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L1 Influence on L2 Intonation in Russian Speakers of English

by

Christiane Fleur Crosby

A thesis submitted in partial fulfillment of the  
requirements for the degree of

Master of Arts  
in  
Teaching English to Speakers of Other Languages

Thesis Committee:  
John K. Hellerman, Chair  
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Portland State University  
2013

## Abstract

This thesis investigates the development of intonation in questions and L1 influence. It is a longitudinal study using data from classroom interaction over six ten-week terms. The data was from video recordings at the National Labsite for Adult ESOL at Portland State University. *Yes-no* and *wh*-questions from one Russian speaking learner of English were analyzed over time and by language support level. Both acoustic and perceptual analysis was done. The *yes-no* questions showed a clear pattern of target-like boundary tones more often without language support than with language support. A much smaller percentage of *wh*-questions were target-like. The influence of L1 on L2 intonation was evident in both the *yes-no* and *wh*-questions, although more so in the *wh*-questions. There were some aspects of interlanguage observed and there was no change in intonation patterns over time to become more target-like. Implications for this study include the importance in teaching intonation explicitly and how classroom exercises may or may not facilitate the development of L2 intonation.

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## INTRODUCTION

I first became interested in intonation of Slavic languages after completing a year of BCS (Bosnian, Croatian, Serbian) conversation classes. At our last meeting I completely missed a question that a native speaker asked because of the difference in intonation. The other students and I did not recognize what was said as a question and nodded our head as we might respond to a statement we didn't understand even though we were getting the gist of the conversation. The teacher stopped all conversation and let us know that this is a big problem for English-speaking learners of BCS. I have since heard similar stories of native English speakers thinking that Russian speakers are arguing in Russian when in fact they are not. This sparked my interest in the transfer of Russian intonation to English and how this may play out in communication of Russian-speaking English language learners.

Pronunciation and how it relates to miscommunication is an area I have focused on in teaching. I have a strong interest in how misunderstandings due to intonation pattern differences could hinder students' lives outside the classroom in various ways such as making friends, meeting needs, and job advancement. Intonation usually falls under pronunciation when or if it is being taught in English as a Second Language (ESL) classes. Intonation is the use of pitch in language. The pitch and changes in pitch can add meaning to expressions. Sometimes pitch patterns vary in different languages and when learning a new language, students transfer their native pitch patterns to the new language. There may not be a complete transfer of pitch patterns, but at least some influence of L1 pitch patterns. This can cause miscommunications at times.

This study looks at L1 intonation influence in Russian-speaking English language learners. This is a longitudinal study looking at an English language learner who is learning while living in the U.S. and who progressed from high-beginning level to intermediate level. Research has shown that different meaningful intonation patterns exist between the two languages and this study focuses on how intonation patterns may be influenced by the L1 (first language) or become more native like in the L2 (second language). The data includes a collection of *yes-no* and *wh*-questions spoken in classroom interaction.



## LITERATURE REVIEW

Given these interests and the importance that I see for understanding sound production of English language learners, I have reviewed the literature that relates to intonation in language, intonation in second language learning, English question intonation, Russian question intonation, and intonation transfer. Since the implications of the study recommend the explicit teaching of intonation, I have included some studies related to teaching intonation. Because one of the motivations for this study was perceptions of English learners, I have also included literature related to how L2 learners are perceived based on their intonation in the L2. The literature review is divided into the following sections:

- 1) The Importance of Intonation
- 2) Intonation in Language: the melody of utterances
- 3) Intonation Contours and Typology
- 4) English Intonation Contours for *Yes-no* and *Wh-* questions
- 5) Russian Intonation Contours for *Yes-no* and Information Questions
- 6) Potential L1 Intonation Influence on Learners of English
- 7) Perceptions of and Attitudes Toward Russian Intonation in English L2
- 8) The Importance of Intonation and a Focus on Teaching Intonation

### The Importance of Intonation

The phrase people often use to illustrate the importance of intonation is, “It’s not what you said, it’s how you said it!” The “how you said it” refers to the pitch level, accent, length, or intonation contour – all aspects of suprasegmentals – of what was said. Suprasegmentals can carry meaning not found in individual sound segments. Segmentals are individual phones whereas suprasegmentals operate above the level of the segmentals. The pitch level, accent, or intonation contour of words or a whole phrase sometimes carries more pragmatic meaning than just words as written. These suprasegmental features express intent, emotion, and inquisitiveness and as such are a critical component of language competence and proficiency.

Suprasegmental features are an important part of communication and though easily acquired by children in their L1 are more difficult for adults to acquire in their L2 (Lantolf, 1976). Suprasegmentals are an integral part of making meaning in discourse and contribute greatly to the intelligibility of what is being communicated, so much so that, according to Clifford Prator,

suprasegmentals should be assigned foremost priority within the phonological system of language. He lists three reasons for this position: suprasegmentals convey meaning which cannot be derived from the context; they influence the intelligibility of the segmentals; and they facilitate the pronunciation of such segmentals as vowel quality and diphthongization (as cited by Lantolf, 1976, p. 268).

Each intonation group has a typical pitch contour which changes in predictable ways, for example when emphasis is added. Intonation can provide attitudinal meaning in English and other languages (Cruttenden, 1986, p.14). The example in Figure 1 illustrates two different intonation contours for the same words, each conveying a different attitude toward what is being said. Native speakers of American English can interpret differing intonation patterns to convey slight or great differences in meaning.

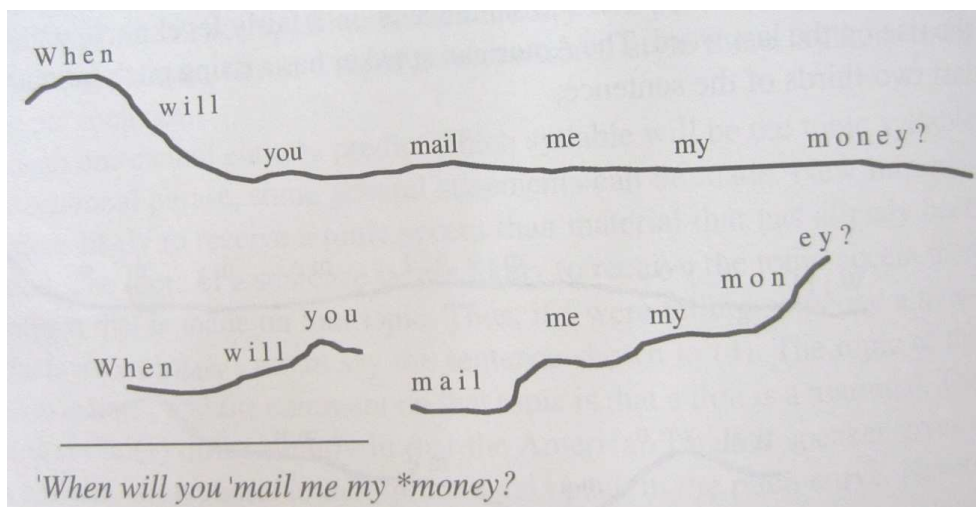


Figure 1. One question pronounced with different intonation patterns (Ladefoged, 2006, p. 120).

Above are examples of how English speakers may pronounce the same question with different intonation patterns. The top intonation contour is a falling contour and is considered more neutral. The bottom contour, which is considered more argumentative has two rising phrases, the second having a large pitch increase (Ladefoged, 2006, p. 120).

Given that intonation contours can distinguish attitude or pragmatic force, intonation functions importantly in cross cultural communication. “A failure to make full

use of English prosodic features has crucial consequences in NS/NNS [native speaker/non-native-speaker] oral interaction” (Clennell, 1997, p. 118). Overall, more native-like intonation will help non-native speakers have their intentions perceived more accurately in conversation.

### Intonation in Language: the melody of utterances

Intonation is the pattern of pitch in spoken language. The phonetic term for pitch is fundamental frequency (F0) which is the rate of vibrations of the vocal chords. When the number of vibrations per second (the frequency) goes up, the pitch (we hear) also goes up, although the ratio is not one to one<sup>1</sup> (Couper-Kuhlen, 1996). Pitch is the auditory term used to describe frequency that listeners can hear and place on a low to high scale.

The pattern of pitch used with an utterance is sometimes called a tune or an intonation contour. The intonation contour generally falls over the course of an utterance, which is known as declination (Pierrehumbert, 1980), and these falling intonation contours most probably align with syntactic phrases (Ford & Thompson, 1996). The last part of the intonation contour is the boundary tone, the fundamental frequency at the end of an utterance, which can be characterized as having a rising, falling, or level pitch shape.

Within intonation contours, we can find a series of prominent pitches or pitch accents (Cruttenden, 1986, p. 68). As part of the description of intonation contours we note pitch accents and phrase accents along with the contours at the ends of units

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<sup>1</sup> As the frequency goes up, the number of vibrations compress so that from 100 to 200 hertz we perceive a bigger jump than from 200 to 300. In this study the pitch tracks are measured in semitones which are a different way of measuring sound rather than hertz because it is more accurate to what we hear.

(boundary tones). Pitch accents are noticeable by how they stand out from the pitch on adjacent syllables (Cruttenden, p. 55). A phrase accent occurs near the end of a word with the last pitch accent and is concerned with any pitch level after the last pitch accent. A boundary tone occurs at the end of the last syllable and is concerned with movement on the final syllable (Cruttenden, p. 68).

Pitch level also plays a role in the description of the intonation contours. Each prominent syllable in the intonation contour can be characterized as having high, mid, or low pitch. One often-used system for the phonological description of intonation, the ToBI system, uses just 'high' (H) and 'low' (L). The various accents (pitch accents or phrase accents) are indicated with glyphs: the most prominently stressed syllables or pitch accents are marked with asterisks (H\* or L\*); the phrase accent (which follows the last pitch accent) is marked with a hyphen (H- or L-). (Ladefoged, p.125)

These elements of intonation contours describe what we hear and the ToBI system provides a way to label data to examine it further. Pitch accents, phrase accents, and boundary tones all play an important part in analyzing the data. Following is an example using the ToBI system to describe the question, "Will you mail me the money?" In this *yes-no* question, there is a high pitch accent on "mail" and a low pitch accent on the stressed syllable of "money" which is the focus word. The phrase accent is high and the boundary tone is also high. This shows a high rise at the end of a *yes-no* question and is an unmarked contour for *yes-no* questions in English. Example (1) shows a ToBI analyzed *yes-no* question (Ladefoged, 2006, p.127).

