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**Self-assessment of prominence assignment in L2 English**

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**Self-assessment of prominence assignment in L2 English**

Este Trabalho Conclusão de Curso foi julgado adequado para obtenção do Título de Bacharel em Letras e aprovado em sua forma final pelo Curso de Letras – Inglês.

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## RESUMO

O inglês e o português brasileiro (PB) diferem na maneira como atribuem o acento frasal, ou seja, o último e mais proeminente acento tonal de uma frase. O acento frasal é utilizado para expressar uma infinidade de significados na comunicação e seu uso inadequado pode gerar mal-entendidos e redução na inteligibilidade (LEVIS, 2018). Pesquisas demonstram que falantes brasileiros de inglês percebem e produzem o acento frasal do inglês diferentemente de falantes de inglês como língua materna (L1), o que afeta a maneira como ouvintes percebem e interpretam a mensagem (KIVISTÖ-DE SOUZA, 2017; PASSARELLA-REIS, 2017). Seguindo os conceitos de Schmidt (1990), a pronúncia dos aprendizes de inglês pode se beneficiar ao perceberem a lacuna entre sua própria produção e a forma-alvo; no entanto, pesquisas anteriores demonstram que as pessoas tendem a produzir autoavaliações falhas e incompatíveis com a realidade (KRUGER; DUNNING, 1999). O presente estudo teve como objetivo investigar a relação entre a autoavaliação da atribuição do acento frasal e duas medidas externas de desempenho: análise acústica e avaliação de terceiros. Quarenta e um falantes nativos de PB participaram de duas sessões de coleta de dados. Na primeira sessão, os participantes leram frases em inglês nas quais a atribuição do acento seguia regras diferentes daquelas de regem sua L1. As produções foram tratadas com um filtro passa-banda e apresentadas de volta aos participantes que avaliaram o uso do acento frasal na fala de outras pessoas e, em seguida, em suas próprias produções por meio de uma tarefa psicolinguística de julgamento perceptual. As produções dos participantes também foram submetidas à análise acústica com o objetivo de determinar se o uso do acento frasal foi esperado ou inesperado. Os resultados revelam uma correlação moderada entre a autoavaliação e os resultados das análises acústicas ( $\rho = 0,48$ ,  $p = 0,002$ ), e uma correlação fraca entre a autoavaliação e a avaliação de terceiros ( $\rho_{\text{médio}} = 0,13$ ). Ademais, a forma como os participantes avaliaram sua própria pronúncia em termos da atribuição do acento frasal foi significativamente diferente de ambas as medidas externas de desempenho: O padrão de autoavaliação que emergiu foi de subestimação da pronúncia em relação à análise acústica das produções. Além disso, os resultados sugerem que os participantes foram mais rígidos ao julgarem outros falantes do que ao julgarem sua própria atribuição de acento frasal, apesar desta também ter sido mais severa que a análise acústica. Estas descobertas sugerem que os participantes produziram avaliações (de outros falantes) e autoavaliações imprecisas, porém não na mesma medida de imprecisão. Os efeitos da tarefa de percepção são discutidos, bem como as implicações para o ensino de inglês como língua estrangeira (LE) e a pesquisa que emprega falantes da LE como avaliadores.

**Palavras-chave:** Autoavaliação. Acento frasal. Língua estrangeira.



## ABSTRACT

English and Brazilian Portuguese (BP) differ in how they assign prominence, that is, the last and most acoustically prominent pitch accent within a phrase. Prominence is used to express a multitude of meanings in communication, and its inappropriate use is a potential cause of misunderstanding and reduced intelligibility (Levis, 2018). BP speakers of English have been shown to perceive and produce English prominence differently from speakers of English as a first language (L1), affecting the way listeners perceive and interpret the message (Kivistö-de Souza, 2017; Passarella-Reis, 2017). Following Schmidt's (1990) concepts, learners' pronunciation may benefit from noticing the gap between their own production and the target form; however, prior research has found people to often engage in flawed self-assessment behavior. This study targeted the relationship between self-assessment of prominence assignment and two external measures of performance: Acoustic analysis and other-assessment. Forty-one L1-BP speakers participated in two data collection sessions. In the first session, participants read English sentences in which prominence assignment followed different rules from those of their L1. The productions were low-pass filtered and presented back to the participants in the second session who assessed prominence assignment in the speech of others and, then, in their own productions via a psycholinguistic judgment task. Participants' productions were also submitted to acoustic analysis with the objective of determining whether the prominence use was expected or unexpected. Results revealed a moderate correlation between self-assessment and the actual prominence use as per acoustic analysis ( $\rho = .48, p = .002$ ), and a weak correlation between self- and other-assessment ( $\rho_{\text{mean}} = .13$ ). Furthermore, the way participants assessed their own pronunciation in terms of prominence assignment was significantly different from both external measures of performance. Participants underestimated their pronunciation relative to the acoustic analysis of the productions. Furthermore, results suggest that participants provided harsher judgements for other speakers than for themselves, although self-perception was still harsher than what was present in the acoustic signal. These findings suggest that participants produced both inaccurate assessments (of other speakers) and self-assessments, however not to the same extent. Task effects, as well as implications for pedagogy and research that employs second language speakers as raters are discussed.

