DOI: 10.14393/DL22-v10n2a2016-11

Nuclear stress placement by Brazilian users of English as an international language

A alocação do acento nuclear por falantes brasileiros de inglês como língua internacional

Leonice Passarella dos Reis*
Rosane Silveira**

RESUMO: There have been some studies on the pronunciation features that are important to guarantee speech intelligibility by users of English as an international language (IL). In light of the importance of nuclear stress placement for successful communication between speakers in the international community (JENKINS, 2000), the present article reports the results of a pilot study that investigated the way nuclear stress is placed by four Brazilian Portuguese (BP) intermediate users of English when interacting with other BP users of English (as listeners). Participants met in pairs and engaged in a controlled pairwork oral task, which yielded the production of 160 audio-recorded utterances. With the use of *Praat*, perceptual and acoustic analysis of the dataset were performed in order to examine if nuclear stress was placed as expected according to the discursive contexts set. The analysis revealed that speakers had difficulties in placing the expected nuclear stress at sentence initial, medial, and, surprisingly, final position. Additionally, it was found that for the participants in the present study, signaling both corrective information and information being elicited by means of nuclear stress placement was challenging. This difficulty in placing nuclear stress may compromise the way these speakers' intent is interpreted when holding interactions in English.

ABSTRACT: Pesquisadores têm se dedicado a investigar quais aspectos da pronúncia são importantes para garantir um discurso inteligível por parte de falantes de inglês como língua internacional. Tendo em vista a importância do acento nuclear para garantir uma comunicação de sucesso entre os falantes da comunidade internacional (JENKINS, 2000), este artigo reporta os resultados de um estudo piloto que objetivou investigar o modo como o acento nuclear é produzido por quatro falantes brasileiros de inglês em nível intermediário de proficiência durante interações com outros falantes brasileiros de inglês (ouvintes). Os participantes se encontram em duplas e se engajaram em uma atividade oral controlada, que propiciou a produção de 160 assertivas gravadas em áudio. Com o uso do Praat, foi feita uma análise acústica e auditiva dos dados a fim de verificar se o acento nuclear fora alocado no local esperado, de acordo com os contextos discursivos estabelecidos. A análise revelou que os falantes tiveram dificuldades em colocar o acento nuclear na posição esperada, tanto no início, no meio e, surpreendentemente, no final das assertivas. Ainda, os dados demonstraram que, para os participantes deste estudo, sinalizar informações corretivas e elicitadas através do acento nuclear foi desafiador. Essa dificuldade na alocação esperada do acento nuclear pode comprometer o modo como esses falantes são interpretados em suas interações em inglês.

Domínios de Lingu@gem

* Doutoranda no Programa de Pós-Graduação em Inglês da Universidade Federal de Santa Catarina (UFSC) e professora na Escola de Aprendizes-Marinheiros de Santa Catarina (EAMSC) Florianópolis, Santa Catarina, Brasil (leonicepr@gmail.com).

** Professora Adjunta da Universidade Federal de Santa Catarina (UFSC) Florianópolis, Santa Catarina, Brasil. Atua no Departamento de Língua e Literatura Estrangeiras e na Pós-Graduação em Inglês. Bolsista de Produtividade em Pesquisa do CNPq - Nível 2 (rosanesilveira@hotmail.com).

PALAVRAS-CHAVE: International Language. Nuclear stress. Communication. Pronunciation.

KEYWORDS: Língua Internacional. Acento nuclear. Comunicação. Pronúncia.

1. Introduction

I know you think you understand what you thought I said but I'm not sure you realize that what you heard is not what I meant.
(Alan Greenspan)

Accent[1] is ubiquitous, present in every language irrespective of its status as being first (L1), second (L2), or foreign (FL), and may interfere with the choices people make in their interactions. The communication process itself is fragile. Everyone may already have gone through communication misunderstandings even in their L1, given that listener's expectations may filter the speech uttered and may apply to it an unintended meaning, that is, meaning lies in the ear of the beholder as much as in the mouth of the speaker. One may choose to communicate an idea by using specific linguistic structures based on past experiences, but the hearer listens to what someone says using the hearer's own past experiences, both hearer and speaker currently undergoing a unique situation (that might resemble others, but is unique) (BECKNER *et al*., 2009).

Listeners from distinct L1 backgrounds experience greater frangibility in communication, given that they have to deal with foreign accents, which vary according to speakers' L1, among other individual and sociocultural factors. Foreign accents may have a great deal of undesirable consequences for international language[2] (IL) speakers given that they may (1) make IL speakers' speech difficult to understand, (2) cause listeners to misjudge an IL speaker affective state, and (3) cause negative personal evaluations (FLEGE, 1995; MUNRO; BOHN, 2007; DERWING; MUNRO, 2005; MOYER, 2013).

Having in mind that the current goal of IL pedagogy in terms of pronunciation is improving communication (DERWING; MUNRO, 2005), research on IL intelligibility for IL pedagogy is strikingly relevant since it sets out to establish those aspects of IL speech that affect

[1] Accent refers to the pronunciation of speech sounds (segments) and suprasegmental features (intonation, rhythm, pitch, segmental length, tempo, loudness) of a given language variety (Moyer, 2013).
[2] English as an International Language in the present study is an umbrella term that permeates three notions: (1) that of number (additional, second, third, and so forth in opposition to first language); (2) that of use (international – not favoring a specific English as an L1 variety; and (3) that of acquisition (interlanguage: it is shaped according to the L1 attractors and language use).

Domínios de Lingu@gem

IL speakers' success in communication. Jenkins has conducted research in order to inform pedagogy on the aspects of pronunciation that would hinder communication among speakers of English from different L1 backgrounds, putting together the Lingua Franca Core (LFC), which she believes to subsume the phonetic and phonological features for successful communication in English worldwide (JENKINS, 2002). The LFC includes mainly (1) consonantal segments and their allophones (expect /θ/, /ð/), (2) phonetic details such as aspiration, voicing, and duration, (3) appropriate consonant cluster simplification, and (4) vowel contrasts. Processes in connected speech (e.g., assimilation and elision) and rhythm-related issues (e.g., such as lexical stress and tunes) are disregarded because they are considered either irrelevant or unteachable. However, some importance is given to nuclear stress and thought groups in the level of utterances (JENKINS, 2000). Research has questioned her choices for two main reasons. Firstly, Derwing (2008) states that the LFC is based on "a small sample of communication breakdowns across very few learners", and thus lacks evidence for international use. Secondly, relevant features for successful communication are L1 dependent and should be considered in a specific community of speakers (BERNS, 2008). For certain L1 backgrounds (e.g., Brazilian Portuguese), some features left aside in the Lingua Franca Core are relevant both in segmental (e.g., SCHADECH; SILVEIRA, 2013) and suprasegmental terms (e.g., PASSARELLA-REIS; GONÇALVES; SILVEIRA, in press).

The results reported here are from a pilot study investigating the intelligibility and interpretability of BP users of English, by looking into lexical stress and nuclear stress placement. This article reports the results of one of the aspects seen as important in the LFC, and which, to the best of our knowledge, has not been formally investigated in Brazil, namely, the allocation of nuclear stress[3] by BP users of English[4]. Research has shown that the placement of a nuclear stress on an unexpected portion of the utterance frequently hinders communication (e.g., Jenkins, 1997). The following paragraphs review some studies dealing with intelligibility, comprehensibility and/or interpretability[5] associated with nuclear stress placement.

[3] Nuclear stress refers to the most prominent material in an utterance, and thus, holding the most important piece of information.
[4] The results reported here are from a pilot study investigating the intelligibility and interpretability of BP users of English, by looking into both lexical stress and nuclear stress placement.
[5] In the present study, interpretability refers to the grasp of speaker's intention and embraces the concept of intelligibility, related to word recognition, and that of comprehensibility, related to the meaning of the word.

Domínios de Lingu@gem

Tiffen (1974) investigated the intelligibility of educated Nigerian speakers of IL to British IL-L1 listeners at both segmental and suprasegmental levels. For the latter, word stress, nuclear stress, and intonational patterns (tunes) were analyzed. For the nuclear stress investigation, speakers had to stress different portions of a sentence according to the stimuli given by the researcher via a context question as illustrated in (1).