(1)  
 Will you mail me the money?  
           H\*                  L\*   H-H%

### Intonation Contours and Typology

Intonation languages have recurring pitch contours, each conveying certain pragmatic meaning. Intonation languages utilize pitch at a suprasegmental level. English and Russian are intonation languages, also called stress accent languages (Cruttenden, 1986). Just as there are clauses in syntax, there are melodic chunks as well. Each chunk, also referred to as a contour, has meaning. For example, a particular intonation contour that occurs with a *wh*-word question helps to signal that this is a particular type of question, an information question rather than a *yes-no* question. There are standard, unmarked contours for statements, *yes-no* questions, *wh*- questions, and other sentence types. Variance from such unmarked, expected intonation contours can create a difference in pragmatic meaning. This difference is often very subtle and discernible only to native speakers. Meaning conveyed by intonation is not as discrete as lexical meaning or grammatical changes such as case or tense. For this study I used unmarked intonation contours, not contours denoting special emphasis, to analyze native-like or non-native-like speech.

### English Intonation Contours for *Yes-no* and *Wh*-questions

Although intonation contours for questions in English can be found to have various contours depending on the attitude of the speaker, as stated above, we will look at what is

considered to be the standard, unmarked, intonation contours for questions in English and Russian. This is the default contour a native speaker uses when not adding special emphasis or meaning. These unmarked intonation contours for *yes-no* questions and for *wh*-questions that have been described in research literature. In the next sections we will review the contour descriptions that we will use in looking at the data.

### *Yes-no Question Contours*

The unmarked English contour for *yes-no* questions has a final rise as is the case for many intonational languages (Cruttenden, 1986, p.163). Pierrehumbert (1980, p. 16, 262) describes *yes-no* questions in English with more detail, as having a rise-plateau-rise. She shows an F0 pattern which is commonly used on *yes-no* questions. The pitch accent is low, then the contour rises, makes a plateau, and then rises again to a high tone. Pierrehumbert also cited Sag and Liberman (1975) and Rando (1980) as describing *yes-no* questions as having a rise-plateau-rise configuration when there is enough distance from the pitch accent to the end of utterance for this to occur. We see this rise-plateau-rise in the question if the contour is long enough, but what I am looking for to determine if an utterance is target-like is the final rise at the boundary tone. This is sufficient to distinguish an utterance from being native-like. Figure 2 illustrates the unmarked contour for *yes-no* questions (Pierrehumbert & Hirschberg, 1990).

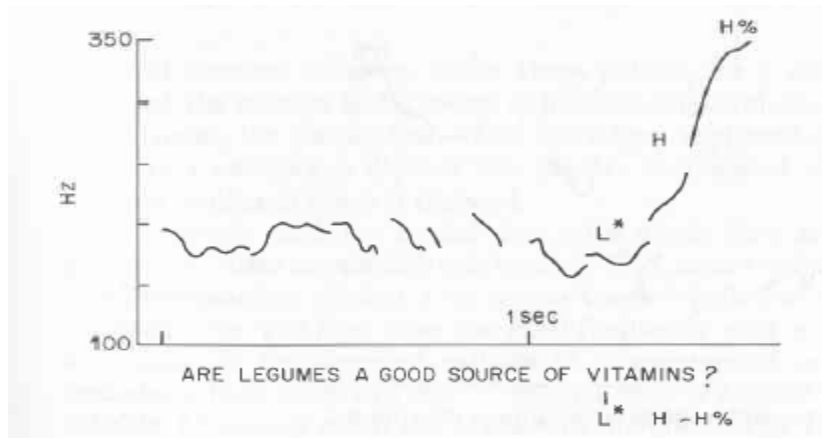


Figure 2. Illustration of an unmarked *yes-no* question (Pierrehumbert & Hirschberg, p.273).

The intonation contour in Figure 2 shows a low pitch accent on the first syllable of “vitamins” and the contour rising from there to a final high tone.

Figure 3, below, shows another example of the *yes-no* question, this time with the rise-plateau-rise.

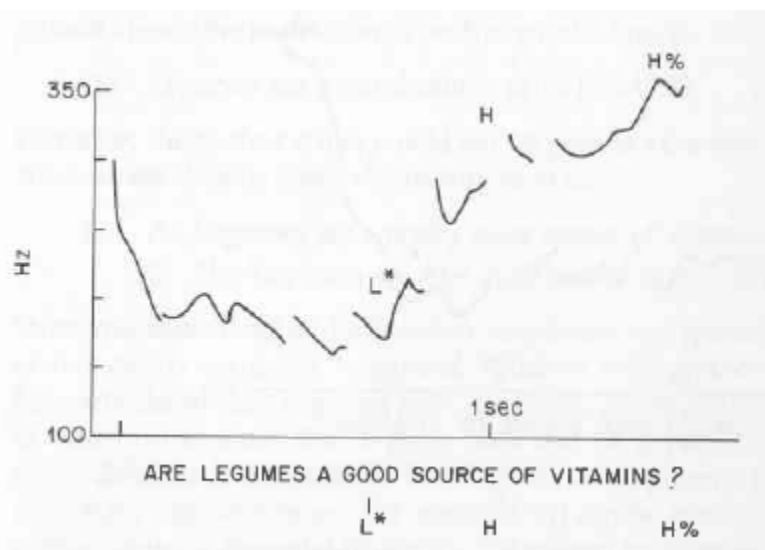


Figure 3. Illustration of rise-plateau-rise in the contour (Pierrehumbert & Hirschberg, p. 274).



In Figure 3 the boundary tone is far enough from the final pitch accent to allow for the rise-plateau-rise in the contour. This contour shows a low pitch accent on “good” and a rise-plateau-rise from there (Pierrehumbert, 1980).

Although there are grammatical structures that align with such intonation contours to indicate interrogatives such as English aux + S + V (*Do you like apples?*), speakers (and especially English language learners) don't have to use these grammatical forms to make *yes-no* questions and can rely on high rise of the boundary tone of unmarked intonation contours to express that action. This can be typical of beginning language learners (Pienemann, 1998).

(2)

A: You work full time (with high rising pitch at the end)

B: yes

In example (2) the language learner does not use grammar to form a question by using the auxiliary verb ‘do’ and moving the subject after the verb. The question is in statement form and the final rise in intonation indicates that it is a question. For this study I looked at fully formed syntactic *yes-no* questions as well as those that were indicated by intonation alone such as in example (2).

### *Wh-question Contours*

In contrast to *yes-no* questions, *wh*-questions in English, also known as information questions, have the same unmarked falling contour as declaratives. Pike (1956) describes the general tendency of question contours to be falling and refers to them as the “chief contour” (pp. 168-169). *Wh*-questions in English have also been

described more specifically as having a final falling tone (Couper-Kuhlen, 1996 citing Armstrong/Ward, 1931). Pierrehumbert & Hirshberg also described *wh*-questions this way stating that “the H\* L-L% tune used with simple declaratives is also frequently used with *wh*-questions” (1990, p. 284).

Cruttenden (p.165) cites Bolinger (1978) and Ultan (1978) in describing *wh*-questions. “Falls are the dominant pattern for question-word interrogatives in contrast to the rises associated with *yes-no* questions.” The following example (Figure 4) shows a rise to the stressed syllable of the focus word and then a fall including a low boundary tone. This is an unmarked question contour for *wh*-questions in English

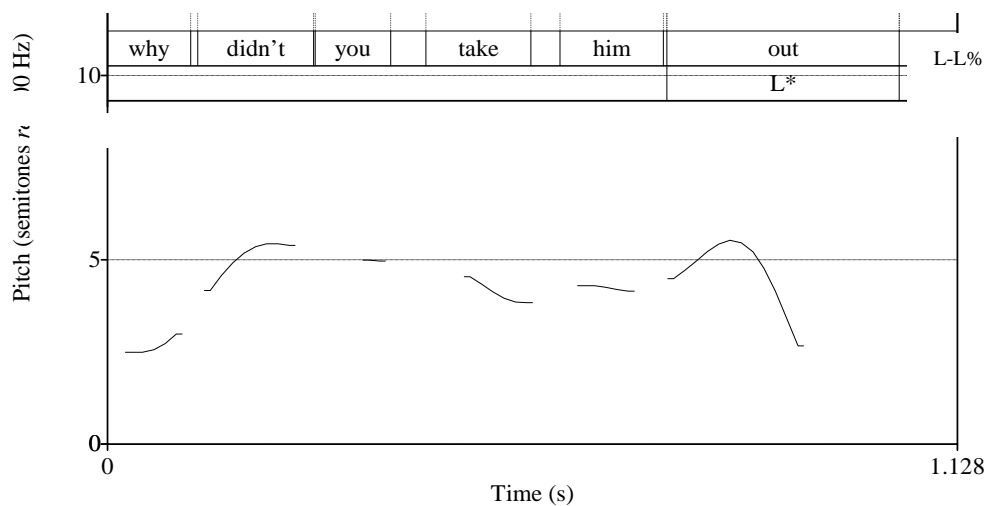


Figure 4. Example of a *wh*-question.

After looking at the unmarked intonation contours for questions in English we will look at unmarked intonation contours in Russian and some information on how they differ.

### Russian Intonation Contours for *Yes-no* and Information Questions (*Wh*-questions)

As stated earlier, Russian is an intonation language and has unmarked intonation contours which have similarities and differences from contours in English. Russian question contours (both *yes-no* and *wh-*) can be characterized by an initial rise and then a falling contour to a lower tone than the onset of the question. Descriptions of Russian intonation contours most often cite Bryzgunova. Bryzgunova (as cited by Cubberly, 2002, pp. 90-91) described seven different contours, two of which are relevant for this study characterizing question contours in Russian.

#### *Yes-no Question Contours*

The unmarked Russian intonation contour for *yes-no* questions has an initial sharp rise followed by a decline to lower than the onset of the phrase. This was described by Bryzgunova and labeled as IK3 (Intonacionnaja Konstrukcija= intonational contour). One common way Russians make *yes-no* questions is by using this contour. *Yes-no* questions using this intonation contour in spoken Russian are recognized as questions by the intonation contour, not by a question word or some other indicator. In this contour the most prominent syllable is marked by a sharp rise to the speaker's top level, followed by an equally sharp fall to the bottom level. Figure 4 shows the intonation contour of a Russian *yes-no* question with the standard intonation contour, IK3. The pitch accent is on the syllable 'prav' which rises sharply and is followed by a syllable that is higher in pitch and shorter in length. After the contour rises sharply, it falls to a pitch lower than the onset pitch by the end of the phrase.