**Keywords:** Self-assessment. Prominence. Second language.

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## **LIST OF ABBREVIATIONS**

BP	Brazilian Portuguese
EFL	English as a foreign language
IP	Intonation phrase
L1	First language
L2	Second language
SLA	Second language acquisition

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## 1 INTRODUCTION

Learning a second language (L2)<sup>1</sup> after the acquisition of the first language is a process that frequently imposes a series of challenges to the learner. One of them is learning the phonology of the L2, which is often seen as the most difficult linguistic system to be developed. As such, researchers investigate L2 pronunciation at two different levels. The first level is the segmental, in which the structures under analysis are vowels and consonants. The second level is the suprasegmental<sup>2</sup>, which is concerned with all melody- and fluency-based phenomena of speech attending, at least, to the syllable. L2 suprasegmental acquisition, the scope of the present research, is seen as a “gradual” and “slow” process (SAITO, 2018, p. 286). The complexity of prosody in second language acquisition is also reflected in the several dimensions that make up learning L2 prosody, which consists in mastering different structural elements, being able to phonetically realize these elements and combine them into contours, and understanding their pragmatic dimensions (MENNEN; DE LEEUW, 2014).

The suprasegmental level of speech, however, is composed of several features. The present research focuses on relative prominence, which is the last, most phonetically prominent syllable within an intonation phrase (IP). Deciding where prominence goes is, according to Wells (2006), “[t]he most important decision the speaker makes in selecting an intonation pattern” (p. 93). Furthermore, prominence is argued to be of high relevance for successful communication (BRAZIL, 1997; JENKINS, 2000; LEVIS, 2018), and, as claimed by Levis (2018), it is “probably the most important intonational feature in terms of intelligibility” (p. 155). In short, prominence is held to such high regard because making a syllable the most prominent also signals the most pragmatically relevant word within an utterance (i.e., the word in focus), and because prominence is also the beginning of the tune. Prominence, however, has several nuances, and its assignment becomes especially challenging for L2 learners since languages differ in the rules that govern prominence and in the strategies (phonetic and/or syntactic) they employ to highlight specific parts of an utterance (LEVIS, 2018; TROUVAIN; BRAUN, 2021).

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<sup>1</sup> In the present manuscript, learning and acquisition are used interchangeably with no conceptual distinction between the terms. For the purpose of this research, I also do not differentiate among *L2*, *additional language*, *second language*, and *foreign language*, and among *learner*, *speaker*, and *user* unless explicitly stated otherwise. In traditional terms, however, the participants who took part in this research are learners and speakers of English as Foreign Language.

<sup>2</sup> Suprasegments and prosody are used interchangeably in this manuscript to refer to all fluency- and melody-based characteristics of speech.

Learners' ability to accurately perceive and produce L2 suprasegmental features has been extensively investigated. In the L2 pronunciation literature, studies that examined learners' use and acquisition of suprasegmentals point to the influence of learners' individual differences, such as L1 transfer (e.g., GUION, 2005; O'BRIEN; SUNDBERG, 2021), age of acquisition (e.g., TROFIMOVICH; BAKER, 2007), proficiency level (BRANDL; GONZÁLEZ; BUSTIN, 2020), experience with the L2 (e.g., SAITO; SUN; TIERNEY, 2019; TROFIMOVICH; BAKER, 2006), L2 use (e.g., CONCEIÇÃO SILVA; BARBOSA, 2017), phonological awareness (e.g., KIVISTÖ-DE SOUZA, 2017) and phonological self-awareness (e.g., O'BRIEN, 2019).