(1)
Interviewer: Did BILL motor to London?
Speaker: No, JOHN motored to London. (i.e., not BILL)

Interviewer: Did John CYCLE to London?
Speaker: No, John MOTORED to London. (i.e., not CYCLED)

Interviewer: Did John motor to MANCHESTER?
Speaker: No, John motored to LONDON. (i.e., not MANCHESTER)

Production results showed that all Nigerian participants had difficulty with this feature of English pronunciation (M = 40.4%), placing nuclear stress in the rightmost portion of the utterance, irrespective of the contrast being made. Some of the productions were randomly selected to compose the listening task taken by the British IL-L1 users. Due to the unexpected productions, listeners failed to interpret which contrast was being made, leading to unsuccessful interpretations.

Lanham (1984) investigated the consequences of misallocation of stress at both lexical and sentence levels by a South African Black English speaker. Listeners were 13 L1 (white) users of English and two (black[6]) South African users of English. Participants listened to the recorded passage and answered a comprehension quiz assessing the comprehension of the passage read by the South African. Results for nuclear stress placement showed that the misallocation of nuclear stress (in order to establish focus on new information which was being elicited) hindered syntactic coherence and thus posed difficulties for the listener in "making sense" of the message being conveyed.

In line with Tiffen (1974), Atechi (2004) investigated mutual intelligibility of Cameroon English speakers with British and American speakers at both segmental and suprasegmental levels. For the latter, both word stress and nuclear stress were examined. The nuclear stress

[6] Being "black" or "white" was important information highlighted by that scholar.

Domínios de Lingu@gem

procedures and instruments resemble the ones applied in Tiffen's (1974) study. It differs only in that stimuli were produced by the three groups of speakers, and heard by listeners from the same three languages, viz. Cameroon, British, and American. Production results showed that Cameroon speakers failed to place the nuclear stress in order to highlight the contrast intended, and, accordingly, listeners (both British and American) failed to interpret the contrasts.

In her study, Jenkins (1997) investigated the production and perception of nuclear stress by IL-L1 and IL users of English. In the production task, speakers were supposed to produce one of four sets of questions by reading them. Each question had multiple endings, such as the one illustrated in (2).

(2)
(A) Did you buy a tennis racket at the sports center this morning, or
(B) was it a squash racket?
(C) did you buy it yesterday?
(D) did you only borrow one?
(E) was it your girlfriend who bought it?
(F) at the tennis club?

For the interpretation task, the second halves of the questions were removed and the first halves were played to IL-L1 and IL users of English. The list of options for the second halves was made available to the listeners, who were also the speakers. The listeners had to listen and predict the second half in each case. Results showed that IL-L1 users both produced and interpreted well all the second halves to the IL-L1 questions, while the IL users interpreted well about two-thirds of the IL-L1 speakers' second halves. The IL speakers misplaced nuclear stress in most of their first halves. Consequently, both IL-L1 and IL users misinterpreted the intended meaning in the second halves produced by the IL speakers. Her results support her hypothesis that IL learners acquire nuclear stress receptively faster than productively. This finding corroborates the need for overtly teaching nuclear stress placement in IL classes.

Zoghbor (2010) investigated the effectiveness of a pronunciation syllabus based on the LFC in improving the intelligibility and comprehensibility of Arab learners. Participants were divided into two groups: experimental (receiving the LFC pronunciation syllabus) and control (receiving traditional pronunciation syllabus). The experimental group gain scores were higher than were those of the control group, but differences did not reach statistical significance. As to the placement of nuclear stress, the scholar found that it is narrowly related to the comprehension of the message rather than to the recognition of words and that it is important

Domínios de Lingu@gem

not only to facilitate comprehension and intelligibility, but also to trigger a positive judgment over a speaker's speech. Additionally, speakers allocating nuclear stress as expected were seen as more connected to the message being conveyed, and thus as more interesting to be listened.

In Brazil, intelligibility and comprehensibility[7] have been investigated to inform pedagogy mostly at the segmental level (e.g., BECKER, 2011; 2013; CRUZ, 2003, 2004, 2008a; 2008b; SCHADECH, 2013; SCHADECH; SILVEIRA, 2013). A few other studies have investigated the effect of non-target production of suprasegments on the intelligibility of BP users of English (GOMES, BRAWERMAN-ALBINI; ENGELBERT, 2014; MARTA, 2011; PASSARELLA-REIS; GONÇALVES; SILVEIRA, in press)[8], but, to the best of our knowledge, research on the nuclear stress associated to intelligibility, comprehensibility, and/or interpretability of BP-IL users' speech is inexistent. The present article reports on a study that seeks to promote some investigation in this area.

2. Nuclear Stress and unexpected allocation

Nuclear stress has received many names: Nuclear or tonic stress (JENKINS, 2000), prominence (CELCE-MURCIA; BRINTON; GOODWIN, 1996), phrasal stress (PIERREHUMBERT; HIRSHBERG, 1992), accent (SLUIJTER; van HEUVEN, 1996), and nuclear accent (ORTIZ-LIRA, 1998). These terms are used to refer to the placement of more prominence on a specific syllable/word/phrase in a thought group[9], in order to highlight it and convey (1) meaning, (2) the context in which the utterance is placed, and (3) the speaker's intent (CELCE-MURCIA; BRINTON; GOODWIN, 1996). Nuclear stress, thus, has great communicative value and, as evidenced from the studies reviewed in the introduction, can mislead the way speakers are understood.

[7] In the studies cited in this page, intelligibility refers to the extent to which listeners understand the intended message by transcribing the words. Comprehensibility refers to listeners' rating of difficulty in understanding utterances/words (MUNRO, DERWING & MORTON, 2006).

[8] Gomes, Brawerman-Albini, and Engelbert (2014), besides investigating the intelligibility of BP-IL users when producing words ending in –ed, also investigated their intelligibility when producing suffixed words that are stressed on the fourth syllable (from the right to the left). Marta (2011) investigated BP-IL users' production and perception of intonation contours of statements indicating both surprise and disbelief and negative interrogative questions indicating both surprise and request for confirmation. Passarella-Reis, Gonçalves, and Silveira (in press) investigated the perception of three BP-IL-intonational patterns of yes-no questions and their interpretation regarding the intent of the speakers.

[9] Also called in the literature as 'tone units', 'sense groups', 'tone groups', 'breath groups', 'intonation phrase' (PIERREHUMBERT, 1980). We chose to use the term 'thought group' because it seems to have more relation with the organization of information while 'intonation phrase' for instance, seems to bring into our minds the concepts of intonation and tunes (high and low).

Domínios de Lingu@gem

The portion of the sentence where the nuclear stress falls greatly depends on the context and the intention of the speakers. In general, it occurs near the end of a thought group; however, any syllable in the thought group can be nuclear-stressed in order to express focus by placing a pitch movement on it (SLUIJTER & van HEUVEN, 1995). The rules were set long ago, "When no expressive stress disturbs a sequence of heavy stresses, the last heavy stress in an intonational unit [thought group] receives the nuclear heavy stress" (NEWMAN, 1946, p. 176 as cited in CHOMSKY & HALLE, 1968, p. 90) or as Liberman (1972) would say it, "put the strong element on the right in any given metrical constituent, if you have no good reason to do otherwise" (p. 244). A reason to do it otherwise would be the one investigated in the present study: highlighting information being contrasted or elicited, which is related to the use of focus.

General agreements about nuclear stress are that (1) nuclear stress signal focus (broad or narrow), (2) not all focused constituents need to take stress, and (3) unfocused constituents in a thought group do not take a nuclear stress (ORTIZ-LIRA, 1998). There are two types of focus: narrow (marked) and broad (unmarked). In the latter (broad), the utterance contains all-new information, such as when answering the question in (3).

(3)
Speaker: What's the matter?
Interlocutor: JOHN has MOVED to CAnada.

