation was also quite developed. His broad focus declaratives showed consistent use of falling final boundary movements as well as downstepping. Both his Time 1 declaratives and absolute

interrogatives showed prenuclear rises when the utterances where analyzable in prenuclear position. His absolute interrogatives consistently used final rises. His Time 2 informal declaratives and interrogatives were similar in their patterns and consistency.

4.4.1.8 Learner 8 - Haley

At Time 1, Haley was at a similar, if not slightly lower, proficiency level as her partner for the informal task. She did not show major changes in her informal task intonation between Times 1 and 2. She did become more expressive and produced more analyzable utterances at Time 2. Her broad focus declaratives showed falling final movements at both Times; and her absolute interrogatives consistently showed rising final movements.

4.4.1.9 Learner 9 - Emma

Emma, like Matt, showed a high level of proficiency during the informal task at Time 1. She, however, did not control the conversation and was paired with a learner who was at a similar proficiency level. While she only produced one analyzable broad focus declarative at Time 1, it showed a falling final pattern, which was also characteristic of her dominant declarative pattern at Time 2. Finally, she consistently used rising final patterns in all of her absolute interrogatives and both Time 1 and Time 2.

4.4.2 Summary and statistical analysis

The above informal intonation learner profiles have revealed a few characteristics of the learners' informal L2 Spanish intonation that were also apparent in the formal results. Even though informal declarative data was limited, it can be noted that final slight rises were observed in Ed, Leah, Linda, and Anna's Time 1 informal intonation. Ed,

Leah, and Anna's most frequent Time 1 formal declarative pattern also had a final slight rise. Likewise, Kayla and Gavin's informal Time 1 declaratives showed flat F0 in final position, which was a characteristic of their formal Time 1 most frequent declarative pattern. Much like the results of the formal task, the Time 2 data showed a strong preference for falling final boundary movements in the analyzable informal declaratives. In other words, the reduction of final slight rises which was attributed to L1 transfer during the analysis of the formal results was also present in the informal results. The limited number of cases of broad focus declaratives in the informal task prevents a comparison across the two tasks using declaratives.

The relationship between task formality and L2 intonation can, however, be investigated by comparing the use of final rises and circumflex patterns in absolute interrogatives across the two stylistically different tasks. The use of final rising patterns was nearly categorical in the pragmatically neutral absolute interrogatives at Time 1. On the other hand, the Time 2 informal data showed a relatively large number of analyzable absolute interrogatives with fairly frequent cases of both final boundary rises and final boundary circumflex movements. Table 4.2 shows the number of final rises and final circumflex movements produced as absolute interrogatives at Time 2 in the formal and informal tasks.

	Formal		Informal	
Learner	Rise	Circumflex	Rise	Circumflex
Ed	16	0	7	6
Leah	8	8	10	6
Linda	15	1	9	5
Kayla	11	4	9	3
Gavin	13	2	6	6
Anna	15	0	13	0
Matt	16	0	17	0
Haley	16	0	9	0
Emma	16	0	12	0
Total	126	15	92	26

Table 4.2. Comparison across tasks of the number of final rises and circumflex patterns produced in Time 2 absolute interrogatives

Several observations can be made from Table 4.2. First, four of the nine learners did not produce any circumflex patterns in either task (Anna, Matt, Haley, & Emma). Second, Ed, Linda, and Gavin produced the circumflex much more commonly in the informal task than in the formal one. On the other hand, Leah produced more circumflex patterns in the formal task. And, the frequency of Kayla's circumflex pattern did not show much difference across the tasks. Overall, the informal task rendered a larger number of circumflex patterns than the formal task (26 informal versus 15 formal).

In order to statistically investigate the difference between the two tasks, a two-way repeated measures ANOVA with Task (formal versus informal) and Pattern (rise versus circumflex) as factors was used. The ANOVA found significant main effects for Task ($F_{1,8}$=11.137, p=.01, partial eta-squared=.582) and Pattern ($F_{1,8}$=38.678, p<.001, partial eta-squared=.829), as well as a significant interaction between the two factors ($F_{1,8}$=5.844, p=.042, partial eta-squared=.422). In other words, not only were there differences in use of the two patterns and in the tasks, but there was a significant

difference in the frequency of a particular pattern (rise versus circumflex) depending on the style of the task (formal versus informal). Table 4.3 shows the frequency of the two final boundary types for the five learners who produced any circumflex patterns. The circumflex pattern was clearly used in both tasks, but its use was more prevalent in the informal task. These five learners produced the circumflex in 39% of informal absolute interrogatives versus only 19% of formal ones.

	Formal		Informal	
Learner	Rise	Circumflex	Rise	Circumflex
Ed	100%	0%	54%	46%
Leah	50%	50%	63%	38%
Linda	94%	6%	64%	36%
Kayla	73%	27%	75%	25%
Gavin	87%	13%	50%	50%
Total	81%	19%	61%	39%

Table 4.3. Comparison across tasks of frequency of final boundary rises and circumflex patterns in Time 2 absolute interrogatives

4.4.3 Discussion

The significant difference across the two tasks suggests L2 intonation shares with L2 segmental phonology a sensitivity to stylistic variation. Here, the circumflex pattern, which is a native-like characteristic of the target dialect, was more frequently used in an informal interactive game. As mentioned in chapter 2, Díaz-Campos (2006) found more native-like production of certain difficult to acquire Spanish segments in conversational data which was gathered during OPIs (oral proficiency interviews) than in read speech. Additionally, Zampini (1994) found more native-like pronunciation in a conversational task than in a reading task.

A general assumption of variationist approaches to SLA (e.g., Bayley & Tarone, 2012; Beebe, 1980; Dickerson & Dickerson, 1977; Liu, 2000; Tarone, 1979) is that formal tasks inevitably lead learners to pay more attention to their speech form. In this light it seems the participants of this study were more likely to produce the circumflex pattern when they were paying less attention. Attention to form may be what leads some of them to prefer the final rise in the formal task.

Perhaps this preference for the rise in formal contexts is related to a tendency to avoid the regional circumflex absolute interrogative. As mentioned in the previous section, the circumflex is not a pattern used by many varieties of Spanish for absolute interrogatives. Not only would the final rise have been considerably more present in the learners' input before traveling abroad, but they may have also had exposure to the final rise while in Venezuela through contact with native speakers from other dialectal regions such as highland Colombia. Thus, the less frequent use of the circumflex pattern in the formal task could be evidence that learners are sensitive to the regional nature of the circumflex pattern. Then, more focus on form may lead them to a more cautious speech style and result in more standard L2 intonational use.

A growing body of research has documented the acquisition of variable target language structures by learners of L2 Spanish (See Geeslin, 2011 for a current review of relevant literature). According to Geeslin (2011), since second language variation research has focused primarily on the effect of linguistic context, social context, and individual characteristics, future research should also investigate the acquisition of linguistic features which vary geographically. If the learners who studied in Venezuela

are showing caution in their L2 intonation by avoiding regional features, they would be showing not only sensitivity to geographic target language variability but associating a particular variant with a more formal style. In this vein, Beebe (1980) showed learners manifest L1 stylistic preferences in their interlanguage speech. Her participants' L2 English speech showed a preference for a variant with social prestige in their L1 Thai during a formal reading task. Perhaps when learners of L2 Spanish prefer the feature more commonly used outside of the Venezuelan Andes in the formal task they are manifesting L2 geographic preferences in their interlanguage speech.

Alternatively, the fact that the circumflex pattern was more frequent in the informal task could be viewed as evidence of an interlanguage change in progress. Liu's (2000) longitudinal research found development began to show itself in informal settings before spreading to more formal ones over time. Therefore, the higher circumflex presence in the informal task could be related to the fact that it is a newly developed pattern for the learners. Perhaps a more prolonged exposure to Venezuelan Andean Spanish would later lead to more frequent use in formal settings. This may explain why Ed, for example, did not use any circumflex patterns in the formal task. Following that logic, a possible explanation of Leah's frequent use in the formal task may be that she was further along in this process than Ed, Linda, and Gavin. Another possible explanation may be found in how she interpreted the tasks in comparison to the other learners. She seemed to do exceptionally well imagining a real conversation during her performance of the formal task. She tended to really play her part more than any other learner. Therefore,

her interpretation of the formal task may have lead to L2 production that was not really reflective of language she would use in formal context.

4.5 Interaction with native speakers and individual learner variables

In an effort to gain an understanding of the study abroad experience had by the learner participants of this study as well as an idea of the amount and quality of native speaker contact they had, this section provides information gathered through three language contact profile questionnaires. As described in the methodology chapter, the first was administered before the learners left for Venezuela (Appendix B). The second was administered in the middle of the semester (8th week) (Appendix C). And, the third was administered during the last week of the program (15th week) (Appendix D). The language contact questionnaires are also supplemented by information gathered through informal conversations with the participants during the eighth and fifteenth weeks.

This section is organized into four subsections. Section 4.5.1 presents information about each learner's experience in Venezuela and interaction with their host family and friends. Section 4.5.2 presents a statistical analysis of the effect of Spanish and English language use habits on L2 intonational development. Section 4.5.3 divides the learners into two groups according to their interaction with native speakers and compares their L2 intonational development using a second statistical analysis. Section 4.5.4 discusses these results while providing additional detail about each learner's native speaker interaction and other individual factors in an effort to further understand variation in the L2 acquisition of intonation at the individual learner level.

4.5.1 Individual learner experiences

As mentioned in chapter 3 on methodology, all nine learner participants of this study were placed in homestays and spent fifteen weeks living with Venezuelan families. The learners' homestay experience is possibly one of the aspects of their experience abroad that varied the most. As will be seen below, some of the learners reported excellent relationships with their host families with whom they had long conversations daily. Others reported they hardly saw their host families. The learners with strong host family relationships often reported that their homestays were a particularly good place to practice their Spanish because the members of the host family would be helpful and supportive. Another variable the learners reported as important was whether or not they lived with other American students. Two of the learners were the only native English speakers living in the home, while the other seven shared living arrangements with fellow study abroad participants.

In addition to their host families, many learners also spent considerable amounts of time speaking Spanish with Venezuelan friends. As mentioned in the Methodology chapter, one of the attractive aspects of this study abroad program at VENUSA is that it affords ample opportunities to meet Venezuelans. Many Venezuelans take English courses at VENUSA and the institute hosts conversation hours and intercultural exchange activities. As would be expected, the Spanish contact each learner had with Venezuelan friends was also an important factor.

Most learners spoke mostly Spanish with all the Venezuelans with whom they had contact (i.e., Host Family, Venezuelan Friends, Venezuelan Professors). In contrast, the

learners reported usually speaking English with their fellow American study abroad participants. Overall, there was quite a bit of variability in the amount of time each learner reported spending speaking Spanish and English. Some learners reported speaking Spanish more than six hours a day, seven days a week. Others reported only speaking Spanish as little as an hour per day and not every day.

The following subsections provide information about each learner's homestays, friendships, and language use habits while in Venezuela. These results are self-reported by the learners. Consequently, there may be some variation in the way each learner interpreted the questionnaires on their language use. Because it may be an important factor related to their intonational development, each subsection also mentions how each learner responded to the following question from the final language contact questionnaire:

> When you speak Spanish, who would you like to sound like? Is there someone in particular you try to emulate in terms of tone, pronunciation, word usage, etc.? Please explain with as much detail as possible, mentioning at least something about who this person(s) is in relation to you, where he/she/they are from, and why you would like to sound like them, etc.

