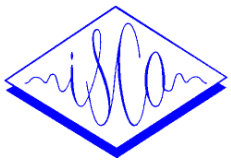

Intonation:
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TEACHING INTONATION TO BRAZILIAN LEARNERS OF ENGLISH

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ABSTRACT

Intonation poses a lot of challenges to teachers of foreign languages, with questions ranging from the appropriate theoretical model to the best approach in dealing with a particular language group. The objective of our research is to tackle the questions placed within the continuum mentioned above by analyzing students' repetitions of intonation patterns. A group of eight intermediate-to-advanced students were the subjects. They were asked to repeat utterances from a recording. The stimulus was contrasted with the learner's repetition by means of spectrographic analysis. Pitch patterns were compared and duration of pitch accented syllables measured. The results of the research, such as the lengthening of syllables replacing pitch contrasts in the utterances are discussed on the efficacy of techniques for teaching English Intonational patterns to Brazilian learners of English.

1. INTRODUCTION

"Intonation involves the occurrence of recurring pitch patterns, each of which is used with a set of consistent meanings, either on single words or on groups of words of varying length" [2].

Although a lot of universal features can be found within different languages, "it is often assumed that the acoustic properties of speech are partly shaped by 'natural tendencies' that have been 'conventionalized' to various degrees depending on the language." [6]. In this way, Brazilian Portuguese and English will present similarities as well as differences. The acoustical correlates of Brazilian-Portuguese accent are often the greater duration of the unit bearing the accent and the decrease of intensity in the post-stressed syllables [1], [4]. On the other hand, English yields prominence through pitch accent. Some of the difficulties encountered by the Brazilian learner of English are, therefore, due to language interference at this level.
Since the teaching of pronunciation to Brazilian learners of English is basically segment-oriented and very little attention is given to the teaching of suprasegmentals, intonation is likely to constitute a major set of difficulties for the learner. Sounds are usually practiced in minimal pairs and students usually do well on this kind of exercises. Connected speech, however, is much more challenging than minimal pairs. Processes of assimilation, reduction, use of voice quality, pitch accents and intonation patterns have to be mastered.
Accuracy is rather difficult to achieve, mainly in the usage of intonational patterns, which is the main responsible characteristic for what a native speaker of English would classify as 'good English'. "If you are complimented on your good English, it is because of your handling of stress and intonation, not because of your perfect sounds." [3]

Moreover, the native speaker of English is less likely to interpret an 'intonational mistake' as a language mistake or interference. The native speaker will, rather, relate the mistake to some sort of attitude problem, such as being rude or sounding uninterested.

The objective of our study is twofold: (1) to compare, acoustically and perceptually, non-native to native intonation patterns and detect the differences, (2) in the light of the description of such differences, discuss the efficacy of the approaches to the teaching of intonation to Brazilian Portuquese speakers in the process of mastering the English language. For purposes of our study, the vast universe of different intonational patterns has been narrowed down to contrasts between three boundary tones and one pitch accent type.

2. METHODOLOGY

2.1 The Corpus was built with 25 sentences selected from the recordings of Practice Material for the ToBI System [5] with the following characteristics and distribution:

- 5 sentences ending in Low-High boundary tones (L-H%).
- 5 sentences ending in High-Low boundary tones (H-L%).
- 5 sentences ending in High-High boundary tones (H-H%).
- 10 sentences, with target words made prominent by means of Low-High pitch accent (L-H*).

More than one example of the same occurrence was chosen as an attempt to achieve more conclusive results.

The different types of occurrences were ordered at random in the corpus recording.

2.2 The Subjects of the Experiment - A group of eight intermediate-to-advanced students of English, native speakers of Portuguese, were chosen as the subjects of the experiment. All of them had taken courses in English Phonetics and Phonology, which, somehow, made them aware of the English intonation patterns.

2.3 The Recording - Each subject recorded the corpus individually. They received written directions instructing them to repeat 25 sentences produced by native speakers of English from different parts of the world. They should attempt to reproduce the sentences twice, as closely as possible to the native speakers' stimuli. They received the sentences on paper and were allowed to ask any questions regarding meaning, understanding, or pronunciation, before recording. Only the second repetition was recorded for subsequent analysis.

2.4 The Analysis of the Data - The data from the second recording were submitted to perceptual and acoustic analyses.

The perceptual analysis - Three native speakers of English, all teachers with linguistic background, were asked to evaluate the subjects' recording as **native-like**, **slightly foreign-sounding** or **foreign-sounding**. They were also asked to evaluate the subjects' usage of L-H* pitch accents on target words in the sentences selected.

The acoustic analysis - The data was also analyzed using the CSRE (Canadian Speech Research Environment) from Avaaz Corporation. Pitch patterns of the model and the repetitions were extracted and compared. The duration of pitch accented syllables has also been measured and compared to the overall utterance duration.