The nuclear stress in the answer in (3) falls in the rightmost sentence stress available (Canada), given that all information provided here is regarded as new[10]. Such a question was probably triggered by the sadness in the interlocutors' eyes, which is explained by the fact that 'John has moved to Canada', an unknown piece of information to the Speaker. The narrow focus, in turn, contains both given and elicited information, as illustrated in (4).

(4)
Speaker: Who has moved to Canada?
Interlocutor: JOHN has MOVED to CAnada.

[10] The term *new* has been discussed in the literature. Lambrecht (1998) claims that if the referent of the so-called new information is activated in the addressee's mind, then it is not new at all. We take a different stand and relate the term *new* here to the ignorance of a fact. It is not *new* in the sense that the addressee does not have it as a possibility in his mind, as claimed by Lambrecht (1998), but rather as the information missing in a given pragmatic context. Along our study, *new* will be referred to as *elicited*.

Domínios de Lingu@gem

In (4), 'John' is being elicited while 'has moved to Canada' is shared information (ORTIZ-LIRA, 1998). In this context, the Speaker has probably heard that someone moved to Canada and he aims to know who the person is. In the answer, the focus is narrowed down to 'John' only. This article investigates the allocation of nuclear stress in assertions with narrow focus.

The principles guiding nuclear stress placement in English and BP are alike. The main difference lies on the fact that in BP, when in broad focus, nuclear stress is placed in the last word of a thought group, irrespective of being a content word or a function word. To illustrate it, consider an often-cited example provided by Baptista (2001), in (5).

(5)
DÊ o LIvro para MIM. (unmarked broad focus)
GIVE the BOOK to ME. (marked narrow focus)

In BP, the nuclear stress in 'mim' is interpreted as non-contrastive information. It is a request that can perfectly be uttered in a room occupied by both speaker and interlocutor only or by the two accompanied with more people. In English, however, if the location is directly transferred from the speaker's L1 to the IL, it signals contrasting information. If nobody else were in the room, the interlocutor would probably wonder the reasons why such a request was being made, and if there were somebody else, the interlocutor would go suspicious that something else was going on, and thus misinterpret the speaker's intent.

Jenkins (2000) describes an interaction among four students from different L1s (Brazilian, Swiss-French, Colombian, and Hungarian), while making posters for the classroom wall. The Hungarian student asks the other three the question in (6).

(6)
Have you got a blue VUN?

The scholar reports that the three other interactants echoed the words 'blue vun' and 'vun' many times and got the intended meaning only after the Hungarian student, holding up a blue pen, explained 'Blue vun like THIS'. The intended meaning for 'vun' was 'one'. The author highlights that, although interactants were acquainted with each other's accents in English and had enough contextual cues in order to provide the listeners with clues to meaning (they were making posters and surrounded with paper and colored pens), the misallocation of

Domínios de Lingu@gem

nuclear stress was a great villain to the lack of success in communication in that interaction. Jenkins argues that the mispronunciation of 'one' would have caused no problems if the nuclear stress had been placed in 'blue' (i.e., as opposed to 'red'). Once it was placed in 'vun', no contrast was possible, and it signaled that 'vun' carried the most important information in the thought group, misguiding the interpretation of meaning.

The inability to segment speech into meaningful thought groups is one of the most common factors contributing to problems with nuclear stress placement (JENKINS, 2000, p. 156). Thought groups (1) are set off by pauses before and after[11], (2) contain one prominent element (nuclear stress), (3) have an intonation contour of their own, and (4) have a grammatically coherent internal structure (CELCE-MURCIA *et. al.*, 1996, p. 175). Celce-Murcia et al. (1996) explain that the number of nuclear stress in a given utterance depends on the speaker. The more pauses the speaker produces, the more thought groups the speaker creates, and thus, the more nuclear stress allocations arise. They highlight that too many nuclear stresses (due to many pauses) make the overall message difficult to process and understand.

3. Method

3.1 Participants, procedures, and instruments

Reading aloud is one of the most used methods of data collection in the history of pronunciation research due to its manifold advantages: control for pronunciation features and other elements such as vocabulary choice or grammar usage (LEVIS, 2011). However, as Levis (2011) highlights, reading aloud is a reading skill not a speaking skill, promotes different performances (better or worse than in free speech) depending on the speaker who reads/speaks and there is an agreement that individuals feel weird when reading aloud because it is not a common activity. However, our focus is on interpretability linked to pronunciation rather than overall interpretability (linked to choice of words and grammar usage, for example) and thus the only way of trying to avoid these interfering factors is by using more controlled tasks, made possible through reading aloud activities. In this study, the interpretability assessment involved activities related to identifying speakers' intention (NELSON, 2011) based on the placement of nuclear stress while reading aloud sentences with focus on certain portions of the utterance. In

[11] A thought-group-final syllable lengthening associated or not with intonation extra elements (e.g., a high tone) may also indicate the limits of a thought group (PIERREHUMBERT & HIRSHBERG, 1992; PIERREHUMBERT, 1980).

Domínios de Lingu@gem

the utterances tested, 22.5% had focused material in initial position (N = 36), 62.5% had focused material in medial position (N = 100), and 15% had focused material in final position (N = 24).

Participants were eight: four intermediate-level-BP-IL users (hereafter speakers), two advanced-level-BP-IL users (advanced listeners), and two BP-IL teachers (teacher listeners). The speakers were females attending English classes (level 6 – intermediate) at *Cursos Extracurrilares*/UFSC[12]. They reported having an intermediate English proficiency level. Their age ranged from 18 to 52 (M = 29.5). The teacher listeners (hereafter TL) were two teachers of English and Master and PhD candidates at UFSC. They were a male and a female, and their ages at the time of data collection were 28 and 29. The advanced listeners (hereafter AL) were two male BP-IL users of English with an advanced level of proficiency[13]: (1) A graphic designer and (2) a laboratory technician who is also a master candidate at UFSC with a major in French. They were 23 and 29 years old at the time of data collection (M = 28.5).

For data collection, participants met in pairs (N = 4) only once as follows:

1) a TL and a speaker; and
2) an AL and a speaker.

The four pairs met the researcher separately at a suitable time for the participants. Each member of a pair had never met before. Prior to starting data collection, speakers performed some training with the recording equipment in a soundproof booth. Data were audio recorded by means of a *C 520 L* professional head-worn condenser microphone, connected to a hybrid audio interface called *MOTU Ultra Lite mk3,* and of an audio editor software called *OceanAudio*. Data were video recorded by using a Nikon camera full HD. Data collection followed then the steps below:

Domínios de Lingu@gem

[12] *Cursos Extracurriculares* is a program at UFSC that offers language courses to faculty, students, staff, and other members of the local community.
[13] Although Interlocutor 4 reported having a post-intermediate level of proficiency, his scores on the Oxford Proficiency Test indicated he had an advanced level. Another researcher administered this test for the purposes of her study.

1) Participants filled up a questionnaire to gather information on their language experience and signed a consent form[14] informing the procedures for data collection and that the speaker would be audio-recorded and the interlocutor video-recorded.
2) They were introduced to the context of the data collection: They were both candidates for a job position in an International Company and were at the company to go through the recruiting and selection hiring process.
3) For their first task (*Breaking the ice,* Appendix A), they were asked to engage in a first meeting conversation in the standards each was used to and learn three things they had in common (e.g., a dislike of sushi, following TROFIMOVICH & KENNEDY, 2014). This task had the objective to break the ice and help them feel more comfortable in the presence of each other.
4) At this point, participants learned that the speaker was already an employee of the company's and a member of the recruiting staff (a psychologist) and that only the listener was the actual candidate for the position. They were introduced to the nuclear stress placement task individually (see Appendices B and C) and only after the task was clear to both members of the pair the task was started.
5) After the tasks were over, the listeners were individually interviewed in order to clarify the possible reasons for reduced interpretability identified during the recordings. During the interview, the sheet with the interlocutors' answers as well as the video-recordings were assessed. Additionally, the interview was audio-recorded for easy future retrieval.
6) Participants were given a gift for their participation.