In addition to the traditional phenomena of perception and production of L2 speech, a third phenomenon has gained researchers' attention in the past few years: Self-perception<sup>3</sup>. Self-perception, that is, the act of assessing or judging one's own abilities relative to external measures of performance, has been extensively investigated in relation to several skills. However, research on L2 pronunciation self-assessment is still scarce. L2 speakers' pronunciation self-assessment has, on the one hand, been found to be mostly inaccurate and consistent with the Dunning-Kruger effect (e.g., ISBELL; LEE, 2021; SAITO *et al.*, 2020; TROFIMOVICH *et al.*, 2016). This means that speakers who are rated at the low end of pronunciation-related scales (accentedness and comprehensibility in the aforementioned studies) overestimate their performance, while those at the high end of the scales underestimate it (KRUGER; DUNNING, 1999). Other findings, however, suggest that self- and other-perception of L2 speech may be more closely aligned, particularly after L2 learners receive training in self-reflection and self-assessment or complete tasks and self-ratings repeatedly (e.g., BABAI; TAGHADDOMI; PASHMFOROOSH, 2016; CHEN, 2008; KISSLING; O'DONNELL, 2015; STRACHAN; KENNEDY; TROFIMOVICH, 2019). Furthermore, speakers' self-assessment seems to be related to several variables, such as learners' skill level (e.g., SAITO *et al.*, 2020; TROFIMOVICH *et al.*, 2016), L1 background (e.g., CROWTHER *et al.*, 2015), L2 use (e.g., SAITO *et al.*, 2020), and the aspect of speech under assessment (e.g., LAPPIN-FORTIN; RYE, 2014). Being able to accurately assess one's own pronunciation skills

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<sup>3</sup> Following recent work on self-perception of L2 pronunciation (e.g., SAITO *et al.*, 2020; TROFIMOVICH *et al.*, 2016), *self-perception* and *self-assessment* are used interchangeably in this manuscript despite traditional scholarship that see self-assessment as a process of formative assessment based on established goals and/or criteria (ANDRADE; DU, 2007). I operationalize self-assessment as equivalent to self-perception despite the fact that the task used in this study required participants to judge their own production was designed so as to rely on learners' procedural knowledge, which differs from traditional views of self-assessment.



is likely to be linked to L2 speech learning. Self-perception may predict L2 speech performance (O'BRIEN, 2019) and might affect learners' noticing of the gap between their own pronunciation and the target form, possibly impinging L2 speech learning (SCHMIDT, 2001).

The goal of this thesis is to investigate the self-assessment of prominence placement by Brazilian learners of English. The significance of the study lies in that English (and, more specifically, General American English) differs from Brazilian Portuguese (BP) in how it assigns prominence. As so, L1 BP speakers of English may not be aware of how prominence should be used in English and place it on an unexpected constituent of the IP (KIVISTÖ-DE SOUZA, 2017; PASSARELLA-REIS, 2017). Moreover, inaccurate use of prominence is a potential cause of misunderstanding and reduced intelligibility for L2 learners (HAHN, 2004; LEVIS, 2018; PASSARELLA-REIS, 2017). Furthermore, following Schmidt's (1990) concepts, noticing the way prominence is assigned in the L2 (form) and learners' own inaccurate prominence production (gap) can be beneficial for L2 speech learning. Therefore, this study aims to add to the literature investigating the alignment between self-assessment and external measures of performance (operationalized here as acoustic analysis and other-perception). The results are also expected to add to the fields of English-Brazilian Portuguese interphonology, (tacit) L2 phonological awareness, and, more indirectly, pronunciation teaching.

## **2 LITERATURE REVIEW**

In this chapter, I will establish the background for the study. In the first section of the chapter, I will present the phonetic and phonological aspects of prominence. The assignment of prominence in both General American English and Brazilian Portuguese will be described, and studies investigating the use of prominence by BP learners of English will be reviewed. In the second section of the chapter, I will discuss the literature on L2 pronunciation self-perception. Finally, I will identify gaps in the literature and state the research questions this study aimed to answer.

### **2.1 PROMINENCE**

Prominence is understood as the last and most phonetically prominent syllable within an intonation phrase (IP)<sup>4</sup>. This syllable has been referred to in a multitude of ways, such as, but not limited to, sentence stress (LADD, 2008), nuclear stress (JENKINS, 2000; WELLS, 2006), primary stress (HAHN, 2004), and phrase stress (O'BRIEN, forthcoming). In this study, I have opted to refer to it as prominence.