3. DISCUSSION

The analysis of the data proved that the intonation patterns chosen for the experiment were troublesome for the Brazilian-Portuguese speakers of English.

At the perceptual level, two aspects of the subjects' repetitions were evaluated. The first one being in relation to whether the native speakers were able to perceive the subject's voice rising or falling on the target words of the ten sentences, where the prominence is achieved by means of Low -High pitch accent.

In relation to the usage of L-H* pitch accented syllables, there was consensus among the native speaker evaluators in that the subjects reproduced the stimuli adequately. Nevertheless, the second aspect to be analyzed, whether the subject sounded **foreign, slightly foreign** or **native-like**, seemed at first rather controversial, given the fact that they had previously perceived the usage of Low-High pitch at the accented syllables and still evaluated most of the subjects as either foreign or slightly foreign-sounding.

NON-NATIVE NATIVE

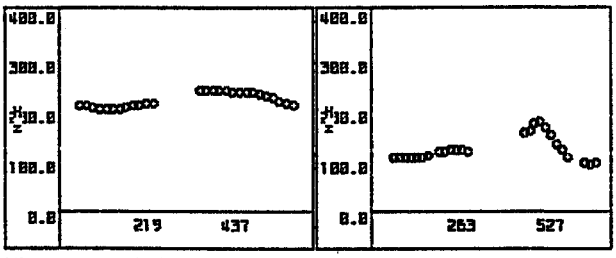

Figure 1- Pitch contour of the fragment "the museum" [ð ə m j ʊ z i: ə m]

Comparison between native and non-native productions by means of spectrographic analysis showed two interesting aspects: non-native speakers lengthened the accented syllables much more than native speakers. Furthermore, extra lengthening was occasionally used by some subjects who were unable to reproduce the model, perhaps as a kind of strategy to achieve prominence.

Figure 1, shows the pitch contours for the word "museum" pronounced with a L-H* and as reproduced by the non-native speaker.

It was an observable fact that there was variation in terms of alignment of Fo rise-fall to segments. In the natives' production, the rise-fall movement was much more restricted, in the sense that it occurred within a segment while in the non-natives' production it occurred across segments, with a much longer and less variant syllable nucleus. The lengthening of the accented syllable occurred even when the subjects were able to reproduce the L-H* pitch accents in their repetitions. In fact, the subjects' accented syllables measures were, in general, lengthier and in some cases double-sized in relation to the stimuli's. Besides the lengthening of the stressed vowel, the spectrographic analysis revealed that 100% of the subjects failed in reproducing the rise-fall movement within one segment in an accented syllable in words of one or more syllable. Contrast, in Figure-2, the pitch contour of the fragment "the museum" as spoken by the native (at the top) and the non-native (at the bottom). The vertical lines delimit the vowel sound [i:]. There is no descending movement on the subjects' production of the [i:] portion. The falling takes place on [ə m].

In relation to the boundary tones, pitch analysis proved that the sentences ending in High -Low tones presented more problems to the Brazilian-Portuguese speakers of English than the other two boundary tones included in

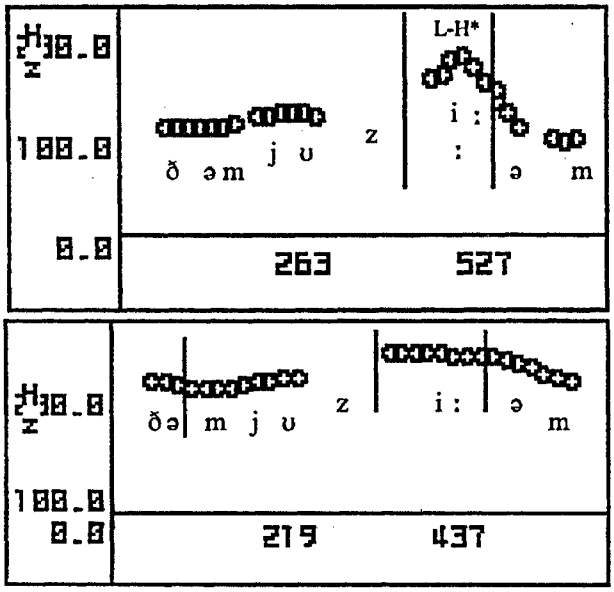

Figure- 2 - Pitch contours of the fragment "the museum" with vertical lines delimiting the vowel sound [ɪ :]

the research. The two images superimposed in Figure 3 show, on the top, the model to be imitated and below a fragment from a recording made by one of the subjects. While the model carries a H-L% boundary tone, the subject failed to reproduce it.The percentage of error in the usage of this boundary tone was found to be 100. The pitch contour of the model shows a distinctive rise-fall while the mimicked one does not. The analysis of the data provided no explanation for this finding.