The nuclear stress task was divided into two parts. In the first part, the speaker read a context question silently and then read aloud the answer to that question. The listener, in turn, chose one of the three possible questions for that answer, according to the speaker's placement of nuclear stress. For example, the speaker read aloud 'LUCY got married in 1984' in a response to 'Who got married in 1984?'. In the sheet of paper, the listener found three options: (A) 'Who got married in 1984?', (B) 'What happened to Lucy in 1984?', and (C) 'When did Lucy get married?'. If the speaker placed the nuclear stress on "Lucy" and the listener was able to notice

[14] The study reported here has the Ethics Committee approval for research with human participants (protocol number 16125813.1.0000.0121).

Domínios de Lingu@gem

it, then the listener would interpret that A is the question being answered. This part looked into how well speakers are able to signal information being elicited in an assertion.

In the second part, the speaker read silently a context. Next, the speaker read aloud another statement correcting one of the pieces of information present in the context statement. In turn, the listener had a sheet containing three possible contrasting ideas and chose one according to what the speaker had read. For example, the speaker read silently the context statement 'Peter has bought a red car' and then read aloud 'Peter has bought a YELLOW car'. In his/her sheet, the listener had three alternatives and was to check the information according to his interpretation: '(A) Peter did, not John.'; '(B) bought it, he didn't sell it.'; '(C) a yellow car, not a red one.' If the speaker placed the nuclear stress on 'yellow' and the listener was able to notice it, then the listener would interpret that C was the corrective information being conveyed. This part looks into how well speakers are able to highlight important contrasting information in an assertion.

Data were collected through the mediation of one of the present researchers, who intervened as little as possible during the tasks and was responsible for explaining all the tasks for data collection and solving any doubts. Data collection with each pair lasted approximately 90 minutes.

3.2 Research questions and Hypotheses

In the present study, nuclear stress placement to signal information being corrected or elicited was investigated. It was not the aim to discuss the differences in prominence and describe the intonational patterns (the tunes – High or Low), but rather identify the locations chosen by the speakers to place nuclear stress in order to signal elicited/corrective information. Although investigating how the utterances were interpreted was also the aim of the original study, the present article reports only the production results. The research questions and hypotheses guiding the study are the following:

RQ1: Is nuclear stress placed as expected by BP-IL users (speakers) regardless of information being corrective or elicited?

H1: Nuclear stress will be placed as expected more often when conveying corrective information.

Domínios de Lingu@gem

RQ2: Is nuclear stress placed as expected by BP-IL users (speakers) in all utterance positions?

H2: Nuclear stress will be placed as expected when focus is on the final portion of the utterance. Nuclear stress in the initial and medial portions will be mostly misallocated.

3.3 Data Analysis

For the analysis of the dataset, acoustic and visual criteria were used. For the visual display of the F0 (fundamental frequency), the audio recording files were open with *Praat* and the F0 curves were individually collected. For each sentence, the F0 curve was displayed in windows whereby F0 values were set near the highest and the lowest limits of the curve in order to keep the curve integrity, with no flatting, a procedure that is often adopted in studies involving prosody (e.g., CARPES, 2014).

According to t'Hart (1981), in order for variation in tones to be perceptually distinct, there is a need of a three-semitone change in pitch. While analyzing the speakers' productions in the present study, it was noticed that some pitch changes did not reach the three-tone range. Moreover, sentences usually had more than one prosodic prominence. Based on the literature, one of the hypotheses was that BP speakers would place nuclear stress on its canonic position, that is, in the rightmost end. Surprisingly, a great number of sentences had some prominence both at the expected location and at the leftmost edge of the sentences. Therefore, in order to make important information emerge from the dataset and to understand these preliminary findings, the words in the sentences were segmented and labeled and the vertical scales were normalized from Hertz into semitones, a tool offered by *Praat*.

The thought groups within each utterance were identified according to the number of pauses made by each speaker. No consensus has been reached in the literature regarding how long a period of silence has to be in order to be considered a pause, which has ranged from 100 to 400 milliseconds of threshold (LEGE, 2012). Warren (2013) explains that because some segments such as /p/ have some natural silence due to articulatory reasons, researchers agree to set a duration of 200 milliseconds for silences to be considered as pauses. On the other hand, pauses are noticed even when there is no silence. Other signals such as duration of syllables and pitch change are cues to identify them. Based on this, silences longer than 200 ms were considered as pauses and silences shorter than that associated with rising intonation and/or

Domínios de Lingu@gem

lengthening of syllables were also considered indicators of pauses in speech. Thought groups were considered as having a nuclear stress only if differences in the lower pitch and the higher pitch (and vice-versa) were equal to or higher than three semitones[15].

4. Results and discussion

4.1 RQ1: Nuclear stress production and type of information

In all, 160 utterances and their repetitions when applicable were analyzed. Nuclear stress was considered placed as expected if only one thought group and one nuclear stress were produced. Allocations were considered unexpected in the cases described below:

1) One thought group with one nuclear stress allocated in an unexpected portion of the utterance;
2) Two or more thought groups, with two or more nuclear stress positions, including or not the expected one.

Hypothesis 1 predicted that nuclear stress would be placed as expected more often when conveying corrective information. As can be seen in Table 1, regarding the type of focus given, signaling information being elicited (utterances 1-20) and information being corrected (utterances 21-40), results showed that 8.75% (N = 7) of the elicited information focus and 7.50% (N = 6) of the corrective information focus were produced as expected. Regarding the unexpected productions, they were 91.25% for elicited information and 92.50% for corrective information. For speakers in the present study, signaling correction and elicited information by means of nuclear stress placement was equally challenging, which disconfirmed Hypothesis 1.

Table 1: Production results – elicited information VS corrective information.

	Elicited Information		Corrective Information	
	Frequency	Percent	Frequency	Percent
Expected	7	8.75	6	7.50
Unexpected	73	91.25	74	92.50
Total	80	100.00	80	100.00

[15] The measurement of the semitones was carried out by checking the lowest pitch near the context of pitch change, irrespective of being within the portion in focus (CARPES, 2014).

Domínios de Lingu@gem

4.2 RQ2: Nuclear stress production and sentence position

The utterances had different expected focused portions as follows: 22.5% (N = 36) in initial position, 62.5% (N = 100) in medial position, and 15% (N = 24) in final position. Table 1 shows the results for production by the four speakers according to the location of nuclear stress.

Table 2: Nuclear stress production according to their locations.

Location	Expected		Unexpected		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Initial	5	13.9	31	86.1	36	22.5
Medial	5	5.0	95	95.0	100	62.5
Final	3	12.5	21	87.5	24	15.0
Total	13	8.1	147	90.1	160	100.0

Hypothesis 2 predicted that nuclear stress would be placed as expected when focus was on the final portion of the utterance, and misallocated when in the medial and initial portions, based on the tendency BP have of placing nuclear stress in the last word in their L1. However, this hypothesis was not supported as results (Table 2) showed that nuclear stress was produced as expected only 8.1% of the times (N = 13) and the difference of the expected production according to location per se was not considerable.

Altogether, unexpected placement occurred 90.1% of the times (N = 147). When only one nuclear stress was produced, misallocation tended towards the end of the utterance. A zoom in at the speakers' production (Table 3) showed that the unexpected allocation of nuclear stress when there was the production of only one thought group was always produced at final position (N = 4). These results go in line with the BP tendency of placing nuclear stress at sentence final position and the General Phrasal Accent Principle, which says that nuclear stress falls in the final position (LAMBRECTH, 1998). Figure1 illustrates one of these productions.

Table 3: A zoom in at the unexpected stress allocations.