Assigning prominence is the process of selecting a given word within an IP and giving its stressed syllable a phonetic prominence that acoustically distinguishes it from the other syllables in the IP. Producing prominence, however, is associated with, at least, four phonetic phenomena. The first and more typically associated phenomenon is a perceived change in pitch referred to as a pitch accent. Thus, prominence is marked by adding a low pitch accent (a movement down in pitch) or a high pitch accent (a movement up in pitch) to the syllable (VAN HEUVEN; TURK, 2021), which is the result of variation in the frequency of vocal fold vibration ( $f_0$ ). The second dimension associated with prominence is related to temporal organization: Prominent syllables are longer in duration (VAN HEUVEN, 2018). Furthermore, prominence is also characterized by greater intensity and segmental clarity, which are the third and fourth phonetic phenomena (VAN HEUVEN, 2018). Using prominence and assigning it to specific syllables is, therefore, a multifaceted process.

Such a complex process would probably not survive language change if it were not valuable to communication. This raises the question concerning the function of prominence. Previous authors have used the terms *prominence* and *focus* as synonyms. Yet, it is essential to differentiate them. *Focus* involves actively *focusing* (as in employing attentional resources) on a specific part of the message. Two types of focus are described in the literature: Broad and narrow. In broad-focus contexts, the whole IP is in focus, whereas in narrow focus a particular part of the IP (usually one word—referred to as focus exponent) receives the interlocutors' attention. Prominence comes into play by being the primary way focus is marked. That is, focus (a semantic feature of language) is a function associated with prominence (an acoustic feature of language). The reader is reminded, nonetheless, that prominence is one way through which focus can be marked, and that languages differ in how they call attention to specific parts of the speech (LEVIS, 2018).

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<sup>4</sup> Intonation phrase (IP) is defined as a unit of information which has a single intonation pattern, which is often equivalent to a spoken phrase. IPs are separated by <|>.

Narrowing the focus of an IP by means of prominence has plural pragmatic uses. In a recent survey, Levis (2018) pointed the most common uses that prominence in narrow-focus contexts has. They include (1) to highlight new information; (2) to emphasize agreement; and (3) to check information. Prominence is also found in broad-focus context. Broad-focus phrases are thought to emphasize no specific part of the phrase (hence *broad focus*, i.e., with no particular information in focus). Thus, these phrases are all-new sentences spoken out of the blue or answers to broad questions such as “What happened?” Consider the following example from Wells (2006, p. 116). The word receiving prominence is marked via underlining, and its stressed syllable is marked with <'>:

(1) A: What happened next?

B: Everyone burst out 'laughing.

In this example, the whole IP is the focus domain, and no part of the phrase is compared or contrasted to another part. Therefore, the prominent syllable appears on the last constituent of the IP. This type of prominence placement is the default in both English and Brazilian Portuguese.

Prominence is also subject to L1 transfer as demonstrated by prior research. With the objective of understanding issues BP speakers might face when assigning prominence in English, the next two subsections present a cross-linguistic comparison of prominence in General American English and Brazilian Portuguese. Since this thesis investigated prominence placement on broad focus, more attention is given to this type of prominence.

### 2.1.1 Prominence in General American English

As previously mentioned, assigning prominence (i.e., deciding where prominence goes) is the most critical decision a speaker has to make in selecting an intonation pattern (WELLS, 2006). As such, this leads to the following question: How does one decide where prominence should be placed? According to Levis (2018), the function of prominence in English can be explained in at least three major ways; that is, three main uses that also govern the way prominence is assigned. The first way is the previously mentioned default that is tied to broad focus (LADD, 2008). In English, the default placement is towards the end of the IP. Consider the following examples from Wells (2006, p. 95).

(2) I want to buy a 'lemon.

(3) The bridge is about to col'lapse.

Examples 2 and 3 depict phrases in which prominence is placed on the last constituent of the IP. In some circumstances, however, prominence is shifted from the rightmost constituent of the IP to an earlier element. This is the case when the IP ends in a function word (an auxiliary verb, modal verb, preposition, or pronoun). Whenever the rightmost constituent of an IP is a function word, prominence will be placed earlier; more specifically, on the last content word—unless special circumstances apply. Consider the following examples from Wells (2006, p. 98):

- (4) She's 'done it.
- (5) She's the only person he con'fides in.
- (6) I'll be 'thinking of you.