4.5.1.1 Learner 1 - Ed

Ed reported having an excellent relationship with his host family. He did not live with other Americans and felt that living "alone" helped him become more independent and more able to establish friendships with Venezuelans. By the end of the semester, he had established close friendships with a small group of Venezuelans. In the second half

of the semester he spent a tremendous amount of time with this group and less time with his host family. He spent several hours a day with one of his friends in particular and saw the others at night and on weekends. All in all, Ed had extensive contact with Venezuelans, with whom he spoke in Spanish almost exclusively. He reported using relatively little English during the semester. Overall, Ed had a great experience in Venezuela and an overwhelmingly positive attitude. He said he loved Venezuela and did not want to go home. When asked who he would like to sound like, Ed responded:

> When I speak I try to sound like a native without an American accent. I mimic any Spanish terms or pronunciation I hear on the streets or when I travel. My goal is to become completely proficient and fluent in the Spanish language, so I am always listening to little things in speakers' tones and pronunciation that I copy to sound more native to the language. I would think I am mostly influenced by one of the friends I made during the semester. I was with him all the time…I don't try to sound like him, but it may have rubbed off hanging around him so much.

4.5.1.2 Learner 2 - Leah

Leah shared her homestay with two other American study abroad participants. She reported having a cordial relationship with her host family. She reported that the members of her host family were always very nice, but she did not feel that they had a close relationship. She undoubtedly spent more time with her friends than with her host family. In fact, Leah reported getting to know very well her Venezuelan friends with whom she spent lots of time outside of VENUSA and over the weekends. Over the course of the semester, she did many activities with them including traveling, going out at night,

shopping, etc. She almost always spoke Spanish with these friends and felt that spending so much time with them made a big difference in her learning, particularly in the second half of the semester. When asked about who she would like to sound like, Leah wrote:

> There is not one person in particular that I would like to sound like, but I do try to listen carefully to the accents of my Venezuelan friends and family because I want to adapt a more natural accent when I speak in Spanish.

4.5.1.3 Learner 3 - Linda

Linda was the only American living with her homestay. She reported having a fantastic relationship with her host family. She spent lots of time with them and says they were very supportive in helping her learn. In the first half of the semester she spent more time speaking Spanish with her host family than with her friends. By the second half, she spent more time with her Venezuelan friends and reported seeing them at least five days a week. She said she spent a lot of time speaking Spanish over the semester, but also found herself speaking English often when other Americans were around. She commented that reading and listening to Spanish music also contributed to improving her Spanish. Overall, she reported loving being in Venezuela and wanting to see other parts of Latin America. She is considering teaching English and living somewhere in Latin America. When asked who she would like to sound like, she responded:

> …my friend who is from Mérida. I [would] like to sound like her because she talks very casual and is always joking with her friends. I like the tone of her Spanish. [It is] always happy and slightly slang but still uses good grammar and intelligent word choice when need be.

4.5.1.4 Learner 4 - Kayla

Kayla felt she did not have a very positive homestay experience. She lived with one other American and the two of them hardly saw their host family. Most participants in the study abroad program had daily conversations with their host family at dinner time, which was one of the two meals the host families provided. Kayla and her roommate usually did not even see their host family at dinner time. Kayla reported not spending much of her day speaking Spanish or English in the first half of the semester. In the second half, however, she made two really good Venezuelan friends with whom she spent a lot of time and texted frequently. She commented that texting had improved her Spanish considerably. When asked about who she would like to sound like, she said there is not anyone in particular.

4.5.1.5 Learner 5 - Gavin

Gavin felt he and his host family established a healthy relationship, but that there was not anything special about it. He lived with one other American and they spent some time everyday speaking Spanish with their host "mom". Even though he spoke with his host mom every day, Gavin still reported spending more time speaking Spanish with Venezuelan friends in the first half of the semester. In the second half, he spent even more time with Venezuelan friends and felt that his ability to "put himself out there" and lose "the fear to speak and make mistakes" really contributed to his Spanish improvement. When asked who he would like to sound like, he answered, "I try to sound like my friends. I believe…accent is crucial for not only learning the language but also gaining respect from the native speakers."

4.5.1.6 Learner 6 - Anna

Anna reported having a great homestay experience. She lived with two other American students and they felt very much a part of their large Venezuelan family. She reported spending many hours speaking Spanish with members of her host family as well as Venezuelan friends. She also reported spending four to five hours per day speaking English. In the second half of the semester, however, she spent every weekend with her Venezuelan friends and spoke only Spanish with them. When asked who she would like to sound like she said, "I have never thought about this. I do not intentionally try to emulate anyone in particular. If anything the most I take from someone are phrases or slang words."

4.5.1.7 Learner 7 - Matt

Matt reported having a great relationship with his host family. He lived with one other American and the two spoke Spanish with their host family every day. That said, he reported only spending around a half an hour per day speaking with his host family. In the second half of the semester he spent more time speaking Spanish with Venezuelan friends. Overall, Matt reported speaking more English than Spanish. He felt continuing to speak Spanish regardless of errors helped him improve. He also commented playing soccer with locals was useful for his Spanish. When asked who he would like to sound like he contemplated the question and decided on his Colombian host mom. He appreciated that her accent was easy to understand and not too fast. He said "her accent, fluency, and word usage are all things I strive to achieve."

4.5.1.8 Learner 8 - Haley

Haley lived in a homestay with one other American student. Her relationship with her host family got off to a rocky start. She had to talk to the homestay coordinator about her situation and potentially changing homestays. Later on, in the second half of the semester, she reported that her homestay was fine, but she did not have many conversations with them. They did typically have short conversations at meal time. She spent much more time speaking Spanish with her Venezuelan friends. She went out most nights with her Venezuelan friends; and they spoke entirely in Spanish. She reported spending a lot of time speaking English during the first half of the semester, but less in the second half. She felt spending more time with her Venezuelan friends in the second half really helped her Spanish a lot. When asked who she would like to sound like she responded, "I would like to speak like my professor who enunciated her words very clearly but with an interesting rhythm, not stopping very often. She was very good at rolling her R's and really accentuating each word."

4.5.1.9 Learner 9 - Emma

Emma's homestay included one other American student. Emma reported hardly ever interacting with her host family. She felt she did not really have opportunities to practice Spanish at home. In terms of time spent per day, Emma reported spending relatively very little time speaking Spanish compared to the other learners. She reported spending a little more time speaking Spanish in the second half of the semester than the first, but overall she still reported speaking considerably more English than Spanish. She did not report making a conscious effort to sound like anyone in particular:

> There's no particular person I try to sound like when I speak Spanish… I tried to sound more like [native speakers] in general, by bettering my pronunciation but there has not been a specific person that I have been trying to emulate. I definitely started using more words that Venezuelans use, such as slang and stuff, but I think that's natural after living somewhere for a few months.

4.5.2 Statistical analysis of L2 intonational development and ratio of time spent speaking Spanish and English

This section now turns from an examination of each individual learner's reported interaction with native speakers to a quantitative statistical analysis of their L2 intonational development. The small number of participants of this study prevents sweeping conclusions based on statistical analysis of this group of nine learners. Nevertheless, the individual learner summaries of native speaker interaction of the previous subsection can be further informed by an examination of the learners' self-reported time speaking Spanish and English. Some learners, typically those who established relatively strong relationships with their host families and Venezuelan friends, dedicated most of their language use to speaking Spanish. Others spent considerable time speaking English throughout the semester; and in some cases learners reported spending more hours per day speaking English than Spanish.

Table 4.4 presents each learner's self-reported use of Spanish and English for the first and second halves of the semester, as were reported in the mid-semester and final language contact questionnaires. Table 4.4 also includes an approximate ratio of Spanish to English use for each period of time and a combined total ratio for the entire semester. Given the fact this data is self-reported, the first statistical analysis is based on the ratio of

use of the two languages, as opposed to the number of reported hours speaking either language. It was decided that the ratio of language use may better reflect differences across learners as it would minimize the potential for differing estimations of time spent using each language. It may be difficult to quantify use of a specific language in terms of hours but relatively easier to compare use of one language against another.

	First 8 weeks			Second 7 weeks			Total
Learner	Spa hrs/dy	Eng hrs/dy	Ratio Spa:Eng	Spa hrs/dy	Eng hrs/dy	Ratio Spa:Eng	Spa:Eng Ratio
Ed	4-5	1-2	3:1	6+	1-2	5:1	4:1
Leah	3-4	5-6	2:3	3-4	3-4	1:1	3:4
Linda	2-3	2-3	1:1	3-4	3-4	1:1	1:1
Kayla	1-2	1-2	1:1	2-3	2-3	1:1	1:1
Gavin	1-2	1-2	1:1	2-3	2-3	1:1	1:1
Anna	6+	4-5	3:2	6+	4-5	3:2	3:2
Matt	1-2	2-3	2:3	1-2	2-3	2:3	2:3
Haley	2-3	5-6	1:2	1-2	1-2	1:1	2:3
Emma	0-1	6+	1:6	2-3	5-6	1:2	1:4

Table 4.4. Reported language use for the first and second halves of the semester

In consideration of these variables in L2 intonational development, one may hypothesize that relatively higher ratios of Spanish use would correlate with relatively more linguistic gains in L2 intonation, given the learners reported nearly always speaking Spanish with Venezuelans and English with fellow students. Conversely, it would be expected that learners who favored high English to Spanish ratios (i.e., learners who spent more time speaking English than Spanish) would show less L2 intonational development. In order to see if the proportion of time spent speaking these languages significantly affects L2 intonational development, a quantifiable measure of intonational development had to be established.

It will be recalled that most learners not only increased how consistently they produced their most frequent patterns but also adopted at least one (i.e., declarative or absolute interrogative) new most frequent pattern by Time 2. The adoption of a new most frequent pattern, while clearly an important linguistic gain in terms of L2 intonational development, would be a very difficult linguistic development to represent quantifiably, especially considering four different declarative patterns were used most frequently at Time 1. For example, it would be misleading to group Ed and Leah's *high, low, slight rise* pattern together with Linda, Kayla, and Gavin's *rising, low, low* pattern. The former pattern closely resembled Ed and Leah's English intonation and the latter pattern could be considered closer to a target language pattern in the sense that it had a prenuclear rise. Thus, the statistical analysis of this section is based solely on the production of contours which resembled Venezuelan Andean patterns for broad focus declaratives and absolute interrogatives, whether or not these patterns were the most frequent pattern at each recording time. While other patterns could be considered target language-like (e.g., *rising, low, rise* absolute interrogatives), this analysis is limited to Venezuelan Andean specific patterns. If native speaker interaction has a significant effect on L2 intonational development, development would be expected in the direction of the contact dialect.

For Time 1 and Time 2, declarative contours were considered target dialect-like if they showed rising F0 in prenuclear and nuclear positions followed by a final fall to the boundary tone (i.e., *rising, rising, low*). This pattern would resemble what has been claimed for Venezuelan Andean broad focus declaratives, as well as some other well known varieties such as Castilian Spanish (Astruc et al., 2010; Face, 2007). Because this

pattern was produced both at Time 1 and Time 2, declarative intonational development has values at each recording time. The learners' absolute interrogative patterns were considered target dialect-like if they resembled the Venezuelan Andean circumflex pattern (Astruc et al., 2010). This analysis is limited to formal task production due to the limited number of informal declarative data. The number of target dialect-like patterns produced at each recording time by each learner was converted to a percentage of total analyzable contours in order to compare across otherwise uneven totals. Table 4.5 shows each learner's percentage, as well as the sum percentage amount in which each pattern changed.