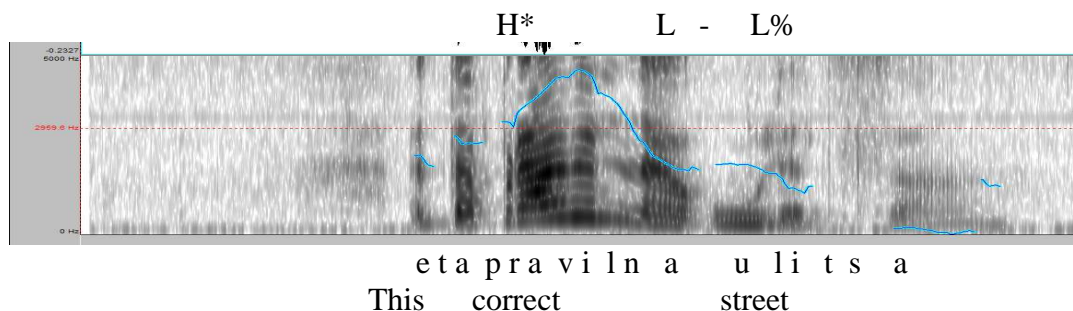


Figure 5. *Yes-no* question in Russian.

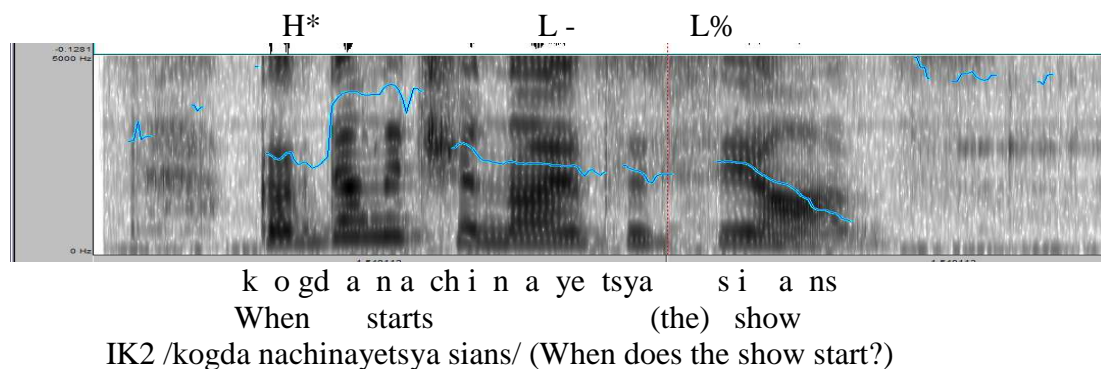
Using ToBI, we can characterize the question in Figure 5 as H\* L-L%. This question starts low and is followed by a pitch accent with a high peak. The question ends in a low boundary (L%) with a low phrase tone (L-) between the pitch accent and boundary tone.

Igarashi's (2005) phonetic analysis of intonation contours in Russian *yes-no* and *wh*-questions found that they are very similar. He concluded the *yes-no* questions would be L+H\* L-L% (that is, a low to high rise on the pitch accent and a low boundary tone). The pitch accent is described as L+H\* because the peak of the pitch accent comes near the end of the stressed syllable. Ladd (1990) also characterized *yes-no* questions in Russian as L+H\* L L%. Cruttenden (1986) describes *yes-no* questions in Russian as rise-fall where there is a sharp rise towards the beginning of the question. After the sharp rise the contour falls to below the starting pitch. Odé (2008) characterizes *yes-no* and *wh*-questions in Russian both as H\*L with L%, that is, these contours rise to a high pitch accent (H\*) then fall lower than the onset of the phrase to a low ending (L%). However, Odé shows two contours for the H\*L pitch accent, the sharp rise-fall (Figure 7) likely

represents the *yes-no* questions. Figure 4 illustrates Odé's description of *yes-no* questions as H\* L-L%.

### *Information (Wh-)Question Contours*

Like the *yes-no* questions, standard Russian information questions have a rise, though not as sharp as with *yes-no* questions, then a fall to lower than the onset pitch. This pattern was described by Bryzgunova and labeled IK2. The spectrogram in Figure 6 shows the intonation contour of a Russian *wh*-question with the expected IK2 contour. In this example, the pitch rises on the second syllable of *kogda*, the question word ('when') and the pitch accent of the question. Immediately after the pitch accent, the pitch falls to the same pitch as at the beginning of the question and then falls below that pitch in the last syllable of the phrase.



*Figure 6.* Information (*Wh-*) question in Russian.

Using ToBI, we can characterize this question as H\* L-L%. The phrase starts low. Next there is a high pitch accent for the phrase. The \* indicates this is the pitch accent. The

phrase ends low and the boundary is marked L%. The phrase tone between the pitch accent and the boundary tone is also not high, therefore, that is also marked as low.

Igarashi (2005) also finds that the unmarked contour for *wh*-questions is H\* L-L%. Figure 7 shows his representation of F0 contours for *wh*- and *yes-no* questions in Russian. The shaded space represents the location of the accented syllable.

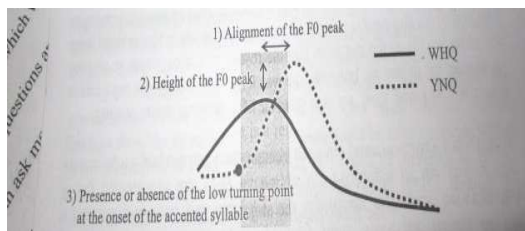


Figure 7. F0 contours for *wh*- and *yes-no* questions in Russian, Igarashi (2005).

Cruttenden (p.165) cites Bolinger (1978) and Ultan (1978) in describing *wh*-questions. “Falls are the dominant pattern for question-word interrogatives” (Cruttenden, p.165). Russian has a fall on question-word interrogatives and “the same tune as for declaratives except the initial question-word is very often given a specially high pitch” (Cruttenden, p.165). Odé (2008) also characterizes *yes-no* and *wh*-questions in Russian both as H\*L with L%, that is, these contours rise to a high pitch accent (H\*) then fall lower than the onset of the phrase to a low ending (L%). However, she shows two contours for H\*L pitch accent, the rise-plateau-fall likely represents information questions (Figure 8).

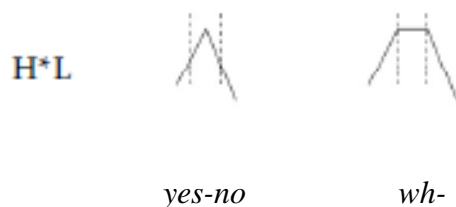


Figure 8. H\*L contours, Odé (2008).

Although Odé's contour differs somewhat from Igarashi's, what is most important here is the high pitch accent in each question type being early to mid utterance followed by a low boundary tone.

#### *How Russian Intonation Contours Differ from English*

If a Russian L1 speaker of English uses Russian information question intonation when uttering a *wh*-question in English, it may sound like a statement. This is because the pitch accent is near the start of the utterance in Russian intonation questions. In contrast, information questions in English have a pitch accent on a focal word often near the end of the utterance. Figures 9 and 10 show the idealized, unmarked version of a Russian intonation contour (dotted line) superimposed over an actual, unmarked intonation contour by a native speaker of English.

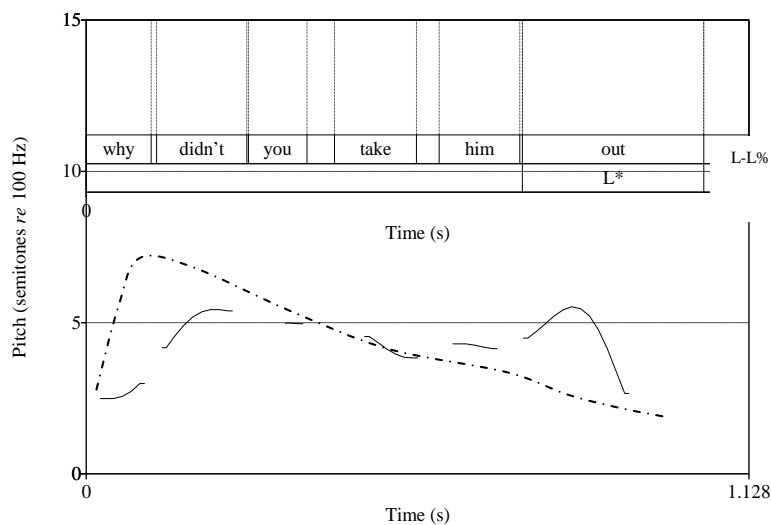


Figure 9. Russian information question contour (dotted line) superimposed on an English *wh*-question contour for comparison.

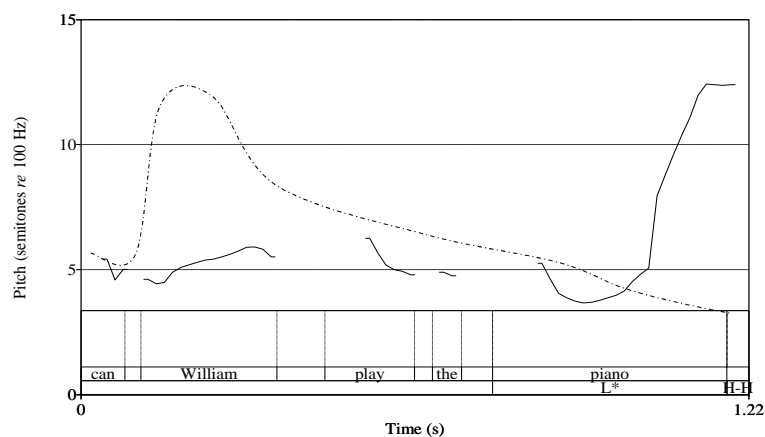


Figure 10. Russian *yes-no* question contour (dotted line) superimposed on an English *yes-no* question contour for comparison.

If the Russian intonation pattern influences the L2 English, the intent behind questions or commands could be misconstrued, or utterances could seem monotonic in pitch compared to native speech.



To summarize, both information and *yes-no* questions have low boundary tones as unmarked intonation contours in Russian. *Yes-no* questions in English end in a high rise boundary tone. The main difference in the Russian information questions and the equivalent in English *wh*-questions is the placement of the high pitch accent, which falls near the beginning or mid sentence in Russian, but closer to the end, on the focus word, in English. When analyzing the data I use these descriptions of unmarked question intonation.

#### Potential L1 Intonation Influence on Learners of English

When examining the phonological differences in question intonation between the two languages and the possibility of how this affects L2 speech, we are considering the possibility of L1 intonation influence and how this may affect speech. L1 intonation influence is a possibility because as literature has shown, there is a difference between the intonation contours in English and Russian. Before looking at influence between Russian and English, we will look at some other research on intonation transfer.

One study explained that German speakers of English conveyed uncertainty with their rising intonation in declarative sentences when speaking English (Edmondson et al., as cited by Chun, 2002). Another study described Indian and Pakistani food servers in Britain being perceived as irritating or impolite for using a falling intonation rather than a rising intonation when saying “Gravy” and offering it to the customers (Gumperz, as cited by Chun, p.87). Swertz and Zerbian (2010) researched L2 intonation transfer in Zulu speakers of English with perceptual and acoustic analysis. Zulu intonation is

different than English intonation and is not used to mark focus words. English L2 speakers in the study did not use intonation to signal focus, similar to their native language. These are examples of L1 transfer, or influence, that show how L1 intonation influence in an L2 can be characteristic of a group of speakers.