In Examples 4, 5, and 6, the IP ends in at least one function word, which caused prominence to be placed on the last content word. Thus, the first possible answer to the question “How does one decide where prominence should be placed?”—referring to broad-context phrases—may be “on the last content word of the IP.”

The second major use of prominence described by Levis (2018) is the one that intends to contrast or compare parts of an utterance—which are often located in different IPs of a sentence. This is a particular kind of narrow focus that challenges the prominence placement rule described above. In contrastive-focus sentences, prominence may be placed in any constituent of the IP as the prominent word depends on the speaker's contrasting intention only. The following examples from Wells (2006, p. 119-120) illustrate contrastive focus in English:

- (7) 'Philip | can run faster than 'Jim.
- (8) It wasn't 'under the table, | but actually 'on it.
- (9) 'Apples aren't too bad.

Example 7 shows a typical sentence in which contrastive focus is used to contrast between two individuals: Philip and Jim. Examples 8 and 9 are particularly interesting as they both depict utterances in which prominence is placed on a function word (Example 8) and on the leftmost constituent of the IP (Example 9). Furthermore, Example 9 demonstrates that contrast may also be implicit (in Example 9, ‘apple’ is implicitly contrasting other types of fruit; it could be a reply to “Fruit's terribly expensive these days”). This use of prominence, therefore, stands in opposition to that presented in Examples 2 through 6 as it makes prominence assignment more flexible. Hence, another possible answer to the question “How does one decide where prominence should be placed?”—now referring to contrastive-focus phrases—may be “on the contrast the speaker wishes to express.”

The final major use of prominence as argued by Levis (2018) is the one in which prominence is used to signal new versus given information. Prominence assignment in English is strongly affected by the information status of the words in the IP: New information is accented (made prominent) whereas old (given, shared) information is deaccented (i.e., potential prominence is removed) (WELLS, 2006). Consider the following examples from Wells (2006, p. 109-110):

- (10) A: How about a gin a tonic?  
 B: Oh I'd prefer a 'vodka and tonic.
- (11) A green chair and a 'blue chair.

Examples 10 and 11 depict circumstances in which prominence is not placed on the last content word of the IP because it is previously mentioned information (Example 10) or a repeated lexical item (Example 11). Accordingly, another possible answer to the question “How does one decide where prominence should be placed?”—now referring to information status—may be “on new information.”

To summarize, prominence is assigned depending on the speaker's intention. Hence, the speaker decision of where to place prominence depends on different aspects such as focus (broad versus narrow, contrastive or not) and information status. The cases above stand for the most frequent uses of prominence in English. In addition to them, prominence is used for a multitude of purposes. Some of these uses were presented in the previous subsection (cf., 2.1), while other documented uses of prominence frequently fall into cases that are not thoroughly explained by the existing rules (LEVIS, 2018).

### 2.1.2 Prominence in Brazilian Portuguese

As a Romance language, Brazilian Portuguese phonology shares several characteristics with other Romance languages. To date, research on BP prominence has been scarce. Therefore, some of the literature reviewed here might still be incomplete or findings—especially in relation to dialects not yet investigated—might shed a different light to prominence in BP in the future.

Just like in English, prominence in BP is used for several pragmatic and communicative objectives<sup>5</sup>, and prominence is one of the strategies employed to signal focus (FROTA;

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<sup>5</sup> To the best of my knowledge, there is not a survey in Brazilian Portuguese similar to Levis (2018) in English in which the main uses of prominence in the language are described. Therefore, I will attempt to provide a brief review of prominence in BP using, whenever possible, the same approach I used in relation to English.

MORAES, 2016). The importance of prominence for communication raises, once again, the question “How does one decide where prominence should be placed in BP?” In all-new sentence in a broad-focus context, prominence is placed, with no exception, on the rightmost constituent of the IP (TENANI, 2002). Consider, for instance, the following example from Kato and Martins (2016, p. 25):

(12) Ele ama a 'Maria. (‘He loves Maria.’)