	Percentage of Target Dialect Declaratives			Percentage of Target Dialect Absolute Interrogatives		
Learner	Time 1	Time 2	Change	Time 1	Time 2	Change
Ed	15	88	73	0	0	0
Leah	20	60	40	0	50	50
Linda	0	67	67	0	6	6
Kayla	27	73	46	0	27	27
Gavin	45	100	55	0	13	13
Anna	0	44	44	0	0	0
Matt	44	53	9	0	0	0
Haley	42	19	-23	0	0	0
Emma	53	56	3	0	0	0
Mean	27	62	35	0	11	11

Table 4.5. Production of Venezuelan Andean-like patterns over time

A three-way repeated-measures ANOVA was used to investigate the relationship between proportion of time speaking Spanish and English and L2 intonational development. Time (Time 1 versus Time 2), SentenceType (Declarative or Interrogative), and Spanish to English ratio, as was presented in Table 4.4 above, were used as variables. The ANOVA produced significant main effects for Time ($F_{1,3}$=88.359, p=.003, partial

eta-squared=.967) and SentenceType ($F_{1,3}$=36.121, p=.009, partial eta-squared=.923). Given the strong overall increase in percentages, this means by Time 2 the learners used significantly more target language patterns. The significant difference in SentenceType is reflective of the fact that regardless of recording time, the learners produced more target dialect declaratives than interrogatives. Additionally, it revealed a significant interaction between Time and SpaEngRatio ($F_{1,5}$=13.687, p=.028, partial eta-squared=.958). In other words, the ratio of time the learners spent speaking Spanish and English had a significant effect on how their use of target language patterns changed over time. Higher Spanish to English ratios significantly correlated with more L2 Spanish intonational development in the direction of the target dialect.

4.5.3 Statistical analysis of L2 intonational development and native speaker interaction

Having already established a significant relationship between the ratio of language use and L2 intonational development, a second statistical analysis was done dividing the learners into two groups based on their native speaker interaction as summarized above. Based on their reportedly strong friendships with native speakers, Ed, Leah, Linda, Kayla, Gavin, and Anna were considered to have a relatively high level of native speaker interaction. Matt, Haley, and Emma were considered to have low quality of native speaker interaction since they did not seem to establish as close friendships as the others. Additionally, they reported low amounts of time spent speaking Spanish and considerably more time speaking English than Spanish (see Table 4.4 above). Leah and Anna also reported spending higher than average times speaking English, but both also

reportedly spent relatively high amounts of time speaking Spanish and explicitly talked about close relationships with native speakers.

A 2 x 2 x 2 repeated-measures ANOVA was used to investigate the significance of native speaker interaction and the change in target dialect intonational patterns over time. Time (Time 1 versus Time 2), SentenceType (Declarative or Interrogative), and NSinteraction (high versus low) were used as variables. The ANOVA revealed significant main effects for Time ($F_{1,7}$=36.732, p=.001, partial eta-squared=.840) and SentenceType ($F_{1,7}$=43.884, p<.001, partial eta-squared=.862). Most notably, the ANOVA produced a highly significant interaction between Time and NSinteraction ($F_{1,7}$=45.280, p<.001, partial eta-squared=.866). In other words, there was a very significant difference between the group with high levels of native speaker interaction and the group with low levels in terms of how much their L2 intonation developed in the direction of target dialect patterns. Table 4.6 shows the mean values of the two groups. Figure 4.43 shows an interaction graph of these means as they changed over time.

	Percentage of target dialect patterns		
Group	Time 1	Time 2	Change
Less interaction (n=3)	23.2	21.3	-1.9
More interaction (n=6)	8.9	44.0	35.1
Mean	16.0	32.7	16.7

Table 4.6. Change over time in target language intonational patterns for more and less native speaker interaction groups

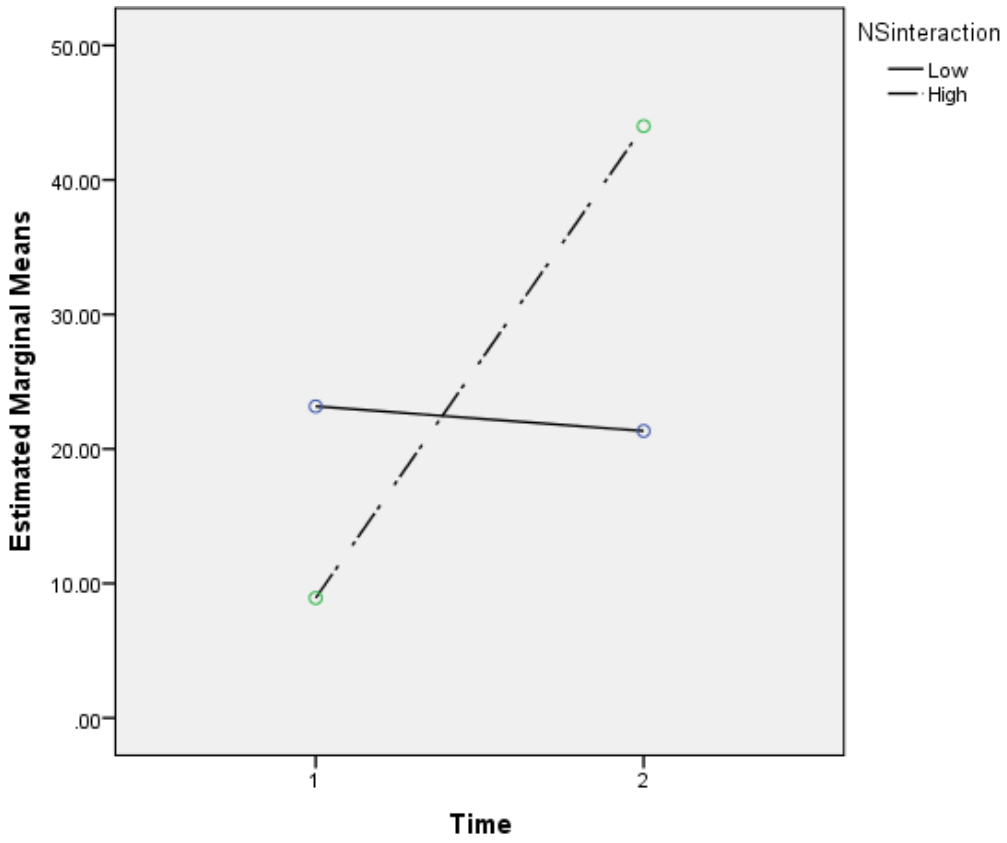


Figure 4.43. Interaction between target dialect pattern change over time and level of interaction with native speakers

Clearly, the group with higher quality native speaker interaction significantly developed their L2 intonation. The data of the three learners with lesser levels of native speaker interaction did not show much change in terms of acquisition of target dialect patterns. None of them produced any circumflex patterns. Matt and Emma only increased their use of the Venezuelan Andean declarative pattern marginally (9% and 3%, respectively). Haley, surprisingly, actually moved away from the *rising, rising, low* declarative pattern.

4.5.4 Discussion

This section has begun to explore how native speaker contact affects L2 intonational development by showing that learners who spend relatively more time speaking Spanish than English and interact more with native speakers experience more L2 intonational change in the direction of target dialect patterns. The finding that the ratio of language use is a significant factor in L2 development over time appears to be congruent with related previous literature on L2 self-confidence ratings. Qiu (2011) investigated how a number of variables including target language interaction and proportion of social network ties with English speakers (native and nonnative) affect L2 self-confidence levels. Participants were learners of L2 English who were living in the United States. Much like the fact that L2 Spanish intonation seems to benefit from a higher *ratio* of target language use, Qiu's statistical analysis found evidence of a significant self-confidence boost when a L2 learner's social network has a relatively high *proportion* of English-speakers.

However, as is evident in the previous subsection and in the previous sections of target language characteristics and the effect of task style, there was still a considerable amount of individual learner variation. Individual learner variation was particularly common in the production of the Venezuelan Andean circumflex pattern. For example, Anna was grouped with the high level of native speaker interaction group, but she did not produce any Venezuelan Andean circumflex patterns. Therefore, this discussion section follows previous literature that views learners as active agents who make choices about what and how they acquire their L2 (cf. Hansen Edwards, 2008). An individual level

approach may be particularly useful in a study abroad context, as individual variation is often augmented during study abroad (Lafford, 2006). A closer look at several factors of the individual learner experiences presented above can add further insight to the considerable amount of variation the learners showed in terms of L2 intonational development.

One important factor related to the L2 acquisition choices individual learners make could be the level of acculturation and/or the strength of social network ties that they make while abroad. As mentioned in chapter 2, current research on L2 acquisition during immersion in a target language country has connected successful acculturation patterns and the establishment of strong social networks to development of L2 pronunciation and oral communication skills (Isabelli-García, 2006; Lybeck, 2002). Strong social networks are said to be key in L2 acquisition, especially when immersed in the target language country, because they provide expanded opportunities to practice. The current study did not set out to gather data for a full social network analysis of the learners. Nevertheless, the data presented in this section provided substantial information about the interactions they had with native speakers and their attitudes concerning their experience in Venezuela to begin to document the importance of quality interaction with native speakers in the L2 acquisition of intonation.

Ed, Leah, and Linda appear to have established especially strong relationships with native speaking Venezuelans. All three also reported speaking many hours of Spanish each day and explicitly mentioned a desire to sound like their friends when they speak Spanish. Ed and Linda felt living in homestays without American roommates

positively affected their homestay experience and their Spanish, because it gave them more opportunities to practice Spanish and forced them to develop a certain level of independence. Ed and Linda both loved being in Venezuela and expressed a desire to prolong their trips. In this sense, Ed, Leah, and Linda appear to have achieved the highest levels of acculturation of the nine learners of this study. It will be noticed that these three learners also showed the highest rates of L2 intonational development over the course of the semester. Leah was the only learner who adopted the circumflex pattern as her most frequent interrogative pattern in the formal task at Time 2. While Ed did not produce any formal circumflex patterns and Linda only one, they both used the circumflex a considerable amount in the informal task. Moreover, Ed and Linda made the biggest changes in the direction of Venezuelan Andean declaratives.

Kayla, Gavin, and Anna also reported positive experiences in Venezuela. Anna said she had a very supportive homestay situation. Kayla and Gavin did not have much of a relationship with their host families, but both mentioned establishing strong friendships especially in the second half of the semester. While Anna had a strong relationship with her host family and a positive experience in Venezuela, she reported spending a substantial amount of her time speaking English. In this way, Kayla, Gavin, and Anna may not have shown as much acculturation as Ed, Leah, and Linda, but appear to be in the middle in terms of their social integration into the target language community. Kayla, Gavin, and Anna also appear to be in the middle in terms of L2 intonational development of Venezuelan Andean declaratives. Kayla and Gavin both produced circumflex patterns

in both tasks. Gavin produced a particularly high percentage of circumflex patterns in the informal task. Anna did not produce any circumflex patterns.

On the other hand, based on their language contact questionnaires and their consistently higher reported use of English than Spanish, Matt, Haley, and Emma may not have become as socially integrated into the target language community as the others. Matt and Emma did not seem to spend as much time with Venezuelans. Haley reported forming friendships in the second half of the semester, but had a particularly difficult relationship with her host family. Emma did not have a very positive relationship with her host family either and said she spent much more time speaking English than Spanish. Both Haley and Emma felt their host family relationships were lacking and they missed opportunities to practice Spanish. Matt, Haley, and Emma showed markedly less L2 intonational development of target dialect patterns.