Other studies have revealed difficulties in intonation differences between Russian and English related to intonation transfer. Mentcher (1979) provided a helpful list to teachers of potential problem areas between Russian and English. Included in his list were segmental concerns such as vowel length and suprasegmental concerns such as the functional load of phonemic stress which is low in Russian, but distinguishes words like 'object (noun) and ob'ject (verb) in English. He mentions intonation including pitch, melody, and segmentation, as a problem area, but does not give any specifics beyond that. He explains that the transference of Russian intonation to English utterances will not produce a misunderstanding of content so much as a misunderstanding of meaning or intent behind the utterance (Mentcher, p.49). Thus, people can understand the words said, but misunderstand the intention behind them. This partial understanding often leads to a full understanding never being resolved and the communication may seem confusing on one end of the conversation exchange. Examining intonation contours of Russian learners of English more closely can provide more precise understanding of how these misunderstandings of intent can occur.

Several longitudinal studies have examined pronunciation change and possible intonation transfer over time. One study by Derwing et al (2006) examined development of accent, meaning target-like pronunciation, and fluency, or overall proficiency. The

participants were 20 Mandarin and 20 Slavic adult learners of English. L2 speech samples were assessed at the beginning of the study, two months later, and then ten months later. While they found only a small improvement in accent for both groups, the Slavic speakers made significant improvement in fluency and the Mandarin group stayed the same. Although the Slavic speakers had been judged to be less fluent at the outset, they did not surpass the Mandarin speakers in fluency. The fluency of both groups was rated the same at the end of the ten months. The difference in levels of improvement in fluency may be accounted for by the fact that the Slavic speakers reported to have more interaction with native speakers. This study showed that there was only a small improvement in pronunciation over ten months. This shows the possibility that those focusing on learning the language may not be as focused on improving pronunciation or more specifically intonation. This may cause them to retain their L1 intonation or not acquire target intonation. Even the group that improved in fluency did not make a big improvement in their pronunciation. Although this was a longitudinal study monitoring the development of pronunciation, it did not touch on L1 intonation influence. More longitudinal studies in pronunciation including intonation and L1 intonation influence will help us better understand L2 language development.

There have been longitudinal studies on pronunciation development and studies on intonation transfer and influence, but not cross linguistic longitudinal studies that look at the influence of L1 Russian intonation. The literature describes Russian intonation contours as being different from English intonation contours, so the potential is there for intonation influence. Intonation is an important part of communication in English and

studies have shown that not enough emphasis is put on intonation in pronunciation training. Another important reason for studying intonation development is because of how L2 learners are perceived.

### Perceptions of and Attitudes Toward Russian Intonation in English L2

The intonation patterns of Russian speakers of English tend to have a subtle but complex effect on language. They do not cause a lack of intelligibility so much as they set up a possible misunderstanding of attitude or intention from the perspective of the native English speaker. When considering the phonological differences in question intonation between the two languages and the possibility of how this affects L2 speech, it is relevant to consider how English language learners are perceived. Studies have shown Russian speaking English Language learners among others to be perceived negatively at times due to their non target-like intonation.

Misunderstanding due to non target-like intonation can have undesirable consequences such as a negative effect on employability. This is an important area to understand where negative perceptions happen in order to better help L2 learners. Research has shown Russian accents to be preferred less than other accents. A study by Hyman (2001) shows reactions to Chinese and Russian accents where the Chinese accents were preferred over the Russian accents when considering the participants for manager level job positions. Hyman conducted a study on perceptions of adult ESL learners on a pre- and post- instruction basis. As an example of misunderstanding of emotion behind suprasegmental features, Hyman cited Jones and Evans (1995) who

found that the “staccato pronunciation characteristics of some Cantonese speakers’ interlanguage...has been mistakenly perceived as expressing anger or irritation” (Hyman, 2001). This makes the point that although a Cantonese accent is not desirable, it is still preferable to a Russian accent. Hyman’s data was reviewed by business managers looking at employability qualifications and research results showed that Chinese accents are preferred to Russian accents. In another study the general complaint by tourists about Russian tour guides speaking English was that they found the guides to be rude (Dorodnych, 1995). Dorodnych conducted a study on requests in English and Russian based on feedback received from English and American travelers. This study documented differences in the use of lexical, morphological and syntactic items, but stated that there were differences in intonation whose “importance can hardly be overestimated” (Dorodnych, p. 63). Hyman and Dorodnych’s results combined with the fact that intonation is a considerable part of the pronunciation problem for Russians, such as with *yes-no* questions, indicate that further study on acquiring intonation patterns can be valuable.

In addition to those studies, Holden and Hogan (1993) researched the emotive impact of foreign intonational “accent” in L2 Russian (in Moscow) and L2 English (in Edmonton, Canada). They aimed to make a preliminary assessment “of the emotional and attitudinal ‘confusion’ that may arise in the use of foreign intonation in L2” (p. 70). The study showed that for positive emotions, English native speaking subjects rated their own intonation higher than the intonation of Russian L1 speakers of English in *yes-no* questions. Both English and Russian speakers “reacted more negatively to the greater

pitch range of Russian intonation in exclamations and *yes-no* questions” (p.84). The authors also explained: English speakers were found to be much more sensitive to Russian intonation than Russian speakers were to English (1993).

According to Holden and Hogan, when considering sensitivity to intonation patterns between the two languages, there is more concern with the negative transfer of Russian L1 intonation to English L2. After conducting their study, Holden and Hogan cautioned Russian speakers on retaining their Russian intonation when using English, “even if they are otherwise fluent segmentally and grammatically,” (1993, p.85) because their evidence suggested that Russian speakers of English “will be judged negatively on most simple syntactic constructions” (1993, p. 85). The idea that Russian speakers of English who transfer their native intonation patterns can so commonly be perceived negatively provides good reason to investigate this further.

### The Importance of Intonation and a Focus on Teaching Intonation

Previous studies have shown evidence of Russian speakers being perceived negatively whether as immigrants or in their home countries where they use English for work due to the influence of their L1 on their English L2 intonation. English speakers react negatively to Russian accents more often than Russian speakers react negatively to English accents. Research has also shown that at least one other common language background has been preferred in employment situations over Russian speakers of English. All this evidence on perceptions of Russian speaking English language learners elevates the importance of teaching intonation. Studying the development of intonation in

an L2 can help English teachers and English Language learners. The importance of intonation has motivated a focus on teaching intonation in the L2 classroom. Research on teaching intonation has shown the importance of intonation awareness for both teachers and students. Taylor stated:

The importance of intonation cannot be overemphasized....while [teachers] can easily recognize the difficulties faced by non-native speakers as far as grammar and the pronunciation of sounds are concerned, and thus make allowances for the errors made, they are unable to do this for intonation (1993, p. 1).

Teachers are not always able to teach or correct for intonation because they do not recognize the non-target-like intonation. Taylor went on to explain that intonation errors, which can lead to misunderstanding, are not always recognized for what they are. A non-native speaker may unintentionally come across as rude, and teachers do not recognize that this is due to intonation transfer. This unintentional negative perception is what we hope to avoid by learning more about L2 intonation acquisition and teaching students about intonation.

Problems with intonation have affected other groups of L2 learners in the past. One such group has been international teaching assistants (ITA) who have a high stakes need for using target-like pronunciation. In Anderson-Hsieh's study on teaching suprasegmentals to ITAs she cited Stevens (1989), who argued that the traditional segmental methods of teaching pronunciation were less appropriate for these ITAs. The students of the ITA's who were queried had complained more about problems whose sources involved the suprasegmental features rather than the segmental features.

In the absence of absolute mutilation of phonemes by a nonnative speaker, the suprasegmentals will carry the day because they bear the meaning of the message and establish cultural synchrony between the speaker and listener (Stevens 1989 as cited by Anderson-Hsieh, 1990, p. 197)

Anderson-Hsieh drew the conclusion that both oral comprehensibility of ITAs and their confidence in their ability to communicate would improve with pronunciation lessons focused on suprasegmentals (p. 197).

Extensive research conducted on intonation in ITA discourse shows there are high stakes for learners in the classroom of ITAs who do not have target-like intonation (Pickering, 1999). Pickering analyzed videos of Chinese and Indian ITA speech in the classroom.

The study concludes that prosodic structure...bears a high communicative load in terms of both structuring information and expressing relationship between participants. Therefore, prosodic miscues...are one underlying cause of cross-cultural communication failure between international teaching assistants and their students (1999, p.v).

Language teaching pedagogy has addressed intonation by teaching prominence. Students often listen to sentences to learn to distinguish prominence. Contours can be drawn to reflect pitch contour for unmarked sentences and then for marked sentences. In this way students can learn the meaning variations with use of prominence and pitch contours (Celce-Murcia et. al., 1996). Even though some effective ways of teaching intonation have been developed, pronunciation is not always explicitly taught, or within



pronunciation teaching, intonation is not emphasized as much as other aspects such as word stress and segmentals.

Intonation plays a crucial role in communication and different languages have different contour inventories, or expected ways of communicating intent. Studies have shown that teaching suprasegmentals for example, to ITAs, addresses their pronunciation and communication problems more effectively. The fact that teachers can be unfamiliar with non-target-like intonation and how to teach to this adds merit to the need for more research in this area. A better understanding of intonation development and how or if intonation is becoming more target-like will be beneficial to helping with L2 intonation problems.

### Conclusion

We cannot underestimate the importance of intonation in communication, especially in intonation languages such as English. Both English and Russian are intonation languages, each having their own intonation contours to convey various attitude and pragmatic force. How Russian contours may influence L2 English and affect communication is important to consider. Research, especially that of Holden and Hogan, and Hyman, shows that North American speakers of English respond negatively to Russian L1 intonation transfer. One area this occurs is in questions which we have documented to have different contours in English and Russian. One study has also shown that intonation in Slavic language learners does not improve over time (Derwing, 2006). Intonation can be a difficult aspect of language to acquire as a second language learner

and the fact it has often played a less important part in language teaching gives more reason to investigate this further. There is limited research on Russian intonation influence in L2 English and limited longitudinal studies on intonation development.

Thus, it is important to consider intonation in Russian learners of English over time, more specifically their intonation in questions where there is an obvious difference in native contours such as with *yes-no* and *wh*-questions. For these reasons, in this study I have analyzed data and considered L1 influence, difficulties with language learning, and whether intonation contours can become more target-like over time. Specifically, I sought answers to the following questions:

- 1) Do the intonation contours of a Russian-speaking English language learner differ from those of native speakers of English with respect to a) *wh*-questions and b) *yes-no* questions? If so, is there evidence of L1 influence, or are the contours neither native-like nor target-like?
- 2) Are L1 intonation contours for *wh*-questions and *yes-no* questions maintained in the focal subject?
- 3) Is there evidence for change in the L2 intonation patterns over time and if so, does this correlate with other changes in general competence in the language?