Example 12 illustrates the most outstanding prominence rule in BP: Prominence is assigned to last constituent of the IP. This a very rigid rule that holds true even when the last word of the IP is a function word or when the focus is anticipated (in the latter case, causing prominence and focus to dissociate) (MORAES, 2007). Thus, prominence in broad focus is unequivocal since it will always be placed on the last word of the IP and no movement is allowed. Any non-final placement causes prominence to be interpreted contrastively (KIVISTÖ-DE SOUZA, 2015). Thus, one may attempt to answer the question “How does one decide where prominence should be placed?”—referring to broad-focus contexts—saying “on the last constituent of the IP.”

When producing contrastive-focus phrases, BP functions in the same way as English. In other words, whenever a speaker wishes to contrast two pieces of information, prominence will be placed on the relevant information (FROTA *et al.*, 2015). Consider the following examples where Example 13 is from Kivistö-de Souza (2015, p. 162):

(13) Eu 'quero o livro. (‘I want the book.’)

(14) Eu quero 'este livro. (‘I want this book.’)

In Examples 13 and 14, the rigid rule that states that prominence must be placed on the last constituent of the IP is not followed since the speaker is contrasting *quero* (‘want’) with, possibly, *não quero* (‘don’t want’), and *este* (‘this’) with, possibly, *aquele* (‘that’). Hence, another possible answer to the question “How does one decide where prominence should be placed?”—now referring to contrastive-focus phrases—may be the same as in relation to English: “On the contrast the speaker wishes to express.”

The rules for narrow-focus phrases differ from English, however, when informative narrow-focus sentences are produced. When focalizing constituents, BP seems to use a combination of prosodic and syntactic devices. Differently from Spanish and European Portuguese, though, BP has very rigid unmarked word orders, allowing only SVO and SV. Therefore, word order changes are not possible in focalizing particular constituents of the IP.

Rather, BP resorts to topicalization and cleft structures as syntactic devices. Consider the following examples from Kivistö-de Souza (2017, p. 492) as an answer to the question ‘What do you want?’:

- (15) Eu quero o livro. (‘I want the book.’)
- (16) O livro |, eu quero. (‘The book is what I want.’)
- (17) O que eu quero é o livro. (‘What I want is the book.’)

Example 15 shows an unmarked SVO construction in which prominence is placed on the focalized constituent (*livro*, ‘book’). This is an example in which a prosodic device (prominence) is used to narrow the focus of the IP. Examples 16 and 17, on the other hand, depict the use of two different syntactic devices which are used together with prominence to accomplish the same goal when placing the focused constituent on the end of the IP is not possible. Example 16 presents topicalization, which is when a constituent of the IP is moved to the left and placed on a separate IP. By doing so, prominence is also placed on the new IP; more specifically, on its rightmost constituent following the default placement of BP. Example 17 shows how focalization may occur through cleft structures, which are naturally marked structures. The reader is reminded that any non-final prominence placement is interpreted as contrastive.

As previously mentioned, BP employs both prosodic and syntactic resources in bringing constituents into focus. The syntactic devices (topicalization and cleft structures) were described and exemplified above, and the two main prosodic devices used in BP are now presented. Earlier, when presenting the default prominence placement and arguing in relation to the consistency of prominence use in broad-focus contexts in BP, the fact that focus and prominence may be disentangled was presented. Moraes’s (2007) finding that, if brought forward, focus and prominence will be disassociated differs from English. Whenever this happens, focal stress is placed on the focus, which becomes acoustically more salient than prominence (SVARTMAN, 2008)<sup>6</sup>, while prominence remains on the last word of the IP. Finally, the second prosodic device consists in chunking the message into several IPs. Since word order changes are quite strict in BP and prominence is always placed on the last constituent of the IP, a reordering of the sentence may be done so that the intended focus is

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<sup>6</sup> Fernandes (2007) suggest that when the focus is placed on initial or medial positions, a prosodic boundary is placed after the focalized constituent. Therefore, focal stress would align with the intonation boundary where prominence would be placed.

placed as the rightmost constituent of an IP. This is a strategy used so to align focus and prominence. The following example from Kivistö-de Souza (2015, p. 163) illustrates chunking:

- (18) A: O que você gostaria de beber? ('What would you like to drink?')  
 B: Eu aceito um pouco do 'vinho | que você com'prou. ('I'll have some of the 'wine you bought.')

Considering the prosodic and syntactic strategies employed in narrow-focus sentences in BP, another possible answer to the question “How does one decide where prominence should be placed?”—now referring to narrow-focus informative phrases—may be “on the last word of the IP where topicalization, cleft structures, focus-prominence dissociation, and chunking may be used to focalize constituents.”