In addition to differing levels of acculturation into the target language community, further insight into individual variation in intonational development in the direction of target dialect patterns can be gained from each learner's responses in the language contact questionnaires. The question about who they would like to sound like when they speak Spanish was worded in a way that it attempted to get the learners to pick one person in particular whose Spanish they try to emulate. Interestingly, some learners did in fact pick a particular person or mentioned explicitly trying to sound like their friends, but others said they had not really thought about it or that there was not anyone in particular they would like to sound like. Ed, Leah, Linda, and Gavin all explicitly referenced their friends in their responses. It will be noticed that these four learners showed relatively

more change in target language patterns and all produced circumflex patterns.[20] Matt and Haley also made reference to specific native speakers; Matt chose his host mom and Haley a professor. But, Matt and Haley did not report spending very much time with these individuals, especially in comparison to the friendships referenced by Ed and Leah. So, Matt and Haley may not have spent enough time with the individuals they aspired to sound like to establish close relationships after only fifteen weeks. Nor did they show major changes in L2 intonational development of target language features.

The fact that Matt chose his host mom may shed additional light on his lower amount of L2 intonational development in the direction of the target dialect. Matt's host mom was from Colombia and he specifically mentioned appreciating her accent. While there is likely considerable geographic variation within Colombia, input from Colombian intonation may be a significant factor that affected Matt's L2 intonational development.

Anna is an interesting case. She said she does not intentionally try to sound like anyone and had never thought about it. Her response, in comparison to the response of others, suggests she paid relatively less attention to accent and the particulars of the Spanish speakers with whom she had contact. This may be one reason she did not adopt any use of the circumflex pattern in either of the tasks. Another factor potentially related to Anna's intonational development is the fact that she has knowledge of a Nigerian tribal language. As mentioned in the description of the subjects in chapter 2, Anna reported English as her native language but also reported having knowledge of a Nigerian tribal

[20] Ed produced circumflex patterns only in the informal task.

language, which is a heritage language of her family. She reported struggling when speaking it, but being able to understand it without problems.

Another factor, which could be related to individual differences in L2 intonational development, is the starting level of the learners. On the one hand, Matt and Emma began the program at a higher level of Spanish ability than the other learners. They both demonstrated less L2 intonational development of target dialect features than some of the other students. Matt showed relative communicative ease in the Time 1 informal task and was already enrolled in a very advanced undergraduate Spanish course before traveling to Venezuela. Emma also showed high proficiency in the informal task at Time 1 and was the only learner to score a perfect 11 points on the first written grammar task. On the other hand, Linda and Gavin started the semester with the lowest Spanish level enrollment and below average scores on the first written grammar task. Their L2 speaking abilities were hesitant and choppy during both Time 1 tasks. Both showed high levels of L2 intonational development of Venezuelan Andean declaratives as well as production of the circumflex interrogative pattern. Therefore, it would seem that learners who have achieved a higher level of proficiency before traveling abroad show relatively less change in their L2 intonation. In this sense, perhaps the L2 intonational systems of lower level learners are more open to incorporating new target language features than those of higher level learners who have already established certain target language contours to a greater extent.

However, the potential to generalize these observations about pre-study abroad Spanish level is questionable. Ed and Haley started the program having completed

relatively high level Spanish courses, but Ed showed major L2 intonational development and Haley's development was minimal. Leah also showed a relatively high proficiency level in the informal task at Time 1, and she, like Ed but unlike Haley, made major changes in L2 intonational development over the course of the semester. Furthermore, preliminary statistical analyses did not find a significant interaction between Spanish level as defined by enrollment nor the first written grammar score and L2 intonational development of target dialect patterns.

Chapter 5

Conclusions

5.1 Introduction

The purpose of this study was to identify and describe how L2 Spanish intonation changes over time in a study abroad context while considering L1 and L2 intonational characteristics, stylistic variation, and native speaker interaction as potentially important factors in its development. This concluding chapter begins by responding to the four research questions that have guided this exploration of L2 Spanish intonation and potential factors in its development. Next, these responses are synthesized in order to draw broader conclusions about the significance of this dissertation. Finally, some of the limitations of this study are mentioned and several possible avenues for future research suggested.

5.1.1 How do the intonational patterns of learners of Spanish as a second language change over the course of a semester study abroad program for broad focus declaratives and absolute interrogatives?

As discussed at length in chapter 4, three notable changes were observed in the L2 intonation of the learner participants by the end of their semester in Venezuela: (1) the adoption of a new preferred pattern, (2) an increase in consistency in pattern use, and (3) an expanded pitch range in certain cases. First, seven of nine learners adopted a new most frequent (i.e., preferred) intonational contour for broad focus declaratives. One of these seven also adopted a new preferred contour for absolute interrogatives. Declarative pattern use shifted from four different contours (*high, low, slight rise*; *rising, low, low*; *rising, low slight rise*; & *rising, rising, low*) to a single pattern for eight learners (*rising,*

rising, low) with one exception (*high, low, low*). Absolute interrogative patterns did not vary as much as declaratives in pattern use. Eight of nine learners preferred a *rising, low, rise* pattern at both recording times. However, one learner changed from this *rising, low, rise* pattern to a *circumflex* pattern and four other learners adopted some use of the *circumflex* pattern even though it had not become their most frequent pattern by Time 2.

There was also a dramatic increase in consistency of preferred pattern use over time. On average, the most frequent declarative pattern was produced 21% more consistently at Time 2 than at Time 1; and the most frequent interrogative was produced 18% more consistently. These increases in consistency came in spite of the fact that new patterns were adopted in eight cases. The two cases of decreased consistency were coupled with changes in preferred patterns. Taken together, these two developmental trends (i.e., adoption of new preferred patterns and changes in consistency) show that the acquisition of L2 intonation constitutes a variable process (cf. Ellis, 1999; Preston, 1993). The incorporation of new L2 intonational contours likely results in a L2 intonation system that temporarily increases in variability until new items replace items previously in use. Despite lower consistency in two cases and the continuation of the same most frequent pattern by two learners (i.e., non-adoption of a new pattern), all nine learners showed important developments in their L2 Spanish intonation by demonstrating at least one of these changes. Seven of the nine showed both.

The third change over time was apparent in the data of only some learners: five showed evidence of an expanded pitch range. One learner used an overall higher pitch range averaging a higher realization of all of the tonal targets of her most frequent

patterns. Four other learners used higher prenuclear peaks, which made for steeper rising prenuclear pitch accents. These changes in pitch use led to more salient pitch accents and were representative of a general L2 intonational development from a cautious, reserved L2 intonational system toward one that was more confident and expressive.

5.1.2 How do the intonational characteristics of learners' native and target languages contribute to how their interlanguage intonation changes over time?

The changes in preferred pattern use, consistency, and pitch range resulted in an interlanguage intonation that was remarkably more like the target language. The increased preferred use and consistency of the *rising, rising, low* pattern for declaratives marked an impressive move toward a contour which resembles Venezuelan Andean intonation while at the same time marking a dramatic reduction of characteristics associated with L1 English (high initial tones, falling prenuclear F0, & final slight rises).

As for absolute interrogatives, intonational patterns became more target-language-like in that there was a much stronger tendency to use rising prenuclear accents. Additionally, one learner demonstrated major development toward the acquisition of Venezuelan Andean intonation in that she changed her most frequent interrogative pattern to a circumflex pattern. The circumflex pattern is rather different than the contour typically associated with absolute interrogatives in American English, and, as such, it could be considered a *new* (i.e., perceptually salient) feature (cf. Flege, 1981, 1987). Furthermore, incorporation of the circumflex pattern shows that L2 learners are both sensitive to dialect specific intonational contours and are capable of incorporating them into their L2 intonation systems in relatively short time period of fifteen weeks, at least in a study abroad context. Four other learners also incorporated some use of this target

dialect circumflex pattern. These four showed some circumflex use, on top of increasing the consistency of their preferred *rising, low, rise* pattern, which also resembles a target language pattern but one of other varieties of Spanish. The remaining four learners increased consistency of this target language pattern as well. It is also important to note there was considerable variation among learners in their use of particular patterns and the L2 intonational changes they showed.

5.1.3 What is the relationship (if any) between task formality and production of L2 intonational patterns?

Task formality or style was shown to be a significant variable related to variation in L2 intonation, based on a statistical analysis of data from the end of the semester abroad. The results showed a significant difference in absolute interrogative use of final rising and circumflex patterns across the two stylistically different tasks ($p=.042$). Of the five learners who showed any use of the circumflex pattern, the circumflex was used 39% of the time in the informal task compared to only 19% in the formal task. In other words, the relationship between task formality and L2 intonation is that an informal task, when learners are focused more on meaning and less on form, leads to a significantly higher presence of features associated with the target dialect. The fact that the circumflex pattern in particular was more frequent in the informal task may show evidence that innovative L2 intonational patterns develop first in informal contexts and then subsequently spread to more formal situations (cf. Liu, 2000).

Also of importance is that some learners did not produce any circumflex patterns in either task. As mentioned above, the circumflex pattern is a pattern that is perceptually salient and specific to the variety of Spanish of the study abroad location. The learners

who did not produce any circumflex patterns may have already more completely acquired the more common final rising pattern in their previous experience or they could be consciously or unconsciously avoiding the regional circumflex pattern. Therefore, while learner use of the circumflex pattern clearly varies according to stylistic context, variable use of this pattern is likely also related to target language geographic variation and the level of the learner.

5.1.4 How does the amount and quality of native speaker interactions affect L2 intonational development?

Native speaker interaction while studying abroad was another variable shown to affect L2 intonational development. In this case of learners studying in the Venezuelan Andes, native speaker interaction was significant in terms of L2 intonational development particularly in the direction of the target dialect. The proportion of time the learners reported speaking Spanish and English significantly interacted with change in use of the Venezuelan Andean declarative and circumflex interrogative patterns over time ($p=.028$). Furthermore, a group of six learners with reportedly stronger native speaker relationships showed significantly more L2 intonational development in target dialect pattern use than a group of three learners with less native speaker interaction ($p<.001$). The three learners who made the most impressive changes in L2 intonational development expressed what appear to be signs of high levels of social integration into the target language community (cf. Isabelli, 2001; Isabelli-García, 2006; Lybeck, 2002; Martinsen, 2008). Therefore, the amount and quality of native speaker interaction each learner had is a significant factor in L2 acquisition of intonation and the adoption of dialect specific patterns. This result likely reflects that the learners with more native speaker interaction had increased

opportunities to practice their L2 (Isabelli-García, 2006; Lybeck, 2002) and had increased access to dialect specific linguistic elements, such as the circumflex pattern.

On the other hand, the learners with low native speaker interaction did not produce any circumflex patterns. Additionally, one learner who seemed to have spent a significant amount of time speaking Spanish and interacting with the target language community did not show any use of the circumflex pattern. This learner also reported relatively less interest in sounding like any particular native speaker of Spanish, whereas the three learners with the most target dialect L2 intonational development explicitly expressed a desire to sound like their Venezuelan friends. This contrast may illustrate the benefit of L2 intonation research which views the individual learner as an active participant in the L2 acquisition process and elicits first-person accounts of the linguistic choices they make, particularly in a study abroad context (cf. Lafford, 2006).