## METHODOLOGY

### Introduction

This research looks at intonation patterns of one Russian L1 speaker of English, especially where those intonation patterns differ between the two languages. I examined data from a successful learner of English whose first language is Russian and who studied in a community college English Language Program. Classes met for nine hours a week for ten week terms. A “successful” learner was chosen using independent measures of progress through the program based on standardized proficiency tests together with more subjective assessments of the instructors. The learner participated in classes at the data collection site for six terms so the data is longitudinal. I isolated, transcribed and analyzed the intonation of questions at different stages of the subject’s learning process and described, auditorially, the intonation of each question as either target-like (that is, like the standard intonation of the target language, English) or, L1 (that is, like the standard intonation of the L1, Russian) or different than both. Such patterns were common because as a student learns a target language, a learner system or interlanguage (Selinker, 1972) develops that may have features of intonation somewhere in between the standard intonation patterns of the two languages, or may just reflect typical developmental patterns.

### Participants

The participant in this study, Larissa<sup>2</sup>, started in a beginning-level English class and took classes for six terms during 2002 – 2003. She emigrated from Russia in 2002 at the age of 36. Prior to that, she completed 14 years of education and worked as an engineer in Russia. She reported speaking English and Russian at home although in-home interviews suggest her use of English at home was limited to sometimes helping her young children with their homework.

### Setting/Context

The data used in this study were drawn from a large corpus of data on adult English language learners at the National Labsite for Adult ESOL at Portland State University (Reder, Setzler, & Harris, 2003). The Multimedia Adult English Learner Corpus (MAELC) includes recorded classroom interaction made by six cameras and five microphones in each of two classrooms at the Labsite. In the classroom, the teacher and two of the students wear wireless microphones which record high quality audio of classroom interactions. Two of the cameras in the classroom were mobile and were operated from outside the classroom. These two cameras focused on student interaction of the students who were wearing microphones. The other four cameras covered the rest of the classroom to capture details to give a basic understanding of the classroom.

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<sup>2</sup> All names used to refer to participants in the data from the classroom are pseudonyms.

## Instruments/Data Gathering

### *Background Questionnaires*

The participant provided basic information about her age, years of education, use of English outside of class, and goals for learning English through an in-home bilingual interview (Hellerman & Brillanceau, 2007).

### *Spoken Language Data from Classroom Interaction*

Data for this study are *yes-no* and *wh*-questions spoken by an English language learner over six school terms when she was speaking with a peer in dyadic task interaction. The questions were identified by examining existing transcriptions of video data from MAELC and transcribing other interactions of the focal participant when she was wearing a microphone via the Toolbox program to access MAELC data (see Figure 11).



Figure 11. Class Action Toolbox interface.

The above screen shot shows how the video data is viewed. There are six different screens and corresponding microphones provide the audio portion of the video. (Reder, Harris, & Setzler, 2003)

### Data Analysis

Data was used from six ten-week academic terms (July 2002-December 2003) and was grouped into three different time periods, Time 1 (July 2002-December 2002), Time 2 (January 2003-June 2003), and Time 3 (July 2003-December 2003). After identifying questions in the data, sound files of the target utterances were made. Because the context was a language-learning classroom, contexts for the questions varied greatly from questions for teacher-assigned language-learning tasks to questions to a friend about

their children. For that reason, the target utterances were first separated by the level of language support provided by the teacher for the interaction (high, mid, or low). An utterance coded as having a ‘high’ level language support indicates the student was reading the question from notes, a book, or the board. An utterance coded as ‘mid’ level language support indicates the student was asking a question for a classroom activity with some direction from the teacher. An utterance coded as having a ‘low’ level of language support indicates the student was asking a question spontaneously. It was not a question assigned as part of a classroom activity.

I listened to recordings of the speech samples and made an auditory analysis of each utterance. I labeled the pitch accents, phrasal tone, and boundary tone with the ToBI system (Beckman & Ayers Elam, 1997). ToBI is widely accepted in speech analysis and was chosen as the best way to describe the data examined in this study. For the ToBI analysis, the analyst listens to each utterance and labels the most prominently stressed syllables as high (‘H’) or low (‘L’) pitch accents. Then the phrasal tone and boundary tone are labeled. This usually takes more than one listening to carefully identify how to code the pitch accents, phrasal tone and boundary tone. If there was uncertainty from listening to the utterances, PRAAT was used to examine the contour of the utterances. It is important to note when using the ToBI system to describe English, low (‘L’) is the default label for a pitch accent and not high. Further explained, “high” tends to mark something in approximately the upper quarter of the total F0 range of the utterance. Anything below that, that can be considered “not high,” is described as “low.” The following example, Figure 12, shows a *yes-no* question with a final rise.

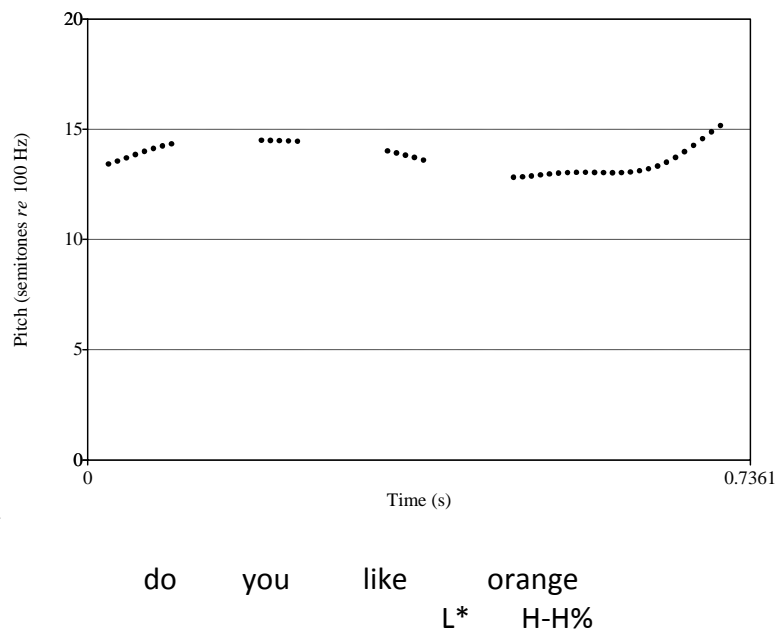


Figure 12. Yes-no question with a final rise.

A second rater, who is a linguist familiar with phonetic and perceptual analysis, conducted a check on the auditory judgment and on the ToBI analysis. Acoustic pitch tracks were used as a tool for resolving differences in coding<sup>3</sup>. Not only did the acoustic reading provide a physical verification of the intonation patterns, it provided a visual illustration. I counted *yes-no*, *wh*-questions, language support level, and pitch accent types to make Tables of the data. I also analyzed the data by making holistic judgments of the utterances as target-like or not target-like. These judgments were also checked by a second rater. I looked at patterns in the data to compare the participant's speech samples from different time periods to see if there was evidence of change in the intonation patterns over time.

<sup>3</sup> Pitch tracks for each question were made using PRAAT (Boersma & Weenink, 2005).



I and one other rater listened to all data to make a native speaker judgment of whether utterances sounded target-like or non-target-like. After we did a perceptual analysis we each checked the other's analysis and took into consideration exceptions in the context and agreed on how to label each example. This data was then examined for patterns of target-like or non target-like for question type, level of language support, and time period.

## RESULTS

Examining Larissa's production of questions from various levels of language support and considering L1 influence on intonation contours brought the most interesting results. Target-like intonation for *yes-no* questions occurred most often during interactions without language support from the teacher. There was some evidence of L1 intonation influence, but little evidence that L1 intonation was being maintained. While the participant's language ability increased over time according to standardized test scores, a similar change in intonation of questions was not evident. Following are the results of the analysis.

First we will look at the results of the phonetic analysis using ToBI classification of the *yes-no* and *wh*-questions to show Larissa's intonation contours as they relate to the first research question: (1) *Do the intonation contours of Russian-speaking English language learners differ from those of native speakers of English with respect to a) wh-questions and b) yes-no questions? If so, is there evidence of L1 influence, or are the contours neither native-like nor target-like?* Then we will look at common pronunciation characteristics of the non target-like data, namely excessive pitch accents. Then we will look at a perceptual analysis by native speakers judging the data for target-like or non target-like questions.

### *Yes-no Question Data*

The *yes-no* questions data showed a clear pattern of the target-like boundary tone (H-H%) being produced more frequently during interactions with little or no language

support from the teacher. Over the three time periods, nine out of fifteen *yes-no* questions without language support (the ‘low’ category) had the target-like boundary tone. Only nine of the thirty-three *yes-no* questions with language support (the ‘mid’ and ‘high’ categories) had the target-like boundary tone as indicated in Table 1.

Table 1

*Yes-no Questions*

Time Period	Low Level Support				Mid Level Support				High Level Support			
	L-L%	L-H%	H-L%	H-H%	L-L%	L-H%	H-L%	H-H%	L-L%	L-H%	H-L%	H-H%
1	1			1					3		2	1
2		2		4	1		1	5	7	1		1
3	2		1	4			3	2	5		1	
Totals				9				7				2

Only two of twenty-one *yes-no* questions in the category of high level support had the target-like intonation contours. On the other hand, fifteen of the twenty-one high level support intonation contours were L-L% which is clearly not target-like. The numbers from Table 1 displayed as a percentage of all *yes-no* questions in Figure 13 show this difference.