Details	Frequency	Percent
1 TG, Final position	4	2.71
+ TG, + nuclear stress positions	81	55.1
+ TG, + nuclear stress position, syllable lengthening and/or greater pitch range in the expected one	62	42.2
Total	147	100.0

Domínios de Lingu@gem

Figure 1 shows an illustration of a production with only one thought group having the nuclear stress placed in the last word of the utterance. The first tier displays the utterance while the second tier displays the pitch variation, calculated in semitones. Note that the second tier includes the highest and the lowest pitch values which are subtracted to yield the pitch variation (placed after an "=" signal). It is important to highlight that, for Speaker 1, the Praat window vertical settings were from 130 to 250 Hz, a somewhat narrow range, while the other speakers would have a window ranging from 100 up to, at times, 550 Hz. The sentence begins at a higher pitch and gains a slight descending movement (pitch change of 2 semitones maximum). It only has some syllable lengthening with some perceptually noticeable pitch change in the last word, namely, 'first'. Notice that this is a production which is closer to broad focus than to narrow focus. By doing this, the intent of the speaker here would be to inform that Woody Allen was born on that specific day rather than correcting someone on inaccurate information previously provided, viz. that Woody Allen *had gotten married* on December first. So, as a consequence, Listener 1 misinterpreted the intent of the speaker.

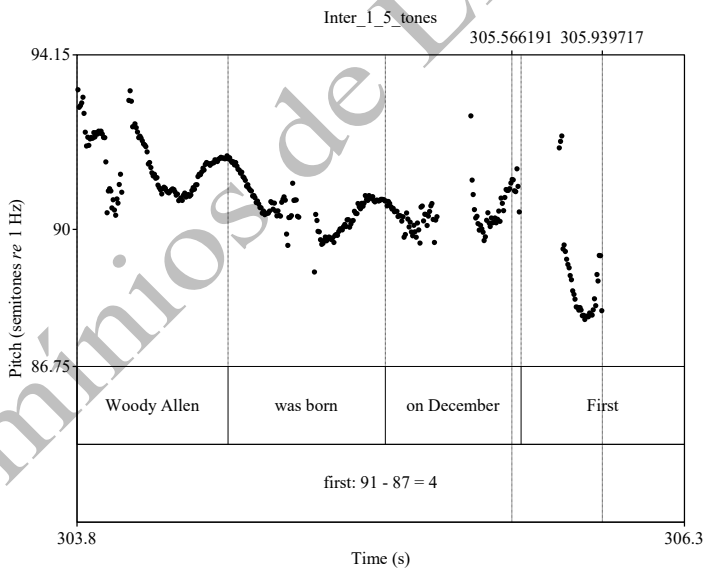

Figure 1: 'Woody Allen was BORN on December first.' produced by Speaker 1.

Allocations were also considered unexpected when (1) more than one thought group was produced and thus (2) nuclear stress was placed in more than one position. As displayed in Table 3, 55.1% of unexpected allocations were produced with no cues of greater stress in one specific portion, while 42.2% showed to have one specific portion with a greater pitch range or syllable lengthening. The separation of one thought group from another was sometimes

Domínios de Lingu@gem

evidenced by silence gaps, intonation and/or syllable lengthening. Figures 2 and 3 illustrate such separations.

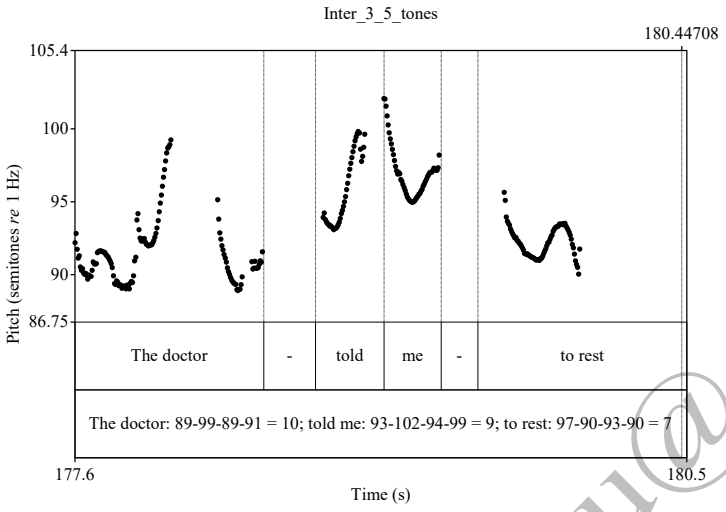

Figure 2: 'The doctor told me to REST' produced by Speaker 3.

In 'The doctor told me to REST', Speaker 3 seems to break the sentence into three thought groups: 1) the DOCtor, 2) TOLD ME, and 3) TO REST. The second tier in Figure 2 shows the pitch variation. Observe that this utterance production has many pitch variations, which were annotated. After the = signal, the number displayed corresponds to the subtraction of semitones in two neighbor highest/lowest and lowest/highest pitch (e.g., in the case of "told me", 93-102 yields the biggest change in pitch). Note that it is possible to observe changes in pitch in the three parts, separated by pauses. The pause between 'doctor' and 'told' is of 242ms and between 'me' and 'to rest' it is of 173ms. Even though the silence gap was shorter than 200ms, "me" had some lengthening effect that led to the feeling of a pause being placed in between. This utterance would be interpreted as if every piece of information is being corrected: the doctor, not you; told me, not you; to rest, not to exercise. Nevertheless, even having these pauses, Listener 3 was able to interpret the intended message, that is, informing the listener what the doctor had said[16].

[16] The context question was 'What did the doctor tell you?'.

Domínios de Lingu@gem

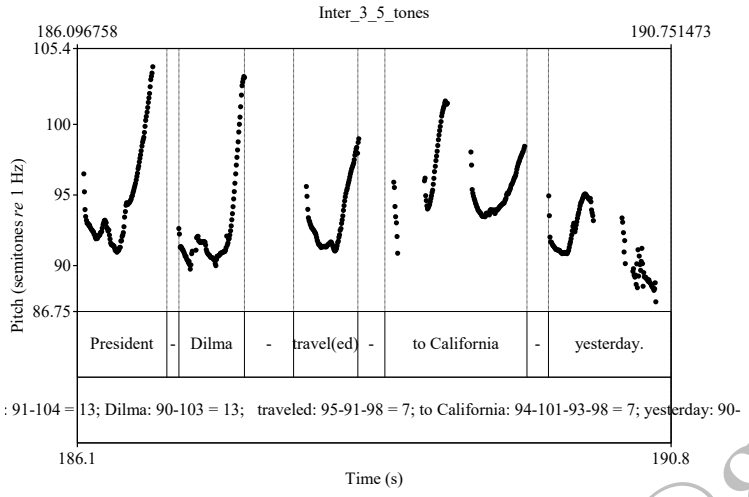

Figure 3: 'President Dilma traveled to California YESTERDAY' produced by Speaker 3.

Breaks of speech flow were also made through the combination of pauses and rising intonation. Note that in Figure 3 every word up to 'California' has a final rise followed by pauses (94ms, 385ms, 212ms, and 169ms, respectively). This pitch movement imposes somewhat a listing effect, such as that of a shopping list reading. 'Yesterday' is the only word without this trait and is the place for the expected focus. The sentence is then produced as if the speaker is trying to say every word in a suspense for the information under focus to be revealed at the end of the utterance. Even though this breaking up may make information more difficult to process, Listener 3 was able to interpret that the information being provided was when the president had traveled to California[17].

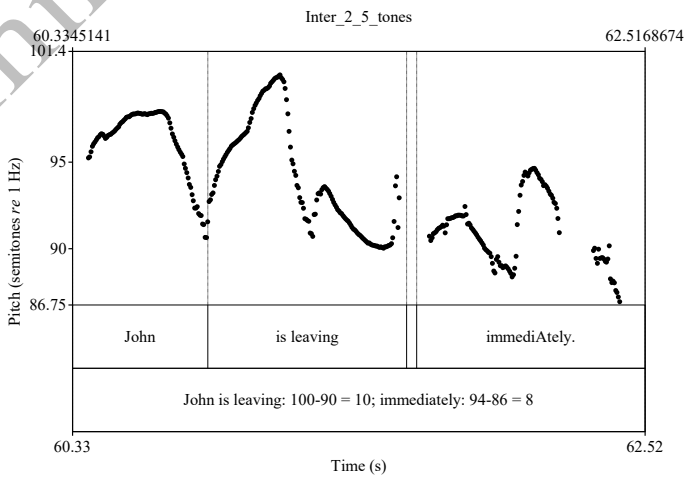

Figure 4: 'John is LEAVING immediately' produced by Speaker 2.