5.2 Conclusion

In summary, the discussion of the research questions has unveiled four significant findings for L2 intonation. First, the intonational characteristics of learners' native and target languages are directly related to the interlanguage patterns they produce. As their interlanguage Spanish intonation develops, there are specific movements away from L1 characteristics in the direction of the L2. Second, L2 intonation is conditioned by speech style and/or task variation. In the case of this dissertation, stylistic variation was an important factor in the production of two absolute interrogative patterns, one of which was particular to the study abroad context and the other common in many varieties of Spanish. Third, target language geographic variation is an important factor in L2

acquisition of Spanish intonation, especially when the target language input changes during the acquisition process, as may occur in a study abroad context. Lastly, the relative proportion of time learners spend speaking Spanish and interacting with native speakers is another very important factor. The learners who had established particularly close relationships with native speakers changed from an inconsistent L2 intonation with high levels of L1 characteristics to a very consistent use of target dialect-like declarative patterns and emergent use of the unique absolute interrogative pattern of the target dialect. The result of these changes was an L2 Spanish intonation that was strikingly more native-like.

Several broader conclusions can be drawn directly from these findings. First and foremost, having clearly identified and described how the learner participants changed their L2 Spanish intonation over the course of the semester, this dissertation has provided substantial evidence that a semester studying abroad in a Spanish speaking country frequently leads to an interlanguage Spanish intonation which is much more consistently native-like. This finding is significant, considering intonation may be one of the most challenging interlanguage characteristics for adult learners to modify (Kvavik, 1976).

The second conclusion builds on the first and is related to research on L2 acquisition in a study abroad context. A major goal of recent study abroad research has been to provide empirical linguistic evidence for the long held anecdotal belief that study abroad is the preferred way to develop native-like speaking abilities (e.g. Collentine & Freed, 2004; Freed, 1995a; Lafford, 2006; Regan, Howard & Lemée 2009). Completely missing from this conversation has been research on L2 intonational development during

study abroad, which is a noteworthy oversight considering suprasegmentals such as intonation play a major role in the detection of foreign accent (Anderson-Hsieh, Johnson, & Koehler, 1992; Munro, 1995). Taking together the fact that intonational inaccuracies contribute heavily to foreign accent, and the fact that a semester abroad frequently results in substantially more native-like L2 intonation, allows for the conclusion that significant L2 intonational development while abroad could be a key reason most educators firmly believe learners who study abroad come home sounding much more native-like.

This conclusion is strengthened when taking into consideration that study abroad typically provides a higher percentage of communicative contexts than does a traditional classroom environment (Lafford, 2006) and that particular intonational contours are typically associated with particular communicative functions. For example, a study abroad context would present learners with additional opportunities to get to know native speakers. These opportunities could result in conversations with a high rate of absolute interrogative communicative use. Furthermore, the L2 acquisition of a relatively unique dialect specific feature, such as the circumflex pattern, would be much more unlikely in an 'at home' context than study abroad immersion in a specific variety of the target language. The conclusion that L2 intonational development during study abroad plays a major role in the perceived advantages of study abroad for L2 development is corroborated easily when listening to the learners' Spanish during the intonational tasks at Time 1 and Time 2. Not only was their speech less choppy and hesitant, but it was much less monotone and incredibly more expressive at the end of the semester.

The third, and perhaps broadest, conclusion of this study is that L2 acquisition of intonation is conditioned by numerous factors, all of which may or may not contribute to interlanguage intonation at a given time. In line with variationist approaches to SLA, it is likely that individual learners play an important role in choosing the L2 target and determining what and how they use their L2 (e.g., Bayley & Tarone, 2012; Hansen Edwards, 2008; Lafford, 2006). Additionally, an active desire on the part of a learner to sound more like specific native speakers may be important in determining the direction of L2 intonational development. In this sense, the relative importance of factors such as L1 transfer, task style, target language geographic variation, and social integration into the target language community is determined by the individual learner. Consequently, L2 intonation may be best understood using a variety of data collection techniques and methodologies in order to address it from a variety of angles. Furthermore, the investigation of L2 intonation is facilitated by considering not only tendencies across groups but also individual learner variables. As has been argued by variationist researchers of SLA (e.g. Bayley & Tarone, 2012), important factors may be overlooked if conclusions are based on groupings of inevitably heterogeneous learners or individual learner evaluations alone. In summary, L2 intonation undoubtedly involves countless variables, both those mentioned above and others (e.g., learner attitude, motivation, level of Spanish). The significance of numerous variables and the fact that intonation not only plays a role in the conveyance of sentence type but also the communication of attitude, emotion, and/or pragmatic intent (Levis, 2002), may make L2 intonation one of the most variable characteristics of interlanguage development.

5.3 Limitations and suggestions for future research

A major contribution of this dissertation has been its ability to identify and describe the L2 Spanish intonation of study abroad learners of Venezuelan Andean Spanish as it changes over time and to indicate a number of important factors in L2 intonational development. Yet, given the exploratory nature of this research, these and many other aspects of L2 intonation deserve further attention.

The potential to generalize the results of this study are limited by the fact that they are based on a relatively homogenous group of L2 Spanish learners who studied abroad in a very specific context. A control group of learners studying Spanish at universities in their home country would potentially allow for even stronger conclusions about the advantages of the study abroad context for L2 intonational development. Future L2 Spanish intonation research with 'at home' learners and participants of study abroad programs in other dialectal zones would allow for very beneficial comparisons.

This study is also limited by its relatively small number of learner participants (n=9). Additional participants would be particularly beneficial for the strength of the statistical analysis carried out here. Furthermore, more participants would allow for the exploration of more learner variables, such as the Spanish level of the learner prior to studying abroad.

Whereas one of the major contributions of this study is its research design which reconciled the methodological differences of intonational phonology and second language acquisition by incorporating two stylistically different tasks, the formal and informal tasks employed here were not without issues. By adopting read speech into a

simulated conversation, the formal task designed for this study moved slightly away from traditional designs of intonational phonology which apply more strict control to syllable content of target phrases. Thus, the results of this study were based on overall contour shape. Future research could more systematically investigate the phonetic realization of particular L2 intonation contours by controlling the number of intervening unstressed syllables between stressed syllables in the target phrases. Moreover, the informal task of this study did not produce a high number of analyzable broad focus declaratives. Future studies could incorporate other tasks, such as a sociolinguistic interview, as a way to elicit more broad focus declaratives and provide an additional task which, like the hint giving-question asking game used here, encourages learners to focus on meaning rather than form.

Similarly, the addition of a perception task would allow for further exploration of the relative saliency of intonational differences across native and target languages. For example, this study suggested the Venezuelan Andean circumflex interrogative pattern may be considered a new feature and the Venezuelan Andean prenuclear rise a similar feature in Flege's Speech Learning Model (1995). A perception study could systematically test the saliency of these features and the fact that the Venezuelan Andean prenuclear rise often peaks later than the prenuclear rise of American English. Furthermore, the use of a perception task together with a production task(s) may be able to inform current speculation about whether or not there is a mutually dependent relationship between perception and production (cf. Zampini, 1998).

Finally, the longitudinal data collection of this study was limited to fifteen weeks. The finding that task/stylistic variation is a significant factor in L2 intonation could be expanded with additional longitudinal evidence. It was suggested here that the higher presence of target language intonational features in informal tasks may be an indication of a change in progress (cf. Liu, 2000). However, this suggestion was based solely on a single recording time. Following the L2 intonational development of learners studying abroad for a year with at least one mid-semester recording session would allow for further exploration of stylistic variation and how it changes over time. A longer data collection period would also, of course, allow for a more complete picture of all aspects of L2 intonational development.

All told, while this dissertation has made substantial strides in the exploration of a very new field in SLA, there remain many areas of the L2 acquisition of Spanish intonation that deserve further attention.

Bibliography

Alvord, S. M. (2010). Disambiguating declarative and interrogative meaning with intonation in Miami Cuban Spanish. *Southwest Journal of Linguistics, 28*(2), 21-66.

Anderson-Hsieh, J., Johnson, R., & Koehler, K. (1992). The relationship between native speaker judgments of nonnative pronunciation and deviance in segmental, prosody, and syllable structure. *Language Learning, 42*, 529-555.

Astruc, L., Mora, E. & Rew, S. (2010). Venezuelan Andean Spanish intonation. In P. Prieto & P. Roseano (Eds.). *Transcription of intonation of the Spanish language* (pp. 191-226). Lincom Europa: München.

Backman, N. (1979). Intonation errors in second language pronunciation of eight Spanish speaking adults learning English. *Interlanguage Studies Bulletin, 4*(2), 239-266.

Bayley, R. & Tarone, E. (2012). Variationist perspectives. In S. Gass and A. Mackey (Eds.), *Handbook of second language acquisition* (pp. 41-56). New York: Routledge.

Beckman, M. E., Díaz-Campos, M., McGory, McGory, J. T., & Morgan, T. A. (2002). Intonation across Spanish in the Tones and Break Indices framework. *Probus, 14*, 9-36.

Beebe, L. M. (1980). Sociolinguistic variation and style shifting in second language acquisition. *Language Learning, 30*, 433-447.

Best, C. T. (1995). A direct realist view of cross-language speech perception. In W. Strange (Ed.), *Speech perception and linguistic experience: Issues in cross-language research* (pp. 167-224). Baltimore: York Press.

Bolinger, D. (1986). *Intonation and its parts*. Palo Alto: Stanford University Press.

Bolinger, D. (1998). Intonation in American English. In D. Hirst & A. Di Cristo (Eds.), *Intonation systems: A survey of twenty languages* (pp. 45-55). New York: Cambridge University Press.

Colantoni, L., & Steele, J. (2006). Native-like attainment in the L2 acquisition of Spanish stop-liquid clusters. In C. A. Klee & T. L. Face (Eds.), *Selected proceedings of the 7th Conference on the Acquisition of Spanish and Portuguese as First and Second Languages* (pp. 59-73). Somerville, MA: Cascadilla.

Collentine, J. (2004). The effects of learning contexts on morphosyntactic and lexical development. *Studies in Second Language Acquisition, 26*, 227-248.

Collentine, J., & Freed, B. F. (2004). Learning context and its effects on second language acquisition: Introduction. *Studies in Second Language Acquisition, 26*, 153-171.

Cruttenden, A. (1997). *Intonation* (2nd ed.). Cambridge: Cambridge University Press.

Cruz-Ferreira, M. (2002/3). Portuguese and English intonation in contrast. *Languages in Contrast, 4*(2), 213-232.

De Bot, K. (1986). The transfer of intonation and the missing data base. In E. Kellerman & M. Sharwood Smith (Eds.), *Crosslinguistic influences in second language acquisition* (pp. 110-133). New York: Pergamon Press.

DeKeyser, R. (1986). *From learning to acquisition? Foreign language development in a U.S. classroom and during a semester abroad* (Unpublished doctoral dissertation). Stanford University, CA.

de-la-Mota, C., Butragueño, P. M., & Prieto, P. (2010). Mexican Spanish intonation. In P. Prieto & P. Roseano (Eds.). *Transcription of intonation of the Spanish language* (pp. 319-350). Lincom Europa: München.

Derwing, T. M., & Munro, M. J. (1997). Accent, intelligibility, and comprehensibility: Evidence from four L1s. *Studies in Second Language Acquisition, 19*(1) 1–16.

Díaz-Campos, M. (2004). Context of learning in the acquisition of Spanish second language phonology. *Studies in Second Language Acquisition, 26*, 249-273.

Díaz-Campos, M. (2006). The effect of style in second language phonology: an analysis of segmental acquisition in study abroad and regular classroom students. In C. A. Klee & T. L. Face, (Eds.), *Selected proceedings of the 7th Conference on the Acquisition of Spanish and Portuguese as First and Second Languages* (pp. 26-39). Somerville, MA: Cascadilla.