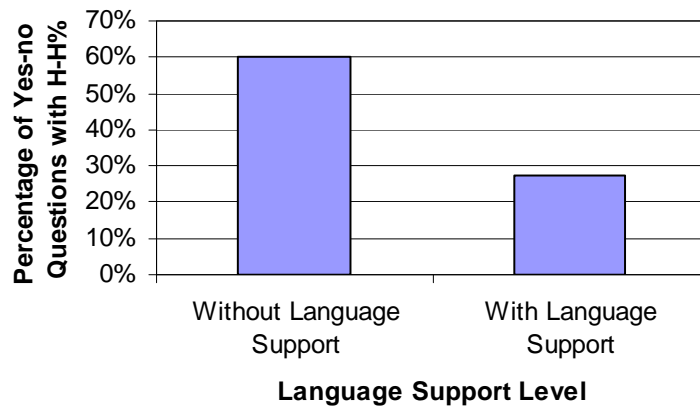
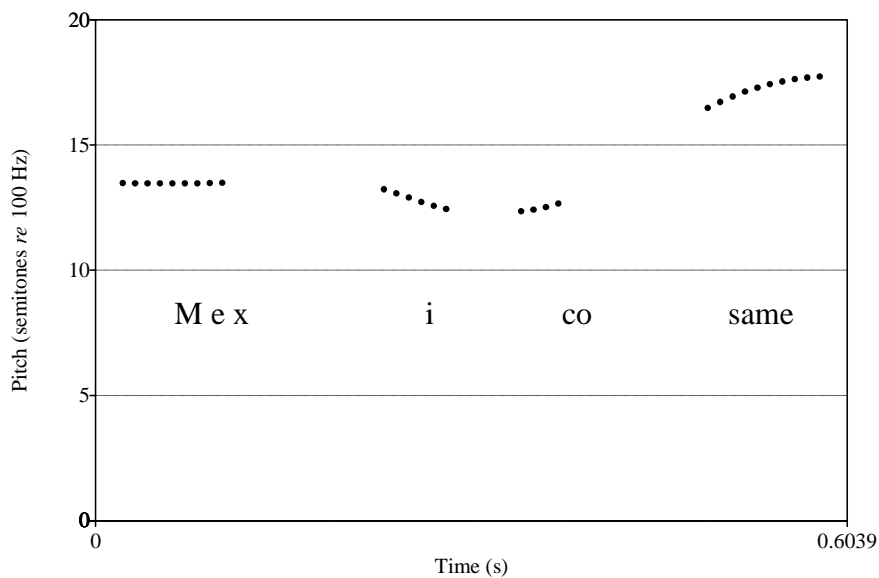


Figure 13. *Yes-no* questions with target-like boundary tones.

Figure 13 shows the *yes-no* questions without language support having a target-like intonation contour 60% of the time and those with language support having a target-like intonation contour only 27% of the time.

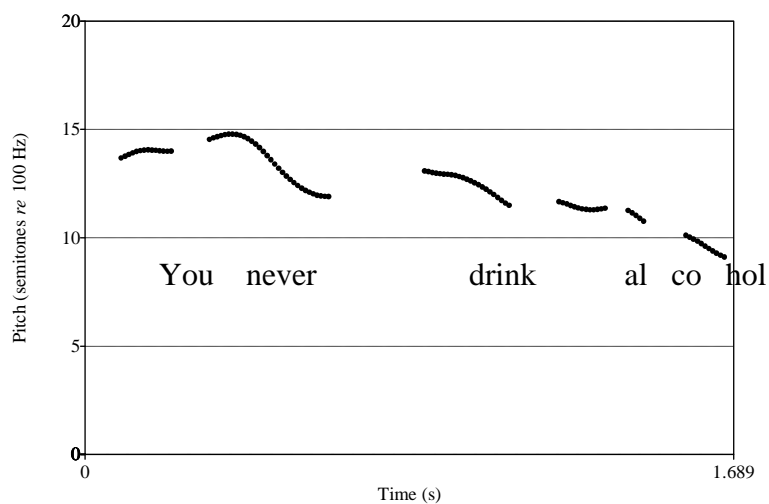
The following excerpts illustrate the variation I found in the intonation contours and how this relates to the level of language support. Figure 14 shows a *yes-no* question that has target-like intonation without language support. The phrase rises at the end which is marked by the high pitch accent (H\*) and the high boundary tone (H%).



Mexico same?  
 L\* H\* H-H%

Figure 14. Yes-no question with target-like intonation and without language support.

Figure 15 is an example of a *yes-no* question produced in the context of language support from the teacher that does not have target-like intonation. The intonation contour in this example falls at the end instead of rising and is from a class exercise where the participant is reading. The students were to ask one another *yes-no* questions about frequency using adverbs of frequency. Larissa is reading questions from her notebook and rather than using the question format for the task, uses statement syntax. Her classmate treats this with the pragmatic force of a question and answers “yes”.



you never drink alcohol?

H\* H\* L\* L-L%

Figure 15. Not target-like *yes-no* question.

This question is not target-like because it has three pitch accents and a low boundary tone. The production of this non target-like contour could be due to careful speech when reading or retaining native intonation contours. The unmarked intonation contour for Russian *yes-no* questions ends in a low boundary tone which is reflected in this example. The less controlled and more natural speech of the low level support questions show more of the near-universal contour of *yes-no* questions which is rising.

### Wh-question Data

In examining the boundary tones for evidence of target-like intonation or L1 influence on *wh*-question data, the patterns were less clear. Since the final boundary tones for *wh*-questions are the same in English and Russian (L% in both), I looked at the placement of pitch accents to determine if there was evidence of L1 influence. The pitch accents, in part, determine the shape of a phrase and they are labeled H\* or L\*. While both English and Russian *wh*-questions, or information questions, have a final fall, the Russian contour tends to rise to a high pitch accent, then plateau, and fall, while the English contour rises gradually, peaks on the focus word, and then falls. The placement of the high pitch accents play an important role in determining whether the contour is standard or not. When looking for evidence of target-like production of the *wh*-questions, I was looking for the falling contour of the boundary tone. Also, a target-like utterance would have no pitch accent on the *wh*-word but would have a high pitch accent on the focus word near the end of the utterance. A high pitch accent on the *wh*-word would show possible L1 influence.

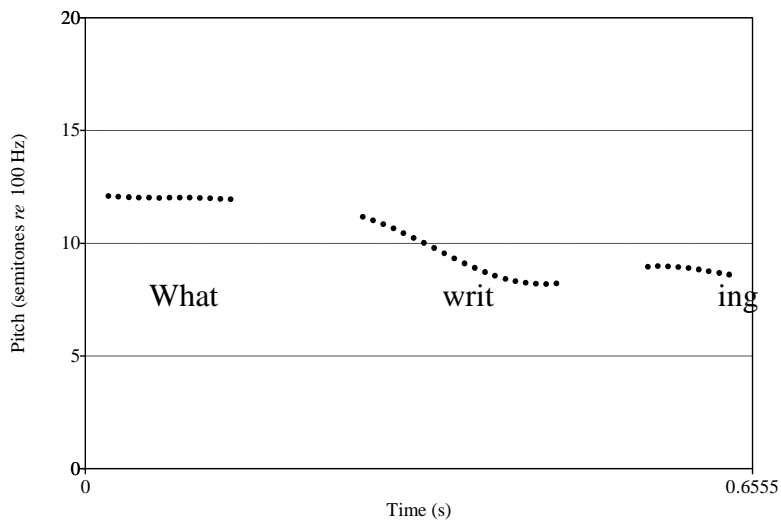
Table 2

#### *Wh-questions by Time Period*

	Wh-word Pitch Accent (PA)			High Pitch Accent on Focus Word	Total # of Questions
	None	High PA	Low PA		
Time Period 1	2	1	2	3	5
Time Period 2	5	7	5	0	17
Time Period 3	1	8	7	4	16
Totals	8	16	14	7	38

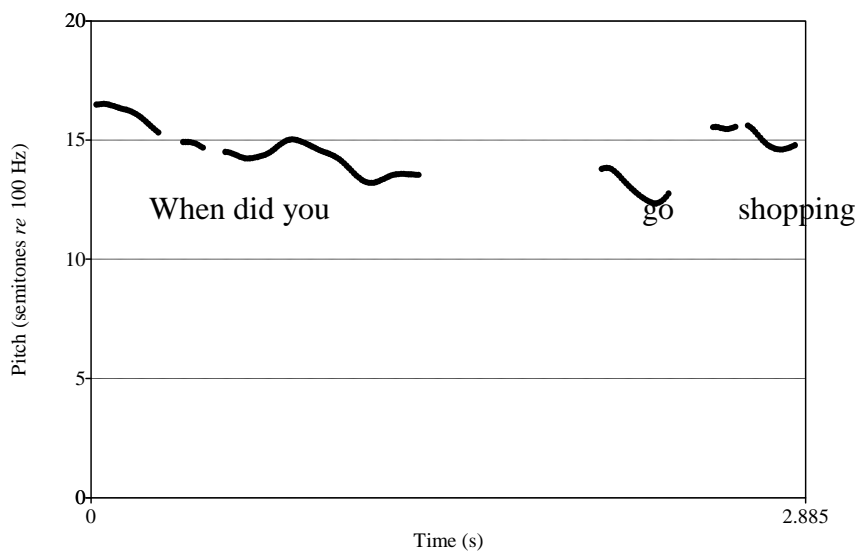
Table 2 shows whether the *wh*-questions had pitch accents on the *wh*-word and if they were high or low. It also shows whether there was a pitch accent on the focus word of each question. Target-like *wh*-question intonation would have pitch accent on the focus word of the utterance and Table 2 shows that few of the *wh*-questions were target-like. Only 7 of 38 questions had a high pitch accent on the focus word, with 3 of those being during the first time period showing that this aspect of intonation did not become more target-like over time. Eight of the 38 questions did not have a pitch accent on the *wh*-word, so only 8 questions were target-like in this way. The remaining 30 of the 38 questions had a pitch accent on the *wh*-word which shows L1 influence. Of those 30, 16 were high pitch accents which is also L1-like. Russian information question intonation has a rise to a high pitch accent on the question word. Figures 16 and 17 are two examples from Larrisa showing L1 influence on *wh*-question intonation contours.





What writing?  
 H\*      L-L%

Figure 16. L1 intonation influence on a *wh*-question.



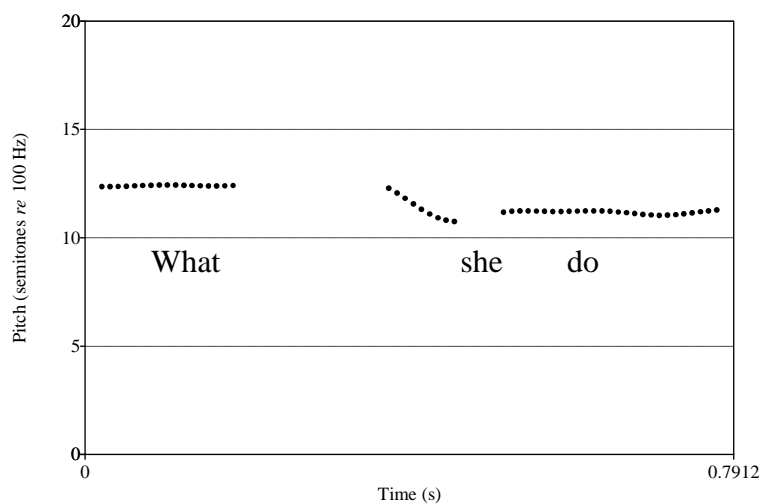
When did you (pause) go shopping?  
 H\*                      L\* H\*      H-L%

Figure 17. Another example of L1 intonation influence on a *wh*-question.

Figures 16 and 17 above are examples with high pitch accents on the *wh*-words which show L1 intonation influence. Figure 17 also has a high pitch accent on the focus word, “shopping,” which is target-like although the boundary tone rises slightly. This is a good example of how some questions have characteristics of both L1 influence and target-like intonation.