The sentences ending in L-H% tones presented the same problems and contrasts with the stimuli that were mentioned in our discussion of L-H* pitch accented syllables. That is, the majority of the subjects were able to mimic the model with some differences related to the lengthening of vowels and intrasyllabic variation of pitch movement.

The reproduction of the sentences ending in a H-H% boundary tone seemed to present no difficulty for Brazilians. Nevertheless, the pitch patterns of the models demonstrated a more abrupt rising alteration than the ones presented in the subjects' recordings as illustrated in Figure 4. The two images superimposed show, on the top, the model to be imitated and below a recording made by one of the eight students. Furthermore, interference from Portuguese can be detected in the subjects' production. While the native speaker modulates the question keeping the pitch contour at the same level up to the rising point, the Brazilian speaker, transferring the pitch contour of questions of his own language, presents higher Fo values associated with the syllable nuclei preceding the falling part which necessarily occurs before the final rising pattern.

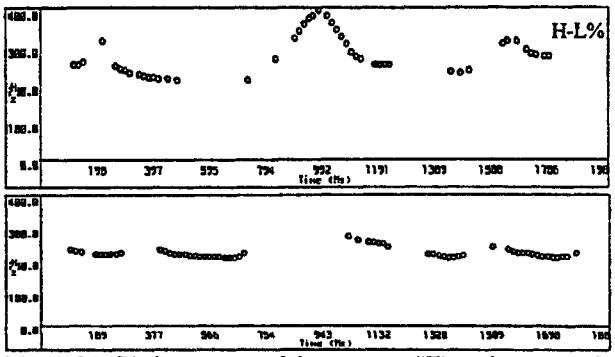

Figure 3 - Pitch contours of the utterance"There is a spoon in here"[ð e ə z ə s p u : n ɪ n h i ə].
Native speaker production on the top and non-native below.

While the native speaker restricts the rising to the final part of the utterance, the non-native speakers descends and then rises up to the end of the utterance.

4.CONCLUSION

The research presented shows that, in the teaching of English intonation to Brazilian - Portuguese speakers, two aspects are essencial: the duration of the prominent syllable and the variation of pitch within one single syllable. These most troublesome areas, responsable for part of the foreign sounding of Brazilian speakers of English, require that the teaching of intonation be implemented and emphasized over the teaching of segmental units alone.

This study also rises aspects which need to be further and thoroughly investigated. Since the computer-based system was essential to analyse the data, research is needed on considering the advantages of relying on the usage of computer based systems for the teaching of intonation. Work on computer based instruction might be seriously considered since the experiment proved that, an approach to sensitize students can not rely merely on the development of perceptual feeling for intonation with the help of a tape recorder or native speaker. As far as the tape recorder is concerned, we agree that "the only feedback offered (...) by a tape recorder may be compromised by students' probable deficiency in perceiving differences (...)" [7]. In the case of a student working directly with a native English tutor in order to improve his pronunciation, Ziolkowski and Landahl write, "Individual instruction with a native speaker of the language may be preferable, but the superior feedback associated with the greater cost typically is limited to a ready source of native examples and to the tutor's 'affective' support for succesful productions." [7]. Our study, however, clearly depicts the native speakers' perceptual inability to spot the major characteristic for what they themselves classify as foreign-sounding. In other words, sheer perceptual analysis is quite limited.

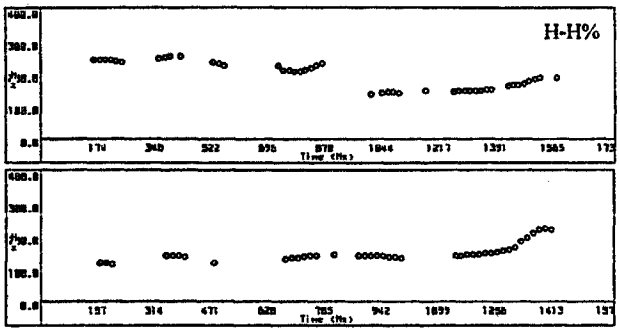

Figure 4- At the top, pitch contour of the model utterance "do you hear the sleigh bells ringing?" [d j ʊ h ɪ ə ð ə s l ʌ ɪ b e l z r ɪ ŋ ɪ ŋ]. At the bottom, the reproduction of the same utterance by one of the subjects.

Therefore, the importance of relying on acoustic analysis is emphasized not only to sort out the problems objectively, but also to develop teaching techniques using visual devices to help students to improve their perception and production. The images make it easier for learner to grasp and imitate intonation patterns. Students' production, in terms of intonation mimicry, can be recorded, analysed and compared with the graphics of the model's pitch patterns. In addition, instructional technology can provide some opportunity for autonomous activity, carried out by the student at his own convenience and speed.

It is important to point out that in order to work on students' production at the level of discourse, other activities and approaches based on a sounding theoretical model of description should be devised.

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