Díaz-Campos, M., & Lazar, N. (2003). Acoustic analysis of voiceless initial stops in the speech of study abroad and regular class students: Context of learning as a variable in Spanish second language acquisition. In P. Kempchinsky and C. E. Piñeros, (Eds.), *Theory, practice, and acquisition: Papers from the 6th Hispanic Linguistics Symposium and the 5th Conference on the Acquisition of Spanish and Portuguese* (pp. 352-370). Somerville, MA: Cascadilla Press.

Dickerson, L. B., & Dickerson, W. B. (1977). Interlanguage phonology: Current research and future directions. In S. P. Corder & E. Roulet (Eds.), *Actes du 5ème colloque de linguistique appliqué* (pp. 18-29). Neuchâtel, Switzerland: Faculté de Lettres.

Ellis, R. (1999). Item versus system learning: Explaining free variation. *Applied Linguistics, 20*(4), 480-480.

Ellis, R. & Barkhuizen, G. (2005). *Analyzing learner language*. Oxford: Oxford University Press.

Face, T. L. (2004). The intonation of absolute interrogatives in Castilian Spanish. *Southwest Journal of Linguistics, 23*(2), 65-79.

Face, T. L. (2007). The role of intonational cues in the perception of declaratives and absolute interrogatives in Castilian Spanish. *Estudios de Fonética Experimental, XVI*, 185-225.

Face, T. L. (2008). *The intonation of Castilian Spanish declaratives and absolute interrogatives*. Munich: Lincom Europa.

Flege, J. E. (1981). The phonological basis of foreign accent: A hypothesis. *TESOL Quarterly, 15*, 443-455.

Flege, J. E. (1987). The production of "new" and "similar" phones in a foreign language: Evidence for the effect of equivalence classification. *Journal of Phonetics, 15*, 47-65.

Flege, J. E. (1988). The production and perception of foreign language speech sounds. In H. Winitz (Ed.), *Human communication and its disorders, a review – 1988* (pp. 224-401). Norwood, NJ: Ablex.

Flege, J. E. (1995). Second language speech learning: Theory, findings, and problems. In W. Strange (Ed.), *Speech perception and linguistic experience: Issues in cross-language research* (pp. 233-277). Baltimore: York Press.

Flege, J. E., & Hillenbrand, J. (1984). Limits on phonetic accuracy in foreign language speech production. *Journal of the Acoustical Society of America, 76*, 708-721.

Freed, B. F. (1995a). Language learning and study abroad. In B. Freed (Ed.) *Second language acquisition in a study abroad context* (pp. 3-33). Amsterdam/Philadelphia: John Benjamins.

Freed, B. F. (1995b). What makes us think that students who study abroad become fluent? In B. Freed (Ed.) *Second language acquisition in a study abroad context* (pp. 123-148). Amsterdam/Philadelphia: John Benjamins.

Freed, B. F., Dewey, D. P., Segalowitz, N., & Halter, R. (2004). The language contact profile. *Studies in Second Language Acquisition, 26*, 349-356.

Fries, C. C. (1964). On the intonation of yes/no questions in English. In D. Abercrombie, D. B. Fry, P. A. D. MacCarthy, N. C. Scott, & J. L. M. Trim (Eds.), *In Honour of Daniel Jones: Papers Contributed on the Occasion of His Eightieth Birthday* (pp. 242-254). London: Longman.

Gabriel, C., Ingo, F., Peskova, A., Colantoni, L., Lee, S.-A., Arana, V., & Labastía, L. (2010). Argentinian Spanish intonation. In P. Prieto & P. Roseano (Eds.). *Transcription of intonation of the Spanish language* (pp. 285-317). Lincom Europa: München.

Geeslin, K. (2011). Variation in L2 Spanish: State of the discipline. *Studies in Hispanic and Lusophone Linguistics, 4*(2), 461-517.

Gregg, K. (1990). The Variable Competence Model of second language acquisition and why it isn't. *Applied Linguistics, 11*, 364-383.

Gunlogson, C. (2002). Declarative questions. In B. Jackson (Ed.) *Proceedings from Semantics and Linguistic Theory, 12*, (pp. 124-143). Ithaca, NY: Cornell University.

Guntermann, G. (1995). The Peace Corps experience: Language learning in training and in the field. In B. Freed (Ed.) *Second language acquisition in a study abroad context* (pp. 149-170). Amsterdam/Philadelphia: John Benjamins.

Gussenhoven, C. (1983). *A semantic analysis of the nuclear tones of English*. Bloomington: Indiana University Linguistics Club. Retrieved from http://www.indiana.edu/~iulc/browse-titles-by-category/product/21-gussenhoven-a-semantic-analysis-of-the-nuclear-tones-of-english-1983

Hansen Edwards, J. G. (2008). Social factors and variation in production in L2 phonology. In J. G. Hansen Edwards & M. L. Zampini (Eds.), *Phonology and second language acquisition* (pp. 251-279). Amsterdam/Philadelphia: John Benjamins.

Hansen Edwards, J. G., & Zampini, M. L. (2008). Theoretical issues and frameworks in L2 phonology: Introduction. In J. G. Hansen Edwards & M. L. Zampini (Eds.), *Phonology and second language acquisition* (pp. 1-11). Amsterdam/Philadelphia: John Benjamins.

Henriksen, N. C., Geeslin, K. L., & Willis, E. W. (2010). The development of L2 Spanish intonation during a study abroad immersion program in León, Spain: Global contours

and final boundary movements. *Studies in Hispanic and Lusophone Linguistics, 3*(1), 113-162.

Hymes, D. (1972). *Reinventing anthropology*. New York: Random House.

Isabelli, C. L. (2001). Motivation and extended interaction in the study abroad context: Factors in the development of Spanish language accuracy and communication skills. *Dissertation abstracts international, 61*(11), 4362.

Isabelli-García, C. (2006). Study abroad social networks, motivation and attitudes: Implications for second language acquisition. In M. A. DuFon & E. Churchill (Eds.) *Language learners in study abroad contexts* (pp. 231-258). Buffalo, NY: Multilingual Matters.

Kelm, O.R. (1987). An acoustic study on the differences on contrastive emphasis between native and non-native Spanish speakers. *Hispania, 70*(3), 627-633.

Kelm, O.R. (1995). Acoustic measurement of Spanish and English pitch contours: Native and non-native speakers. *Hispanic Linguistics, 6*(7), 435-448.

Kimura, T., Sensui, H., Takasawa, M., Toyomaru, A., & Atria, J. J. (2010, September). *A pilot study on perception of Spanish stress by Japanese learners of Spanish*. Papers presented at the Interspeech 2010 satellite workshop on "Second Language Studies: Acquisition, Learning, Education and Technology", Tokyo, Japan. Paper retrieved from http://www.gavo.t.u-tokyo.ac.jp/L2WS2010/papers/L2WS2010_O1-04.pdf

Kvavik, K. (1974). An analysis of sentence initial and final intonation data on two Spanish dialects. *Journal of Phonetics, 2*, 356-361.

Kvavik, K. H. (1976). Research and pedagogical materials on Spanish intonation: A re-examination. *Hispania, 59*, 406-417.

Labov, W. (1972). *Sociolinguistic patterns*. Philadelphia: University of Pennsylvania Press.

Ladd, D. R. (2008). *Intonational phonology* (2nd ed.). Cambridge: Cambridge University Press.

Lado, R. (1957). *Linguistics across cultures*. Ann Arbor: University of Michigan Press.

Lafford, B. A. (2004). The effect of the context of learning on the use of communication strategies by learners of Spanish as a second language. *Studies in Second Language Acquisition, 26*, 201-225.

Lafford, B. (2006). The effects of study abroad vs. classroom contexts on Spanish SLA: Old assumptions, new insights and future research directions. In C. A. Klee & T. L. Face (Eds.) *Selected proceedings of the 7th Conference on the Acquisition of Spanish and Portuguese as First and Second Language,* (pp. 1-25). Somerville, MA: Cascadilla.

Lee, W. R. (1980). A point about the rise-endings and fall-endings of yes-no questions. In L. R. Waugh & C. H. van Schooneveld (Eds.) *The melody of language: Intonation and prosody* (pp. 165-168). Baltimore: University Park Press.

Levis, J. M. (1999). The intonation and meaning of normal yes/no questions. *World Englishes, 18*(3), 373-380.

Levis, J. M. (2002). Reconsidering low-rising intonation in American English. *Applied Linguistics, 23*(1), 56-82.

Liu, G.-q. (2000). *Interaction and second language acquisition: A longitudinal study of a child's acquisition of English as a second language*. Beijing: Beijing Language and Culture University.

Liu, F. (2009). *Intonation systems of Mandarin and English: A functional approach*. Ann Arbor, Mich.: University Microfilms International.

Liu, F., & Xu, Y. (2007). Question intonation as affected by word stress and focus in English. In *Proceedings of the 16th International Congress of Phonetic Sciences*, 1189-1192, Saarbrücken.

López-Bobo, M. J., & Cuevas-Alonso, M. (2010). Cantabrian Spanish intonation. In P. Prieto & P. Roseano (Eds.). *Transcription of intonation of the Spanish language* (pp. 49-85). Lincom Europa: München.

Lybeck, K. (2002). Cultural identification and second language pronunciation of Americans in Norway. *Modern Language Journal, 86*(2), 174-191.

Major, R. C. (1986). The ontogeny model: Evidence from L2 acquisition of Spanish r. *Language Learning, 36*(4), 453-504.

Major, R. C. (1987a). A model for interlanguage phonology. In G. Ioup & S. H. Weinberger (Eds.), *Interlanguage phonology: The acquisition of a second language sound system* (pp. 101-125). New York: Newbury House/Harper & Row.

Major, R. C. (1987b). Variation in second language phonology. In A. Miller and J. Powers (Eds.) *Proceedings of the 4th Eastern States Conference on Linguistics* (pp. 40-51).

Major, R. C. (2001). *Foreign accent: The ontogeny and phylogeny of second language phonology*. Mahwah, New Jersey: Lawrence Erlbaum Associates Publishers.

Martinsen, R. A. (2008). Short-term study abroad: Predicting changes in oral skills. *Foreign Language Annals, 43*(3), 504-530.

McGory, J. T. (1997). *Acquisition of intonational prominence in English by Seoul Korean and Mandarin Chinese speakers* (Unpublished doctoral dissertation). Ohio State University.

Méndez, J., Mora, E., & Rojas, N. (2008). Manifestación acústica de las interrogativas absolutas en los andes venezolanos. *Language Design*. [Special issue] A. Pamies, M.C. Amorós, & J.M. Pazos (Eds.), *New Trends in Experimental Phonetics, 2*, 221-229.

Méndez, J. (2010). Interacción de los parámetros acústicos duración y frecuencia fundamental en frases declarativas neutras e interrogativas absolutas de los andes venezolanos. *Estudios de Fonética Experimental, ISSN 1575-5533*, *19*, 147-164.

Mennen, I. (2004). Bi-directional interference in the intonation of Dutch speakers of Greek. *Journal of Phonetics, 32*(4), 543-563.

Milroy, L. (1987). *Language and social networks* (2nd ed.). Oxford: Blackwell.

Milroy, L., & Wei, L. (1995). A social network approach to code-switching: The example of a bilingual community in Britain. In L. Milroy & P. Muysken (Eds.), *One speaker, two languages: Cross-disciplinary perspectives on code-switching* (pp. 136-157). Cambridge: Cambridge University Press.