#### An Interlanguage Form: Monotone and Excessive Pitch Accents

Some of the questions had neither target-like nor L1 boundary tones but were characterized as monotone. They were very flat in shape and had no high pitch accent. There were 7 questions like this, 5 of which dropped off to an L-L% and two of which had an H-L% boundary tone. These were all *wh*-questions from time periods two and three when the participant was not a beginner. Figure 18 shows one such form.



What she do.

L\*      H-L%

Figure 18. Very flat contour.

This example shows a very flat contour for the question with no high pitch accent and without a final falling boundary tone. This is neither target-like nor native-like in that there is no high pitch accent and that the boundary tone is not low. After noticing this pattern, I looked to see if there were patterns characteristic of such monotone productions.

Multiple pitch accents, or excessive pitch accents, in each intonation contour are one characteristic that was found in some of the non target-like *yes-no* and *wh*-question contours and which gave them a monotone character. Figure 19 from Time Period 3 illustrates this:

When did you go (PAUSE) come to America?  
 L\*            L\*            L\*            H\*    H-L%

Figure 19. Multiple Pitch Accents.

As this question comes from a context of high language support, the pausing and extra pitch accents may be due to careful speech or what Pirt described as making word choices and correcting her speech (1990).

Looking longitudinally, there is a higher percentage of questions with excessive pitch accents as the time periods progress. For this study, excessive pitch accents are defined as more than one pitch accent in a phrase. Cruttenden (1997) and Ladd (1980, 1996), among others, have argued that in English, “there is one focus per intonational phrase...which tends to be located at or near the end of the intonation contour” (Wennerstrom, 2001, p. 34). When considering question type and support level there are many more questions with excessive pitch accents for *wh*-questions than for *yes-no* questions. Within the *wh*-questions there are more questions with excessive pitch accents with medium and high language support than there are for those with low language support. There are 4 out of 11 with low level support and 23 out of 27 with combined mid and high language support. Stated as percentages, 36% of the *wh*-questions without language support have excessive pitch accents while 85% of the *wh*-questions with language support have excessive pitch accents. Tables 3 and 4 show the numbers of questions with excessive pitch accents by time periods and language level support.

Table 3

*Occurrence of Excessive Pitch Accents by Time Periods*

	Yes-No Questions with Excessive Pitch Accents	Total Yes-No Questions	Wh-Questions with Excessive Pitch Accents	Total Wh-Questions	TOTAL QUESTIONS
Time Period 1	2	8	3	5	5/13 38%
Time Period 2	9	22	12	17	21/39 54%
Time Period 3	8	18	12	16	20/34 59%
	19	48	27	38	

Table 3 shows that the percentage of excessive pitch accents increases over time. In the first time period, 38% of the questions have excessive pitch accents followed by 54% in the second time period and 59% in the third time period.

Table 4

*Occurrence of Excessive Pitch Accents by Support Level*

	Yes-No Questions with Excessive Pitch Accents	Total Yes-No Questions	Wh-Questions with Excessive Pitch Accents	Total Wh-Questions	TOTAL QUESTIONS
Low Level Support	1	15	4	11	5/26 19%
Mid Level Support	2	12	8	9	10/21 48%
High Level Support	16	21	15	18	28/39 72%
TOTAL	19	48	27	38	

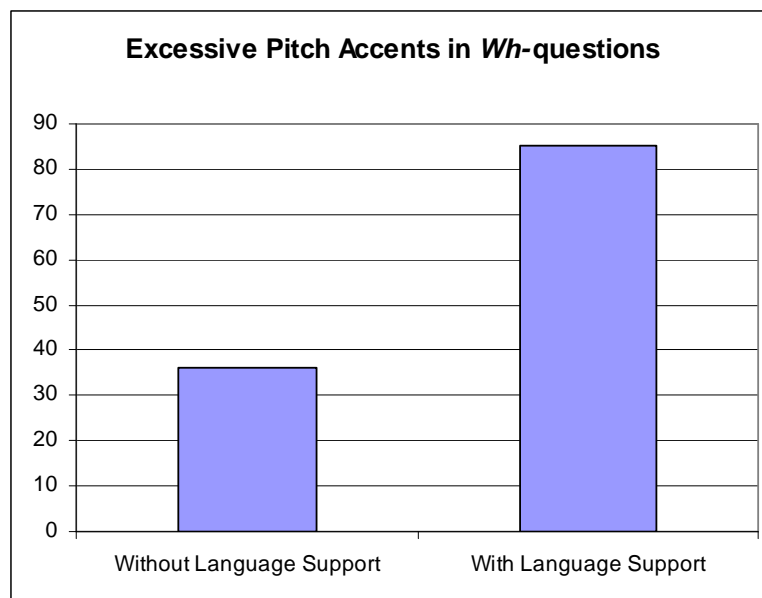


Figure 20. Percentage of *wh*- questions with excessive pitch accents.

Figure 20 shows that 36% of the *wh*-questions without language support had excessive pitch accents whereas 85% of those with language support had excessive pitch accents. *Wh*-questions had excessive pitch accents much more often with language support. This may be related to the length of the questions. The average number of syllables per question for *wh*-questions with language support is 6 and the average for *wh*-questions without language support is 3. It is expected that the shorter questions are more likely to have fewer pitch accents simply because there are fewer syllables to be accented.

### Evidence of L1 influence

For the *yes-no* questions with high level support, one could argue that there is evidence of L1 influence because 15 of 24 questions with high support are produced with

the non target-like falling contour where there is a high pitch accent that falls to either a H-L%, L-H%, or L-L% boundary tone. I argue that even though the H-H% boundary tone is target-like in English, and L-L% is like Larissa's L1 Russian, H-L% and L-H% being lower than H-H% are neither native-like nor target-like, but could show evidence of L1 influence because they are lower than H-H%. It is possible that when reading questions (as is the case with these high language support questions), the L1 intonation contour is more often applied. This could be because the focus is on reading or pronouncing at the segmental level.

It is harder to tell if there is L1 influence on the *wh*-questions because the standard intonation contours for Russian and English are not always easy to distinguish. Here are some examples of Larissa's *wh*- questions in English that have a high pitch at the beginning of the questions and little to no rise after that.

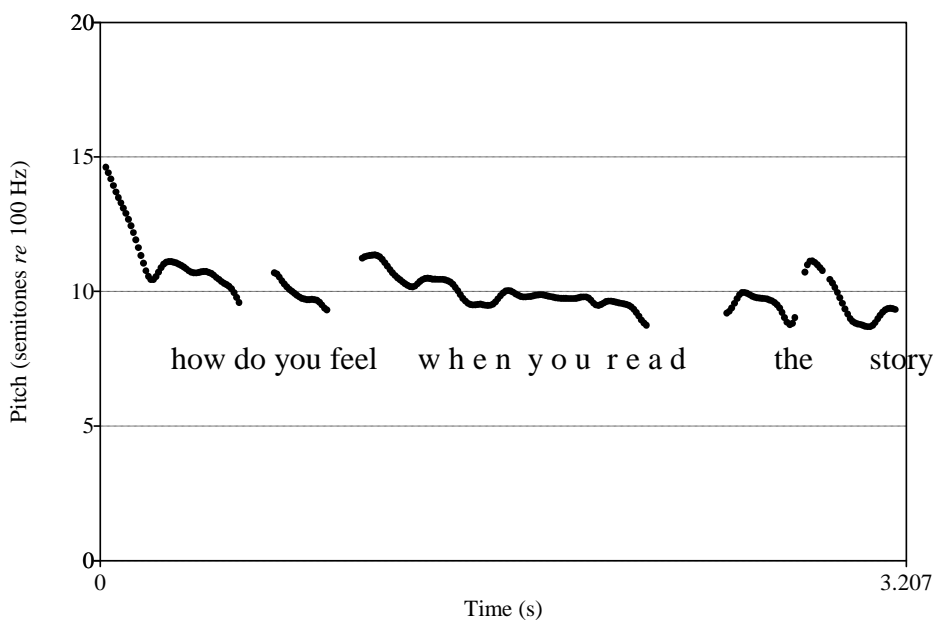


Figure 21. Evidence of interlanguage, 1<sup>st</sup> example.

Figure 21 shows a fall on the *wh*-word and then little to no rise or fall. The intonation contour shown in this utterance is not considered to be influence from Russian because it is flat and there does not have a rise to the *wh*-word.

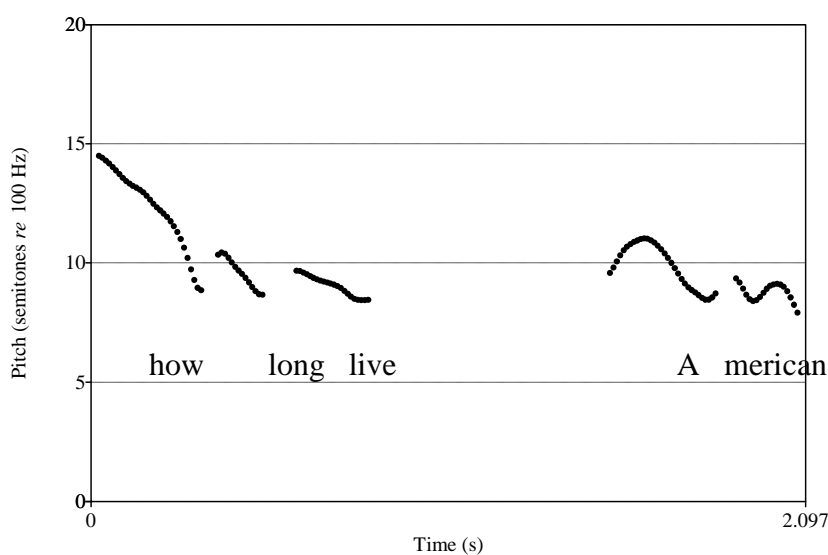


Figure 22. Evidence of interlanguage, 2<sup>nd</sup> example.

Figure 22 shows a fall on the *wh*-word followed by little rise in intonation except on the first syllable of “American”. This example also does not follow the intonation contour of a typical information question in Russian. There is not a rise, plateau, fall in the contour. It is also not target-like because target-like speech would usually rise in pitch on the second syllable rather than the first and would rise higher.