In summary, Brazilian Portuguese prominence is governed by rules much more rigid than those that govern prominence assignment in English. When contrast is intended, prominence will be placed on the contrasted constituent of the IP, just like in English, but in narrow-focus informative contexts, prominence is invariably placed on the last constituent of the IP, and both prosodic and syntactic strategies are employed to focalize constituents of the IP, which differs from English. Every time the speaker does not intend to highlight a particular part of the message (i.e., broad-focus phrases), prominence is placed invariably on the last item of the IP in BP. English, however, allows some movement such as in the case of phrases ending in function word. This difference is illustrated by the following example from Passarella-Reis (2017, p. 80):

- (19) Dê o livro para 'mim. ('Give me the book'.)  
 Give the book to 'me.

In the BP sentence of this example, prominence is being placed on the last constituent of the IP, which happens to be a function word. This sentence is in broad focus and no contrast is implied. If the use of prominence is directly transferred into English, however, the focus of the phrase is narrowed and thus contrastive.

### **2.1.3 Acquisition and use of prominence by L1 Brazilian Portuguese speakers of English**

Previous research has pointed that the perception and production of prominence, relative to other suprasegmental features, may be less of a difficulty for learners (DERWING



*et al.*, 2012; LEVIS; MULLER LEVIS, 2018). As such, it has been argued that teachers and researchers should not devote much attention to this particular feature (O'BRIEN, 2021). The cross-linguistic comparison between General American English and Brazilian Portuguese just presented, however, underscores several differences between the two phonological systems. This raises questions regarding the magnitude of L1 transfer in prominence acquisition and the consequences of unexpected prominence use.

In one of the earliest work on Brazilians' pronunciation difficulties in L2 English, Baptista (2001) addresses frequent pronunciation deviations in the speech of Brazilian learners of English. Among other issues, the author mentions that L1 BP learners frequently transfer prominence patterns from BP to English; more specifically, the rigid rule of assigning prominence to the last word of the IP as depicted in Example 23 (p. 25). Previous research by Castro Gomes (2013) confirms the L1 transfer phenomenon noted by Baptista (2001). The author conducted a study in which L1 English and L1 BP speakers were recorded reading the sentence 'Where did all this money come from?' She observes that whereas L1 English speakers produced the sentence with prominence placed on 'money,' L1 BP speakers consistently assigned prominence to 'from,' failing to deaccent the last constituents of the IP.

Studies by Passarella-Reis and Silveira (2016) and Passarella-Reis (2017) also corroborate that Brazilians have difficulties using prominence as expected. Passarella-Reis (2017) analyzed the speech of 14 Brazilians who were paired with speakers from 11 nationalities to complete four tasks. Her results show that in 83.4% of the instances, learners had unexpected productions in terms of prominence use in utterances that had information being elicited, corrected, or contrasted. An interesting finding is that Brazilian learners had more difficulty accurately assigning prominence to utterance-final constituents, which is, according to the author, explained by the fact that speakers did not deaccent unfocused information in utterance-initial and -medial position. Passarella-Reis and Silveira (2016) also observed that L1 BP speakers of English had difficulties assigning prominence regardless of position prominence was expected to be placed in the sentence. Moreover, using prominence to signal corrective information and information being elicited was also challenging to Brazilian learners of English.

The perception of prominence is, as pointed by previous research, equally challenging. Kivistö-de Souza (2017) investigated Brazilians' sensitivity to English prominence placement. Sixty-nine L1 BP advanced EFL learners and 16 L1 English speakers were tested with a psycholinguistic low-pass filtered intonation identification task. The stimuli presented

appropriate intonation patterns in either English or BP only. Kivistö-de Souza found that Brazilian learners were less aware about English prominence than L1 English speakers. Moreover, differences in awareness were also related to sentence type: Participants seemed to be more aware about prominence in deaccented sentences (particularly those ending in function word and, to a lesser extent, those ending in given information) than in unaccusative sentences. English-speaking members of the international community might also have problems interpreting Brazilians' intention according to prominence use. In Passarella-Reis (2017), the L1 speakers of French, German, Italian, Japanese, Norwegian, Polish, Russian, Slovak, and Spanish who interacted with L1 BP speakers in English had difficulties perceiving prominence and interpreting speakers' intent. Expected prominence productions generally resulted in successful communication, but expected productions were only interpreted as so 71.4%, 65.2%, and 66.7% of the time (in phrase initial, medial, and final position, respectively).