Mora, E. (1993). Entonación interrogativa. *Tierra Nueva, 6*, 75-87.

Mora, E., Rojas, N., Méndez, J. & Martínez, H. (2008). Declarativas e interrogativas del español venezolano. Percepción de la emisión con y sin contenido léxico. *Language Design*. [Special issue] A. Pamies, M.C. Amorós, & J.M. Pazos (Eds.), *New Trends in Experimental Phonetics, 2*, 231-238.

Munro, M. J. (1995). Non-segmental factors in foreign accent: Ratings of filtered speech. *Studies in Second Language Acquisition, 17*, 17-34.

Munro, M., & Derwing, T. (1995a). Foreign accent, comprehensibility, and intelligibility in the speech of second language learners. *Language Learning, 45*(1) 73-97.

Munro, M., & Derwing, T. (1995b). Processing time, accent, and comprehensibility in the perception of native and foreign-accented speech. *Language and Speech, 38*(3) 289-306.

Nibert, H. J. (2005). The acquisition of the phrase accent by intermediate and advanced adult learners of Spanish as a second language. In D. Eddignton (Ed.), *Selected proceedings of the 6th Conference on the Acquisition of Spanish and Portuguese as First and Second Languages* (pp. 108-122). Somerville, MA: Cascadilla Proceedings Project.

Pierrehumbert, J. B. (1980). *The phonetics and phonology of English intonation* (Doctoral dissertation). MIT, MA.

Pierrehumbert, J. B., & Beckman, M. E. (1988). *Japanese tone structure*. Cambridge, MA: MIT Press.

Pierrehumbert, J., & Hirschberg, J. (1990). The meaning of intonational contours in the interpretation of discourse. In P. R. Cohen et al. (Eds.), *Intentions in communications* (pp. 271-311). Cambridge, MA: MIT Press.

Pike, K. (1967). *Language in relation to a unified theory of the structure of human behavior* (2nd ed.). The Hague: Mouton.

Preston, D. R. (1993). Variationist linguistics and second language acquisition. *Second Language Research, 9*(2), 153-172.

Prieto, P., & Roseano, P. (Eds.). (2010). *Transcription of the intonation of the Spanish language*. Lincom Europa: München.

Qiu, W. (2011). Language adjustment of international students in the US: A social network analysis on the effects of language resources, language norm and technology. *Dissertation abstracts international, 72*(02), 0468.

Quilis, A. (1987). Entonación dialectal hispánica. In H. L. Morales (Ed.), *Actas del I Congreso Internacional sobre el Español de América* (pp. 117-164). San Juan, Puerto Rico: Academia Puertorriqueña de la Lengua Española.

Ramírez Verdugo, D. (2002). Non-native interlanguage intonation systems: A study based on a computerized corpus of Spanish learners of English. *ICAME Journal, 26*, 115-132.

Ramírez Verdugo, D. (2005). The nature and patterning of native and nonnative intonation in the expression of certainty and uncertainty: Pragmatic effects. *Journal of Pragmatics, 37*, 2085-2115.

Ramírez Verdugo, D. (2006a). A study of intonation awareness and learning in non-native speakers of English. *Language Awareness, 15*(3), 141-159.

Ramírez Verdugo, D. (2006b). Prosodic realization of focus in the discourse of Spanish learners and English native speakers. *Estudios Ingleses de la Universidad Complutense, 14*, 9-32.

Ramsey, L. A. (1997). The acquisition of French intonation by American learners. *Dissertation abstracts international, 57*(7), 2920.

Regan, V., Howard, M., & Lemée, I. (2009). *The acquisition of sociolinguistic competence in a study abroad context*. Bristol/Buffalo/Toronto: Multilingual Matters.

Romano, A., Lai, J. P., & Roullet, S. (2005). La méthodologie AMPER. In *Project AMPER* (pp. 1-5). Géolinguistique-Hors Série n. 3. Grenoble: Centre de Dialectologie, Université Stendhal Grenoble 3.

Schumann, J. H. (1978). *The pidginization process: A model for second language acquisition.* Rowley, MA: Newbury House.

Selinker, L. (1972). Interlanguage. *International Review of Applied Linguistics in Language Teaching, 10*(3), 209-231.

Segalowitz, N., & Freed, B. F. (2004). Context, contact, and cognition in oral fluency acquisition: Learning Spanish in at home and study abroad contexts. *Studies in Second Language Acquisition, 26*, 173-199.

Seong, M. H., Kim, H. Y., Kim, K. H., & Park, K. J. (2002). Intonational differences according to the meanings of yes/no questions - focusing on genuine and confirmation yes/no questions. *Pan-Pacific Association of Applied Linguistics, 6*(1), 79-92.

Silverman, K., Beckman, M. E., Pitrelli, J., Ostendord, M., Wightman, C., Price, P., Pierrehumbert, J., & Hirschberg, J. (1992). ToBI: a standard for labeling English prosody. *ICSLP, 2*, 867-870.

Sosa, J. M. (1999). *La entonación del español: Su estructura fónica, variabilidad y dialectología*. Madrid: Cátedra.

Tarone, E. (1979). Interlanguage as chameleon. *Language Learning, 29,* 181-191.

Tarone, E. (1983). On the variability of interlanguage systems. *Applied Linguistics, 4,* 143-163.

Tarone, E. (1988). *Variation in interlanguage*. London: Edward Arnold.

Thompson, S. (1995). Teaching intonation on questions. *ELT Journal, 49*(3), 235-243.

Trimble, J. C. (2013). Perceiving intonational cues in a foreign language: Study abroad and its effect on the perception of sentence type in two dialects of Spanish. In C. Howe, S. Blackwell, & M. Quesada (Eds.) *Selected proceedings of the 15th Hispanic Linguistics Symposium*. Somerville, MA: Cascadilla Proceedings Project.

Van Els, T., & De Bot, K. (1987). The role of intonation in foreign accent. *Modern Language Journal, 17*(2), 147-155.

Weinreich, U. (1953). *Languages in contact.* New York: Linguistic Circle of New York.

Wells, B., Peppé, S., & Goulandris, N. (2004). Intonation development from five to thirteen. *Journal of Child Language, 31*(4). pp. 749-778.

Willems, N. (1982). *English intonation from a Dutch point of view*. Dordrecht: Foris Publications.

Willis, E. W. (2005). Tonal levels in Puebla Mexico Spanish declaratives and absolute interrogatives. In R. S. Gess & E. J. Rubin (Eds.) *Theoretical and experimental approaches to romance linguistics: Selected papers from the 34th Linguistic Symposium on Romance Languages*, (pp. 351-363).

Woolsey, D. S. (2006). Second language acquisition of the Spanish verb 'estar' with adjectives: An exploration of contexts of comparison and immediate experience. *Dissertation abstracts international, 67*(04), 1317.

Zampini, M. L. (1994). The role of native language transfer and task formality in the acquisition of Spanish spirantization. *Hispania, 77*(3), 470-481.

Zampini, M. L. (1998). The relationship between the production and perception of L2 Spanish stops. *Texas Papers in Foreign Language Education, 3*(3), 85-100.

Appendix A: Spanish speaker background questionnaire

Gracias por participar en esta investigación. Favor de rellenar este cuestionario sobre sus experiencias de lengua.

Nombre: _____.

1. Edad: _____ 2. Sexo (se marca con X): Hombre _____ Mujer _____

3. Lugar de nacimiento: _____

4. ¿Cree usted que todavía habla el dialecto de esa región? (Si no, explique por favor)
_____

5. ¿Cuál es su nivel de educación? (escuela primaria, escuela secundaria/bachillerato, licenciado, etc.) _____

6. ¿A dónde asistió la escuela primaria? (la ciudad o región de la escuela… "Mérida")
_____

7. ¿A dónde asistió la escuela secundaria? (la ciudad o región de la escuela… "Mérida")
_____

8. Si ha asistido a una universidad, ¿dónde? (la ciudad o región de la escuela… "Mérida")
_____ ,_____

9. ¿Ha vivido afuera del país de Venezuela? Sí _____ No _____
En el caso de sí, ¿dónde? ¿cuándo? Explique por favor. _____, _____,
_____

10. ¿Habla una lengua además del español? Sí _____ No _____
En el caso de sí, ¿Cuáles? Explique por favor _____, _____,
_____

11. ¿Qué lengua es su lengua nativa? (o bilingüe equilibrado) _____

12. ¿Aproximadamente qué porcentaje de su comunicación tiene lugar en español? (90% español/10% inglés, etc.) _____, Other? _____

13. ¿Tiene contacto con una variedad de español que es diferente que su variedad nativa? (español caraqueño, español mexicano, etc.) Sí _____ No _____. En el caso de sí, explique por favor y nombre la variedad y la frecuencia de contacto.
_____
_____
_____

Appendix B: Learner Language Contact Profile 1 (pre-semester)

Project: The Acquisition of Spanish during Study Abroad

Please answer all the questions to the best of your ability. This is the final task. Please click "submit answers" when finished. Thank you very much for you participation!

Name: _____.

1. What is your gender? Male _____ Female _____ 2. How old are you? _____

3. Where are you from? _____

4. What is your native language(s)? English ____ Spanish ____ Other: _____

5. In what language(s) did you receive the majority of your precollege education?
English ____ Spanish ____ Other: _____

6. Other than English and Spanish, what other languages do you speak and how fluent are you in each?
_____

7. Spanish is your: Major____ Minor____ Required for major/minor____ None of these_____

8. Please list all the Spanish courses you are taking or took during the Fall 2011 semester. This includes Spanish language courses as well as content area courses taught in the Spanish language. If you did not take any courses this Fall, please mention the last Spanish course that you took and when you took it.
_____

9. Where have you been exposed to Spanish? (mark all that apply)
Classroom___ Abroad___ At work___ At home___ Other_____

10. Where have you been exposed to Spanish THE MOST?
Classroom___ Abroad___ At work___ At home___ Other_____

11. If you have studied abroad, what semester/summer and year did you spend abroad? (e.g. Fall 2010; or 6-week Summer 2009)
_____

12. What Spanish-speaking countries have you visited/lived in and how long in each country?
_____

13. What was the primary purpose of your visit to the Spanish-speaking countries? (mark all that apply)
Study abroad___ Vacation/travel___ Service____ Other_____ N/A___

14. How often would you say you communicate in Spanish outside of class?
0) never 1) rarely (i.e., a few times a year) 2) sometimes (i.e., monthly)
3) often (i.e., weekly) 4) daily

15. With whom do you communicate in Spanish outside of class? (mark all that apply)
___a. family ___b. friends ___c. co-workers ___d. significant other ___e. other ___f. N/A

16. Where are the people with whom you communicate in Spanish from? _____

17. If you have a significant other, is he or she a native Spanish speaker? _____

18. For each of the items below, choose the response that corresponds to the amount of time you estimate you spent on average doing each activity *in Spanish* prior to this semester.

a. watching Spanish language TV
0) never 1) a few times a year 2) monthly 3) weekly 4) daily
b. listening to songs in Spanish
0) never 1) a few times a year 2) monthly 3) weekly 4) daily
c. watching movies or videos in Spanish
0) never 1) a few times a year 2) monthly 3) weekly 4) daily
d. reading in Spanish (newspaper, novels, magazines)
0) never 1) a few times a year 2) monthly 3) weekly 4) daily

19. Please mention and describe anything else (activities, life experiences, attributes, etc.) that you feel has contributed to your Spanish learning.
_____

20. Please rate your Spanish language ability:

1-poor (beginner), 2-fair (intermediate-low), 3-good (intermediate-high),
4-very good (advanced), 5-native-like.