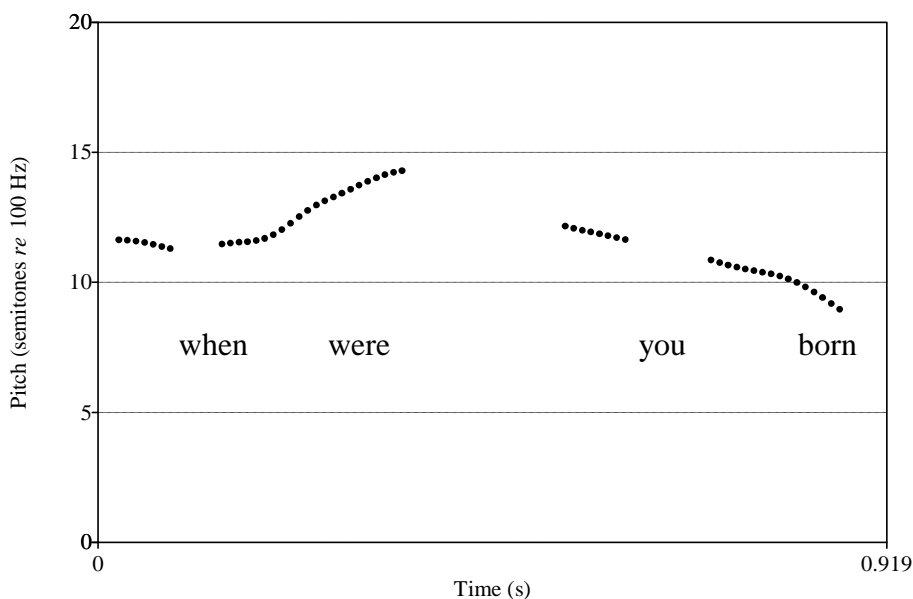


Figure 23. Evidence of interlanguage, 3<sup>rd</sup> example.

The contour in figure 23 rises on “were” and then falls to the end of the question. This example shows neither target-like nor L1-like intonation. The unmarked question in English would rise and fall on “born”. In the L1, the contour would rise on the question word. Figures 21, 22, and 23 are evidence of interlanguage intonation contours, something that is neither native-like nor target-like.

The results of the data analysis just presented suggest that for research question (2): *Are L1 intonation contours for wh-questions and yes-no questions maintained in the focal subject?* there is not enough evidence in the data to say they are being maintained, but there is evidence that they influence the intonation contours in Larissa’s speech. There is evidence of L1 influence on the *yes-no* questions because of no high rise at the

end of many of the questions. The pitch accents on the *wh*-word in the *wh*-questions is also evidence of L1 influence, especially the high pitch accents.

When considering research question (3): *Is there evidence for change in the L2 intonation patterns over time and if so, does this correlate with other changes in general competence in the language?* the combined *yes-no* and *wh*-question data analyzed by time period and presented thus far shows there is little evidence of change in intonation contours over time. When considering the target-like characteristics for *yes-no* questions, namely the high boundary tone, and the high pitch accents on the focus word for *wh*-questions, 5 out of 13 were target-like for time period 1 and 10 out of 34 were target like in time period 3. These numbers show 38 % were target-like in time period 1 versus only 29% in time period 3. The perceptual analysis that was done also supports this finding.

In addition to the ToBI and acoustic analysis, another rater and I, as native speakers, judged the data to be target-like or non target-like by listening to all the samples. The results in Tables 5 and 6 also show that according to the perceptual judgments, target-like pronunciation did not improve over time.

Table 5

*Target-like Pronunciation*

	LLS			MLS			HLS			Totals		
	<i>Wh-</i>	<i>Y/N</i>	Total	<i>Wh-</i>	<i>Y/N</i>	Total	<i>Wh-</i>	<i>Y/N</i>	total	<i>Wh-</i>	<i>Y/N</i>	
T1	0	2	2	1	0	1	0	0	0	1	2	3/14 21%
T2	4	5	9	0	4	4	1	0	1	5	9	14/39 36%
T3	1	5	6	0	1	1	0	0	0	1	6	7/34 21%
Totals	5	12	17 71%	1	5	6 25%	1	0	1 4%	7	17	24/87 28%

Table 6

*Non Target-like Pronunciation*

	LLS			MLS			HLS			Totals		
	Wh-	Y/N	Total	Wh-	Y/N	Total	Wh-	Y/N	Total	Wh-	Y/N	Total
T1	0	0	0	2	0	2	3	6	9	5	6	11/14 79%
T2	0	1	1	4	3	7	8	9	17	12	13	25/39 64%
T3	6	2	8	3	4	7	6	6	12	15	12	27/34 79%
Totals	6	3	9 14%	9	7	16 25%	17	21	38 60%	32	31	63/87 72%

What I found was that 28% of the data sounded target-like and 72% sounded not target-like. Interestingly, 71% of the target-like data was from low language support examples and 4% of the target-like data was from high language support data. This reflects that the participant has a natural tendency toward target-like intonation in unsupported speech. Reading class exercises is, however, when her intonation is least target-like. Sixty percent of the non target-like data were from high language support situations.

When comparing the judgments across the three time periods, Time Period 3 does not have more target-like intonation than Time Period 1 nor does it have fewer non target-like intonation contours. Therefore the data do not provide evidence that intonation improved to become more target-like over the 60 weeks Larissa participated in classes at the data collection site.

## DISCUSSION

Observations of L2 English question intonation, interlanguage, and L1 influence have interesting results and potential implications for English teaching pedagogy. The *yes-no* questions were target-like more often than the *wh*-questions. There are at least two reasons for this. The first is that they are shorter in terms of total syllables than *wh*-questions, often 1-2 syllables. The shorter length meant less chance for being produced with excessive pitch accent which was one of the primary factors for judging utterances as non target-like. The second reason is that the final high rise is a near-universal contour for *yes-no* questions expressing that the speaker is waiting for new information (Cruttenden, 1986). In addition, it is a developmental pattern in second language acquisition. For example, learners of English start producing questions using intonation to signal a question rather than word order (Dyson, p.217). These factors contribute to the target-like high rise at the end of many of Larissa's *yes-no* questions. Larissa's *wh*-questions had target-like contours less often than the *yes-no* questions for the reasons already stated, i.e., they tend to be longer and have more pitch accents as a result. A target-like contour is possibly not as easy to adopt as the rising boundary tone for *yes-no* questions because longer sentences have more room for error.

Overall there was some evidence of L1 influence seen in the data in that many of Larissa's *yes-no* questions did not have a high rise boundary tone and some of her *wh*-questions had a pitch accent on the *wh*-word. In English, questions that have a pitch accent in a place other than the expected focus word move the focus of the sentence and sometimes the meaning. This is where the misunderstanding of intent mentioned by

Mentcher (1979) can occur. Determining how L1 intonation influences L2 intonation can help determine where pronunciation training is important as far as miscommunications are most likely to occur.

There was some interlanguage observed in the data where the intonation contours are neither target-like nor native-like which can be expected. This is a normal part of language development. Interlanguage is different than L1 influence because it has intonation contours that are not like the L1 or the target language. One way the interlanguage is evident is in the excessive pitch accents, which can be expected. Language learners have no difficulty “in placing prominence on as many words as possible” (Pirt, p. 152). That is, they are more likely to have a problem in non-prominence, which is one characteristic of non-target-like intonation. There is also more use of level contours, which to a native speaker may show a non-communicative stance. The overuse of prominence and the use of level contours can occur while language learners are speaking word by word rather than by phrase. This can be because L2 language learners make choices in vocabulary, grammar, and pronunciation that are more automatic to native speakers. Pirt (1990) described learners as already having a knowledge of their L1 linguistic paradigm, whereas non-native speakers need to make more linguistic selections while speaking in the same language, their L2. Making more linguistic selections while speaking contributes to interlanguage, or intonation contours that are neither native-like nor target-like.

The fact that there is little evidence for change in Larissa’s intonation contours over time may be explained by the fact that intonation was rarely explicitly taught at the data

collection site. This is consistent with Derwing's (2006) study which showed that even when learners' fluency improved, pronunciation did not change over time. This was attributed to the lack of explicit instruction in pronunciation. Language classes typically focus on grammar and vocabulary so students become communicative with these language skills. However, previous studies have shown intonation is an important part of communication. L2 intonation can be perceived as emotional affect rather than non-native speech therefore speakers can be perceived incorrectly as expressing some attitude that they do not intend (Grover, p. 15). This research as well as the results of my study suggest that teachers should not forget about the explicit teaching of intonation contours and the crucial role intonation plays in pragmatics.

It is possible that more effort needs to be made to teach students to distinguish and produce focus words with target-like intonation which will then help with target-like intonation. These findings can also be applied to English learners from other language backgrounds that may have similar intonation patterns in their native languages, such as other Slavic speakers. The results of this study are helpful in guiding English teaching pedagogy to an approach which incorporates intonation as an important communicative skill. Current teaching methods can help provide excellent results at teaching grammar and vocabulary thus helping students develop strong communicative abilities, but as previous studies have shown, intonation is also important.

Studies in intonation like this one may have implications for ESL teacher training in intonation. Teachers may need more training in how to listen for non target-like intonation and model target-like contours for students. Some important areas to cover in

intonation teaching are unmarked contours including the focus word and avoiding excessive pitch accents. Teachers should be aware of L1 intonation so that they can do contrastive analysis and focus on the differences between the L1 and target-language as needed. If intonation is explicitly taught to Russian learners of English, it would be helpful to teach the rising contour for *yes-no* questions, and the focus in the *wh*-questions and the role the focus word plays in the contour. The results of this study show that learners are less likely to produce target-like intonation when reading from prescribed materials in classroom exercises. Learners are more likely to produce target-like intonation in spontaneous conversation. Teachers or programs who want to teach target-like intonation could consider allowing more time in class for authentic conversation which may produce better results in learning target-like intonation contours. Intonation needs to be taught at all levels of language learning. As students advance in their language skills they will create longer questions and will need to know how to use intonation contours accurately in longer utterances.

#### FUTURE STUDIES

Future studies could look at data from other students in the same program or students in other programs. If a similar study was conducted again with intonation training, the effect of teaching intonation explicitly could be observed in how target-like intonation developed over time and whether there was a decrease in the amount of L1 influence. Another area that could be researched is teacher's use of intonation in the classroom, how teachers do or do not model intonation.

## CONCLUSION

This study has explored the development of L2 intonation contours in questions and whether there was influence on that development from the participant's L1. This study showed little evidence of the intonation contours changing to be more target-like over time which is not surprising considering that intonation was not explicitly taught at the data collection site. Focusing specifically on unmarked intonation patterns in *wh*-questions and *yes-no* questions in Russian learners of English provides a specific area for accent improvement. Conducting research on data from actual classroom tasks has provided an idea of how classroom tasks may or may not contribute to acquisition of target-like intonation contours. Reading from classroom tasks was less likely to produce native-like intonation. Unsupported speech where the learner was asking spontaneous questions tended to produce target-like intonation more often. These results may be helpful in designing classroom exercises that are most beneficial to target-like intonation acquisition. Understanding of how Russian speakers' intonation patterns in English change over time may guide pedagogical choices in pronunciation training. The results of this study generally support the importance of explicitly teaching intonation. Teaching intonation is not only important within pronunciation training, but overall as a communicative skill.



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