[17] The context question was 'When did President Dilma travel to California?'.

Domínios de Lingu@gem

Figure 4 shows an example of an utterance with more than one thought group and nuclear stress, with more prominence in the expected position. The thought groups were 'John is leaving' and 'immediately'. It is possible to observe pitch changes in the two groups, separated by syllable lengthening and a short pause of 38ms. Nevertheless, pitch change is greater in the first portion and that was the expected nuclear stress position.

Disentangling the reasons why such thought groups were produced goes beyond the scope of this study. However, it was noticed that longer sentences were more difficult to produce with only one thought group and that long words or words which seemed to be difficult for these speakers to produce distracted them from producing the expected focus. There was a tendency for placing some prominence on difficult words to pronounce. To illustrate this tendency, let us take the utterance 'Pearls melt in vinegar' (Figure 5) and 'Maria loves you' (Figure 6). The two utterances have similar length (5 and 6 syllables, respectively) but showed different levels of difficulty in their production. While the former was produced with pauses and thus with more than one thought group, the latter was produced with no pauses in a single thought group. Let us consider each individually.

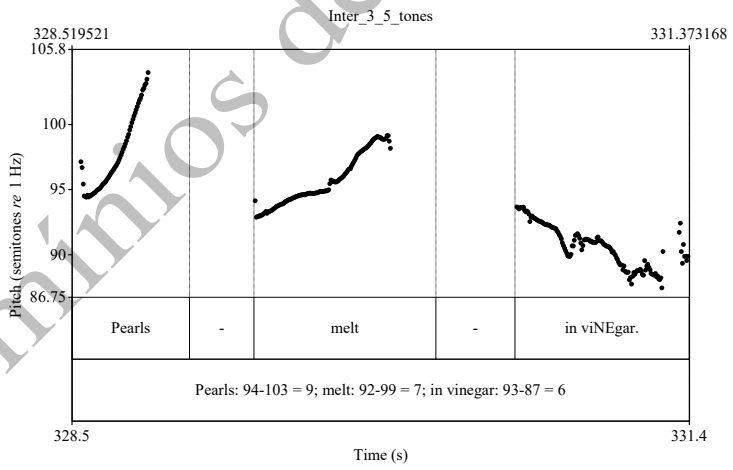

Figure 5: 'Pearls MELT in vinegar' produced by Speaker 3.

The context question for 'Pearls MELT in vinegar' (Figure 5) was 'What happens to pearls when in vinegar?'. Hence, the expected portion to receive nuclear stress was 'melt'. Note, however, that there is pitch movement somewhere else too. Besides having undesired pauses (297ms and 365ms respectively), there were two words which had vowel change + consonant deletion + final devoicing ('Pearls' [piərs]) and also word stress misallocation + vowel change

Domínios de Lingu@gem

(‘vinegar’ [viˈnegər]). It is possible that the difficulty found to pronounce these words distracted Speaker 3 from making ‘melt’ the most prominent portion of the sentence and the effort to pronounce ‘pearls’ and ‘vinegar’ made the speaker stress these two words in the utterance. The combination of these factors might have contributed to the unexpected interpretation of the intent behind this sentence.

Contrastively, ‘Maria loves you’ seemed to be easier for speakers to utter since none of the words showed to be difficult to pronounce.

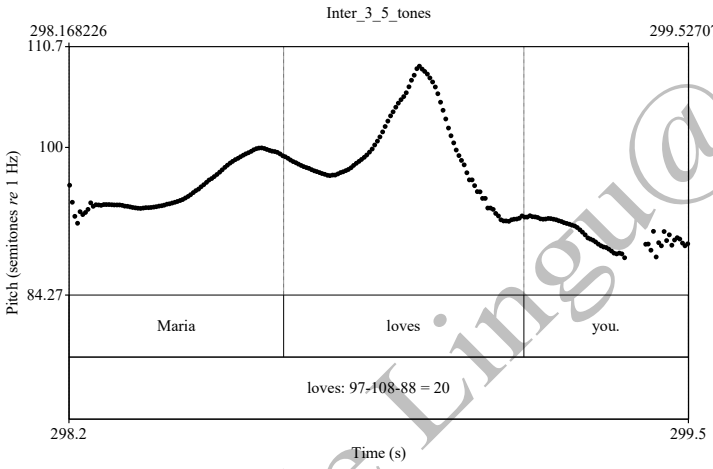

Figure 6: ‘Maria LOVES you’ produced by Speaker 3.

The context question for ‘Maria LOVES you’ was ‘Why doesn’t Maria love me?’. Thus, the expected portion to receive nuclear stress was the medial portion and it was executed as expected. No interruptions were made, no silence gaps were present and the nuclear stress is completely clear with a pitch change of 20 semitones towards the end of the utterance. Regarding the production of long sentences, let us examine the production in Figure 7.

Domínios de Lingu@gem

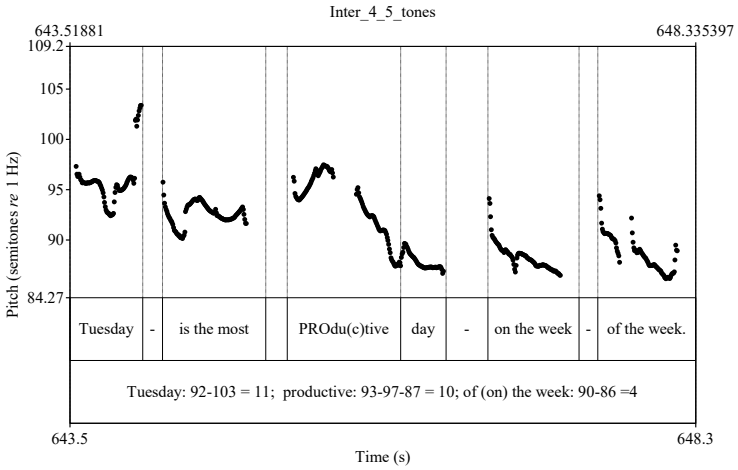

Figure 7: 'TUESDAY is the most productive day of the week' by Speaker 4.

The context sentence for the production in Figure 7 was 'THURSDAY is the most productive day of the week'. Therefore, the expected focus was on 'Tuesday'. Notice that, in this long sentence, there were many short pauses that broke it down into different thought groups, which allowed for the placement of more than one nuclear stress. Observe that the two most prominent words have similar pitch range: 11 semitones in 'Tuesday' and 10 semitones in 'productive'. This production also includes some instances of mispronunciation and word stress misplacement ('productive' as [ˈprodutiv]) and hesitation + correction ('on the week' VS 'of the week'). These aspects taken together made this utterance uninterpretable for Listener 4.

5. Conclusion

The present article reported the production results of a pilot study which set out to investigate the interpretability of Brazilian Portuguese users of English as an International Language when word stress and nuclear stress were misallocated. Speakers were four intermediate learners of IL, listeners were two IL teachers (TL group) and two advanced BP-IL users (AL group). Speakers and listeners met in pairs and engaged in face-to-face interactions, which were audio and video-recorded.

Hypothesis one predicted that nuclear stress would be placed as expected more often when conveying corrective information and it was not confirmed. Both types of information showed to be challenging and most productions were produced under an unexpected fashion.

Hypothesis two predicted that speakers would have difficulties in placing nuclear stress in medial and initial position, while the placement in final position would pose no difficulties. This hypothesis was not confirmed as unexpected productions were more abundant in the three

Domínios de Lingu@gem

positions than were the expected ones, difficulties being greater for nuclear stress allocation in medial position.

Participants in the study reported here had difficulties to segment speech into meaningful thought groups, irrespective of the type of information and the location of nuclear stress in the utterance. Unraveling the reasons why the misallocations took place go beyond the scope of the study. However, the analysis showed that the presence of challenging words in terms of pronunciation distracted the participants and might have contributed to the great number of pauses, rising intonation, and/or syllable lengthening during the production of these utterances. These issues made more thought groups arise and thus, as reviewed in Section 2 (CELCE-MURCIA *et al., 1996)*, might have made their overall message difficult to process and understand.