Listening	Speaking	Reading	Writing	Overall

Appendix C: Learner Language Contact Profile 2 (mid-semester)

Project: The Acquisition of Spanish during Study Abroad

Please answer all the questions to the best of your ability. This is the final task. Please click "submit answers" when finished. Thank you very much for you participation!

Name: _____.

1. Please list the courses you are taking this semester in Mérida. This includes Spanish language courses, content area courses taught in Spanish, and content area courses taught in English. Please also indicate in what language each content area course is taught. (i.e., History of Spanish-in Spanish, Teaching K-12-in English)

_____

2. Please give the following information about your living arrangement in Venezuela:
1. List the native speakers who live in your homestay (e.g., mother, father, 12-year-old son)
2. Where are they from? (Merida / Caracas / Other)
3. Do they speak English?
4. List other non-native Spanish speakers who are staying with you (e.g., John-fellow UMN study abroad student):

_____

3. During this half of the semester, how many DAYS PER WEEK did you spend speaking Spanish with native Venezuelan Spanish speakers?
__1 __2 __3 __4 __5 __6 __7

4. During this half of the semester, how many HOURS PER DAY did you spend speaking Spanish with native Venezuelan Spanish speakers?
__0-1 __1-2 __2-3 __3-4 __4-5 __5-6 __more than 6

5. With whom do you communicate in Spanish outside of class? (mark all that apply)
__Venezuelan host family __Venezuelan friends __American friends __My instructors
__Service personnel __Strangers who I thought could speak Spanish __Other

6. With which group do you communicate in Spanish outside of class THE MOST (mark only one)?
__Venezuelan host family __Venezuelan friends __American friends __My instructors
__Service personnel __Strangers who I thought could speak Spanish __Other

For questions 7-11, please think of the native Spanish speaker with whom you speak the most.
7. How many HOURS PER DAY do you spend speaking Spanish with this person?
__0-1 __1-2 __2-3 __3-4 __4-5 __5-6 __more than 6

8. What percentage of your conversations is in Spanish? (e.g., 60% in Spanish) _____

9. Where is this person from? (e.g., Mérida, Caracas, Maracaibo, Bogotá, México D.F., etc)

_____

10. Do you think this person would be willing to have their Spanish recorded for research purposes? _____

11. If so, please provide his/her name, email, and/or phone number:
_____
_____
_____

12. Are you currently participating in the "Nuevos Encuentros" language partnership program through VENUSA? (If not, you may skip to question 17) ___Yes ___No

13. If so, is your "Nuevos Encuentros" partner the same person you described in numbers 7-11? ___Yes ___No

14. Please describe your experience with "Nuevos Encuentros":
For example:
-how often you participate
-who you participate with
-what percentage of conversation is in Spanish
-etc.
_____

15. Do you think your "Nuevos Encuentros" partner would be willing to have their Spanish recorded for research purposes? _____

16. If so, please provide his/her name, email, and/or phone number:
Also, please tell him/her about my study the next time you talk. (I would like to set up some recordings at the end of April/early May).
_____
_____
_____

17. Please mention and describe anything else that you feel has contributed to your Spanish learning this first half of your semester abroad.
_____

18. Please choose the response that corresponds to the amount of time you estimate you spend doing each activity in Spanish, outside of class:
a. watching Spanish language TV
0) never 1) a few times a year 2) monthly 3) weekly 4) daily
b. listening to songs in Spanish
0) never 1) a few times a year 2) monthly 3) weekly 4) daily
c. watching movies or videos in Spanish
0) never 1) a few times a year 2) monthly 3) weekly 4) daily
d. reading in Spanish (newspaper, novels, magazines)

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

19. During this half of the semester, how many HOURS PER DAY did you spend speaking English outside of class?
__0-1 __1-2 __2-3 __3-4 __4-5 __5-6 __more than 6

20. Please rate your Spanish language ability:

1-poor (beginner), 2-fair (intermediate-low), 3-good (intermediate-high),
4-very good (advanced), 5-native-like.

Listening	Speaking	Reading	Writing	Overall

Appendix D: Learner Language Contact Profile 3 (final)

Project: The Acquisition of Spanish during Study Abroad

Please answer all the questions to the best of your ability. This is the final task. Please click "submit answers" when finished. Thank you very much for you participation!

Name: _____.

1. During this half of the semester, how many DAYS PER WEEK did you spend speaking Spanish with native Venezuelan Spanish speakers?
__1 __2 __3 __4 __5 __6 __7

2. During this half of the semester, how many HOURS PER DAY did you spend speaking Spanish with native Venezuelan Spanish speakers?
__0-1 __1-2 __2-3 __3-4 __4-5 __5-6 __more than 6

3. With whom do you communicate in Spanish outside of class? (mark all that apply)
__Venezuelan host family __Venezuelan friends __American friends __My instructors
__Service personnel __Strangers who I thought could speak Spanish __Other

4. With which group do you communicate in Spanish outside of class THE MOST (mark only one)?
__Venezuelan host family __Venezuelan friends __American friends __My instructors
__Service personnel __Strangers who I thought could speak Spanish __Other

For questions 5-7, please think of the native Spanish speaker with whom you speak the most.

5. How many HOURS PER DAY do you spend speaking Spanish with this person?
__0-1 __1-2 __2-3 __3-4 __4-5 __5-6 __more than 6

6. What percentage of your conversations is in Spanish? (e.g., 60% in Spanish) _____

7. Where is this person from? (e.g., Mérida, Caracas, Maracaibo, Bogotá, México D.F., etc)
_____

8. Please describe your relationship with your host family.
_____

9. Have you made any Venezuelan friends over the course of the semester?

10. If so, please describe your relationship with your Venezuelan friends (i.e., how much time do you spend with him/her/them, how often do you speak Spanish with her/him/them, etc.)
_____

11. When you speak Spanish, who would you like to sound like? Is there someone in particular you try to emulate in terms of tone, pronunciation, word usage, etc.? Please explain with as much

detail as possible, mentioning at least something about who this person(s) is in relation to you, where he/she/they are from, and why you would like to sound like them, etc.

_____

12. Please mention and describe anything else that you feel has contributed to your Spanish learning this second half of your semester abroad. Was there anything particular about this second half that you feel may have made a difference in your Spanish learning?

_____

13. Please choose the response that corresponds to the amount of time you estimate you spend doing each activity in Spanish, outside of class:

a. watching Spanish language TV

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

b. listening to songs in Spanish

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

c. watching movies or videos in Spanish

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

d. reading in Spanish (newspaper, novels, magazines)

0) never 1) a few times a year 2) monthly 3) weekly 4) daily

14. During this half of the semester, how many HOURS PER DAY did you spend speaking English outside of class?

__0-1 __1-2 __2-3 __3-4 __4-5 __5-6 __more than 6

15. Please rate your Spanish language ability:

1-poor (beginner), 2-fair (intermediate-low), 3-good (intermediate-high),
4-very good (advanced), 5-native-like.

Listening	Speaking	Reading	Writing	Overall

Appendix E: Grammatical proficiency test (Adopted from Woolsey, 2006)

Instructions. Select the correct answer in the following text. Each question is part of a continuous text forming a story.

Como me gusta ayudar a otras personas y tengo bastante tiempo libre, **(1) estoy / tengo / soy** voluntaria en un hospital muy grande de la ciudad de Minneapolis. A veces es muy agradable **(2) trabajo / trabajar / trabajando** allí, pero también, de vez en cuando, tenemos problemas con **(3) algún / alguna / alguno** paciente difícil y con ciertos doctores arrogantes que se creen muy importantes. Con frecuencia para **(4) pasando / pasar / pasado** el tiempo, nos reunimos los voluntarios y nos contamos chistes. Un día, un paciente **me (5) contó / contaría / conté** éste que me pareció muy gracioso:

Dicen que un hombre que tenía cien años se murió y fue directamente al cielo. Allí **(6) se / me / les** encontró en una enorme cafetería con muchas personas que hacían cola para que les sirvieran la comida. De repente, un hombre vestido de blanco que acababa de llegar, pasó del último lugar hasta el primero sin hacer caso a los demás. El hombre recién llegado al cielo **(7) preguntó / preguntara / preguntaría** muy enojado: "Pero, ¿quién es ese señor?" Otro que **(8) esperó / esperando / esperaba** pacientemente en la cola **(9) le / lo / se** contestó: "¡Hombre! Ese (**10) es / sea / está** Dios, pero a veces cree que es médico".

Todos nos reímos, **(11) desde que / aunque / tanto que** sabíamos que no todos los médicos son así.

Appendix F: Contextualized reading task

Introduction:

- The objective of this task is to record certain sentences in a natural way.
- The next slide will explain how you should read the provided sentences.
- Then you will be asked to practice a few times so you get used to the process.
- After the practice session, you will be presented with a brief background situation.
- Feel free to ask questions at any time

Instructions:

- There are 3 clicks to each slide:
    1. A specific context on the first click
    2. The phrase that connects the context to your target sentence (e.g. *Tú le preguntas a Juan*)
    3. The target phrase (the phrase you will say aloud)
- Please read this target phrase aloud as if you were actually speaking to your neighbor Juan. Feel free to repeat any utterances you feel did not come out right as many times as you like.
- Note: Not all the sentences are the same type. There could be statements, questions, and/or exclamations.
- The next 6 slides are for practice and will not be used for the study.

Background:

- Yesterday you hung out with your friends Samuel and Mariana. First, you went to the bookstore to pick up Harry Potter in Spanish. Then, you went to the beach and went swimming. While at the beach you went to a café.
- The next day you run into your neighbor Juan and you go to a café to chat about what you did yesterday. Juan is 50 years old, so you use *usted* with him. He is a math teacher and likes to read a lot. He always has a math book with him. He is also athletic and likes to go running.

Lexical pairs:

1. Leían una novela.
2. Llevaba el libro.
3. Nadaban en el mar.
4. Me dio el número.
5. Bebió una limonada.
6. Comieron una banana.
7. Salió normal.
8. Fui a la playa.

1. ¿Leían una novela?
2. ¿Llevaba el libro?
3. ¿Nadaban en el mar?
4. ¿Le dio el número?
5. ¿Bebió una limonada?
6. ¿Comieron una banana?
7. ¿Salió normal?
8. ¿Fue a la playa?

Distracters:

1. Fuimos a la librería.
2. Yo buscaba un libro.
3. Harry Potter en español.
4. ¿Y usted, qué hizo en la mañana?
5. ¡Conocí a un/a chico/a!
6. Fuimos a un café.
7. ¡No miraba la cámara!
8. ¡Hasta luego!

The 24 phrases in the order that they appear:

1. Fuimos a la librería.
2. Yo buscaba un libro.
3. Harry Potter en español.
4. Leían una novela.
5. ¿Y usted, qué hizo en la mañana?
6. ¿Comieron una banana?
7. ¿Salió normal?
8. Fui a la playa.
9. Llevaba el libro.
10. ¡Conocí a un/a chico/a!
11. Me dio el número.
12. Nadaban en el mar.
13. ¿Fue a la playa?
14. ¿Bebió una limonada?
15. ¿Nadaban en el mar?
16. ¿Leían una novela?
17. ¿Llevaba el libro?
18. ¿Le dio el número?
19. Fuimos a un café.
20. Bebió una limonada.
21. Comieron una banana.
22. ¡No miraba la cámara!
23. Salió normal.
24. ¡Hasta luego!