Limitations

The present study had several limitations. One of the limitations was posed by the instrument for the nuclear stress placement task. Utterances that had two-word phrases as subjects or as objects were difficult to produce. Additionally, three options in the listeners' sheet would not cover all the possibilities for nuclear stress placement. A better choice would be to include less complex sentences with only three possible positions for nuclear stress placement (e.g., 'Maria loves you'; 'John lives downtown'), so that all possible choices are covered in the options.

Two variables that were not controlled here were the presence of difficult words to pronounce and nuclear stress positions. Future studies should control for these variables combining an equal number of nuclear stress positions and of utterances with harder words to pronounce, such as polysyllabic words with the word stress in the fourth syllable from the right to the left (BRAWERMAN-ALBINI, 2012).

One of the speakers in this study was not that involved with the task. It may be due to a trait of that speakers' personality or a result of the task design. Although literature has supported that one context sentence (question or statement) is enough in order to establish the desired context (e.g., ATECHI, 2004), it is possible that short context narratives (CARPES, 2014) have a stronger setting of the situation to trigger the focus on the expected portion to signal a given piece of information.

Domínios de Lingu@gem

Finally, only four listeners participated in the present study due to its complex design of face-to-face interactions. More participants would have yielded more reliable results.

Pedagogical implications

IL users of English take advantage of studying, learning, and practicing to distinguish the subtle shades of meaning that are conveyed by means of prosodic cues from both the receptive and productive stands. Having a good command of the reception and production of prosodic cues, more specifically for this study that of nuclear stress, is essential for a speaker (productively), who is at the same time a listener (receptively), to have his or her intent interpreted as expected. The present study has shown that at this stage of learning, its participants still have difficulties in producing nuclear stress in accordance with the discursive context. Although not scrutinized in this article, participants were misinterpreted with regard to their intent to some extent. Participants reported that they had never been explicitly taught this important prosodic cue. Likewise, the teacher participants also reported not explicitly teaching nuclear stress placement in their English classes. Based on the results of the present study, teaching materials and teaching practice of nuclear stress should then find a place in Brazilian classrooms in order to provide our Brazilian speakers with the resources in order to have the option of improving their nuclear stress placement and augment their chances of avoiding miscommunication in international language use.

Moreover, before teaching nuclear stress placement, it is important to teach how to divide speech into thought groups, because as highlighted by Jenkins (2000) and confirmed in the present study, it does affect nuclear stress placement. It is not only important to teach how to highlight, but what to highlight. In the corpus of the present study, we found problems not only of not knowing how to place nuclear stress (in the case of Speaker 1) but also of the production of too many thought groups and of additional nuclear stress.

Domínios de Lingu@gem

Acknowledgements

We would like to express our deepest gratitude to all participants of the present study, who made all the efforts to participate. Our gratitude is also extended to FONAPLI for making the room available for data collection, to João Paulo Acosta Luz for the assistance with the recording equipment, to Daise Fabiana Ribeiro Pereira Carpes for the brainstorming on how to

analyze this dataset, and to the members of NUPFALLE Research Project for all the support given.

References

ATECHI, S. N. **The intelligibility of native and non-native English speech:** A comparative analysis of Cameroon English and American and British English. 2004. 263 f. Dissertation (Dr.phil). Technischen Universität Chemnitz, Germany, 2004.

BAPTISTA, B. Frequent pronunciation errors of Brazilian learners of English. In: FORTKAMP, M.; XAVIER, R. (Eds.). **EFL teaching and learning in Brazil**: Theory and Practice. Florianópolis: Insular, 2001. p. 223-230.

BECKER, M. R. A questão da inteligibilidade do inglês como língua franca. In: VII CONGRESSO INTERNACIONAL DA ABRALIN, 2011. Curitiba. **Anais do VII Congresso Internacional da ABRALIN.** Curitiba: UTFPR, 2011. p. 2789–2800.

_____. **Inteligibilidade da Língua Inglesa sob o paradigma de Lingua Franca:** Percepção de discursos de falantes de diferentes L1s por brasileiros. 2013. 257 f. Doctoral Dissertation. Setor de Ciências Humanas, Letras e Artes, Universidade Federal do Paraná, Curitiba, 2013.

BECKNER, C.; BLYTHE, R.; BYBEE, J.; CHRISTIANSEN, M. H.; CROFT, W.; ELLIS, N. C.; HOLLAND, J.; KE, J.; LARSEN-FREEMAN, D.; SCHOENEMANN, T. Language Is a Complex Adaptive System: Position Paper. **Language Learning**, Malden, v. 59, s. 1, p. 1-26, December 2009.

BERNS, M. World Englishes, English as a lingua franca, and intelligibility. **World Englishes**, Malden, *27*(3), p. 327-334, August/November 2008.

BRAWERMAN-ALBINI, A. **Os efeitos de um treinamento de percepção na aquisição do padrão acentual pré-proparoxítono da língua inglesa por estudantes brasileiros**. 2012. 333 f. PhD dissertation. Setor de Ciências Humanas, Letras e Artes, Universidade Federal do Paraná, Curitiba, 2012.

CARPES, D. F. R. P. **Um estudo prosódico-semântico da não exaustividade no português brasileiro.** 2014, 107 f. Master Thesis. Programa de Pós-Graduação em Linguística, Universidade Federal de Santa Catarina, Florianópolis, 2014.

CELCE-MURCIA, M.; BRINTON, D. M.; GOODWIN, J. M. **Teaching Pronunciation:** A Reference for Teachers of English to Speakers of Other Languages. New York: CUP, 1996. 447 p.

CHOMSKY, N. ; HALLE, M. **The sound pattern of English**. New York: Harper & Row Publishers, 1968. 470 p.

CRUZ, N. C. An exploratory study of pronunciation intelligibility in the Brazilian Learner's English. **the ESPecialist**, São Paulo, *24*(2), p. 155–175, 2003.

Domínios de Lingu@gem

. **Pronunciation Intelligibility in Spontaneous Speech of Brazilian Learners' English.** 2004. 258 f. PhD Dissertation. Departamento de Letras, Universidade Federal de Santa Catarina, Florianópolis, 2004.

_____. Familiaridade do ouvinte e inteligibilidade da pronúncia de aprendizes brasileiros de inglês. **Revista Horizontes de Linguística Aplicada**, Brasília, *7*(1), p. 88–103, 2008a.

_____. Vowel insertion in the speech of Brazilian learners of English: a source of unintelligibility? **Ilha do Desterro A Journal of English Language, Literatures in English and Cultural Studies**, Florianópolis, (55), p. 133–152, Jul./Dez. 2008b. Retrieved from http://www.journal.ufsc.br/index.php/desterro/article/viewArticle/16307. Acesso em 18 de abril de 2013.

DERWING, T. M.; MUNRO, M. J. Second Language Accent and Pronunciation Teaching: A Research-Based Approach. **TESOL Quarterly**, v. *39, n.* 3, p. 379-397, Setembro 2005. crossref http://dx.doi.org/10.2307/3588486

FLEGE, J. E. Second language speech learning: theory, findings, and problems. In: Strange, W. (ed.). **Speech perception and linguistic experience:** Issues in cross-language research. Timonium: York Press, 1995, p. 233-277.

GOMES, M. L. de C.; BRAWERMAN-ALBINI, A.; ENGELBERT, A. P. P. F. The perception of Vowel Epenthesis and Word Stress in an English as a Lingua Franca Context**. Proceedings of the International Symposium on the Acquisition of Second Language Speech Concordia Working Papers in Applied Linguistics**, Concordia, 5, p. 185-202, 2014.

JENKINS, J. Teaching intonation for English as an International Language: teachability, learnability and intelligibility. **Speak Out!**, Faveresham, 21, p. 15-26, Dezembro, 1997.

_____. **The phonology of English as an International Language**. Oxford: Oxford University Press, 2000. 258 p.

_____. A sociolinguistically based, empirically researched pronunciation syllabus for English as an international language. **Applied Linguistics**, 23(8), p. 83-103, 2002. crossref http://dx.doi.org/10.1093/applin/23.1.83

LAMBRECHT, K. **Information structure and sentence form:** topic, focus and the mental representations of discourse referents. Cambridge: Cambridge University Press, 1998. 388 p.

LANHAM, L. W. Stress and Intonation and the intelligibility of Sound African Black English. **African Studies**,Johannesburg, 43:2, p. 217-230, Janeiro, 1984.

LEGE, R. F. **The Effect of Pause Duration on Intelligibility of Non-Native Spontaneous Oral Discourse.** 2012. 76 f. Master Thesis. Department of Linguistics and English Language, Brigham Young University, Provo, 2012.

Domínios de Lingu@gem

LEVIS, J. Assessing speech intelligibility: Experts listen to two students. **Proceedings of the 2nd Pronunciation in Second Language Learning and Teaching Conference**, 2010. Ames. Iowa: Iowa State University, 2011. p. 56-69.

LIBERMAN, M. Y. **The intonational system of English.** 1972. 319 f. PhD Dissertation, Massachusetts Institute of Technology, Cambridge, 1972.

MARTA, E. de S. **Avaliação da produção e percepção da prosódia na expressão de modalidades por falantes de inglês como L1 e aprendizes de inglês como LE.** 2011. 225 f. Tese de doutorado, Programa de Pós-Graduação em Linguística, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2011.

MOYER, A. **Foreign Accent**: The phenomenon of Non-Native Speech. New York: Cambridge University Press, 2013. 232 p. crossref http://dx.doi.org/10.1017/CBO9780511794407

MUNRO, M. J.; BOHN, O.-S. The study of second language speech: A brief overview. In BOHN, O.-S.. **Language Experience in Second Language Speech Learning:** In Honor of James Emil Flege. Amsterdam: John Benjamins Publishing Company, 2007, p. 3-12. crossref http://dx.doi.org/10.1075/lllt.17.06mun

MUNRO, M. J.; DERWING, T. M.; MORTON, S. L. The Mutual Intelligibility of L2 Speech. **SSLA - Studies in Second Language Acquisition**, New York, 28, p. 111 – 131, Março, 2006.

NELSON, C. L. **Intelligibility in World English:** Theory and Application. New York: Routledge, 2011. 134 p.

ORTIZ-LIRA, H. Word stress and sentence accent. **Cuadernos de la Facultad, Monografías Temáticas,** Santiago**,** *16*, 81 p. Faculdade de Historia, Geografía y Letras, Universidad Metropolitana de Ciencias de La Educación, Santiago de Chile, maio, 1998.

PASSARELLA-REIS, L.; GONÇALVES, A. R.; SILVEIRA, R. Perception of Intonational Patterns and Speaker's Intentionality in English Yes-No Questions Produced by Brazilians. **RELIN**, Belo Horizonte, no prelo.

PIERREHUMBERT, J. B. **The phonology and phonetics of English Intonation**. 1980. 401 f. PhD Dissertation, Department of Linguistics and Philosophy, MIT, Cambridge, 1980.

PIERREHUMBERT, J.; HIRSCHBERG, J. The Meaning of Intonational Contours in the Interpretation of Discourse. In: COHEN, P. R.; MORGAN, J; POLLACK, M. E. (editors). **Intentions in Communication.** Cambridge: MIT Press, 1992, p. 271-311.

SCHADECH, T.S. **The production of word-initial /ɹ/ by Brazilian learners of English and the issues of comprehensibility and intelligibility**. 2013. 98 f. Master Thesis, Programa de Pós-Graduação em Inglês, Centro de Comunicação e Expressão, Universidade Federal de Santa Catarina, Florianópolis, 2013.

Domínios de Lingu@gem

SCHADECH, T. S; SILVEIRA, R. How do the non-target pronunciations of the consonants /Θ/ and /ð/ by Brazilian learners of English affect comprehensibility? **Cadernos do IL,** Porto Alegre, *(1),* p. 4-23, junho, 2013.

SLUIJTER, A. M. C.; van HEUVEN, V. J. Effects of focus distribution, pitch accent and lexical stress on the temporal organization of syllables in Dutch. **Phonetica***,* Basel (Switzerland), 52, p. 71–89, 1995. crossref http://dx.doi.org/10.1159/000262061

_____. Acoustic correlates of linguistic stress and accent in Dutch and American English. International Conference on Spoken Language - ICSLP**. Proceedings – ICSLP***,* Philadelphia, PA: IEEE, 1996. p. 630-633.

T´HART, J. Differencial sensitivity to pitch distance, particularly in speech. **Journal of Acoustic Society of America**, New York, 69(3), p. 811-821, Março, 1981.

TIFFEN, B. **The Intelligibility of Nigerian English**. 1974. 384 f. Tese de Doutorado, University of London, London, 1974.

TROFIMOVICH, P.; KENNEDY, S. Interactive alignment between bilingual interlocutors: Evidence from two information-exchange tasks. **Bilingualism**: Language and Cognition, Cambridge**,** v. 17**,** p. 1-15, Outubro, 2014. crossref http://dx.doi.org/10.1017/s1366728913000801

WARREN, P. **Introducing Psycholinguistics**. New York : CUP, 2013. 286 p.

ZOGHBOR, W. S. **The Effectiveness of the Lingua Franca Core (LFC) in Improving the Perceived Intelligibility and Perceived Comprehensibility of Arab Learners at Post-Secondary Level**. 2010. 227 f. Doctoral Dissertation. School of Education, University of Leicester, Leicester, 2010.

Domínios de Lingu@gem

Appendix A – Breaking the ice activity

This activity is the first part of a recruiting and selection hiring process of an International Company.

For this activity, you will meet a person for the first time. You don't know the person's name, nationality, age or any further general information.

Try to get to know this person. Ask questions that you would normally ask when meeting someone. Try to sound as natural as possible.

Additionally, try to find out three things that you have in common. For example, a dislike of jilo, Brazilian country music, and sushi.

Remember: You need to use English.

Three things we have in common:

1) _____

2) _____

3) _____

Domínios de Lingu@gem

Appendix B – What I am saying?

Finally, you are about to finish the interviews. This time you will help verify how clever the candidate is.

This task is divided into two parts.

In Part I, you will read a question **silently**. Next, you will read **aloud** the **answer** to that question as if you were really answering the question. See an example below:

Read silently: Who got married in 1984?
Read aloud: **Lucy got married in 1984.**

In Part II, you will read a statement silently. Then, you will read aloud a statement to contradict the previous statement. See an example below.

Read silently: Peter has bought a red car.
Read aloud: **Peter has bought a yellow car.**

In the sentence you read aloud you contradict the color. In fact, it is a YELLOW car that he has bought, not a RED car.

Domínios de Lingu@gem

START

Appendix C – What are you saying?

This is the last part of the recruiting and selection hiring process. This time your ability to interpret the intention of speakers will be verified.
This task is divided into two parts. In Part I, you will check the best question for an answer read by the interviewer. See an example below:
You hear: LUCY got married in 1984. (emphasis in "Lucy")
Your choices are:

(A) Who got married in 1984?
(B) What happened to Lucy in 1984?
(C) When did Lucy get married?

The best alternative is (A), because "Lucy" is the new information highlighted by the interviewer.

In Part II, you will check the alternative that shows an idea that the interviewer is probably contradicting. See an example below:
You hear: Peter has bought a YELLOW car. (emphasis in "yellow")
Your choices are:

(A) PETER did, not JOHN.
(B) BOUGHT it, not SOLD it.
(C) YELLOW car, not RED.

The best alternative is (C), because by putting emphasis in "yellow" the interviewer is making it clear that the car Peter had bought wasn't red.

Artigo recebido em: 19.09.2015 Artigo aprovado em: 15.03.2016

Domínios de Lingu@gem