The few studies that have looked at the acquisition and use of English prominence by Brazilian learners of English suggest that using English prominence is a complex task for L1 BP learners. In short, both perception and production of prominence have been reported to be inaccurate. Concerning perception, L1 BP speakers seem to possess relatively low awareness of the phonological form at issue, which includes the different ways prominence is used depending on the sentence type. Turning to production, unexpected and L1-like prominence use seem to largely prevail across speakers, which has consequences for communication. These findings indicate that the acquisition of L2 English prominence by L1 BP speakers can be considered a complex task, differently from what learners from different backgrounds experienced in studies such as Derwing et al's (2012). Therefore, it seems that for the population under investigation in this thesis, English prominence poses a challenge that should be addressed in the classroom and by research.

## 2.2 SELF-ASSESSMENT OF L2 PRONUNCIATION

Self-assessment has been widely investigated across several domains. People's capacity to evaluate their own performance relative to external measures has been examined in skills such as math (CHIU; KLASSEN, 2010), logical reasoning, and grammar (KRUGER; DUNNING, 1999). Although not always observed, a phenomenon that has been shown frequently to be present in self-assessment is the Dunning-Kruger effect. This effect describes

the tendency people have to engage in inaccurate self-assessment behavior, which causes unskilled performers to overestimate their performance and skilled performers to underestimate it (KRUGER; DUNNING, 1999). Thus, people are known to produce flawed, inaccurate self-assessments (CARTER; DUNNING, 2008). When judging their own L2 skills, people also seem to produce unreliable self-assessments, as shown by recent meta-analysis by Li and Zhang (2021), which found a modest-to-poor relationship between self-assessment and actual linguistic ability/knowledge ( $r = .466$ ).

Research on the self-assessment of discrete phonological forms has looked into how learners perceive their own pronunciation of segments/suprasegments or how they perceive their difficulty with such forms. Lappin-Fortin and Rye (2014) made use of a pre-/post-test design to investigate the use of self-assessment in a French pronunciation course. Participants recorded themselves reading a paragraph before and after attending a 12-week pronunciation course. The recordings were rated for accentedness by the speakers, who were also asked to assess their own weaknesses (at pre-test) and greatest improvement (at post-test). The recordings were then rated by two experienced L1 raters. Overall, the results indicate that learners were fairly accurate in assessing their own pronunciation skills at both pre- and post-test, but the relationship between self- and other-assessment varied greatly according to the phonological form under analysis ( $r_{\min} = .18$ ;  $r_{\max} = .70$  at post-test). Somewhat similar findings were obtained by Dłaska and Kreskeler (2008), who were interested in examining advanced German learners' ability to assess their own segmental production relative to the target form. Participants' pronunciation was assessed via a yes/no question by the speakers themselves and by two experienced L1 raters. Learners and raters agreed on 85% percent of the ratings; nevertheless, learners were only able to perceive their own mistakes 44% of the time and were found to underestimate their performance overall.

Another level of L2 speech that seems particularly difficult for learners to evaluate is their own suprasegmental production. Earlier findings revealed that learners have more difficulty perceiving deviations at the suprasegmental level (DERWING; ROSSITER, 2002; DERWING, 2003), and more recent studies have corroborated these findings (LAPPIN-FORTIN; RYE, 2014; WREMBEL, 2015). Half the participants in Lappin-Fortin and Rye's (2014) study indicated prosody as the speech feature they had made more gains in during the pronunciation course. This remark differs greatly from raters' perception (which correlated with self-assessment at  $r = .19$ ;  $p > .05$  at post-test) indicating that learners inaccurately perceived their suprasegmental pronunciation. O'Brien (2019) investigated the role of metalinguistic

awareness and self-assessment on L2 German learners' lexical stress assignment. Participants' accurately assessed their assignment of lexical stress 64% of the time, and accurate self-perception was found to predict both accuracy in the overall lexical stress assignment and in the production of stress cognates. Wrembel (2015) administered two stimulated recall protocols with the objective of examining L3 Polish learners' metalinguistic awareness—which included self-assessment. Comments on learners' own perceived pronunciation problems reveal what they attended to in their speech: Whereas 79% of the comments referred to segments, only 1.5% concerned prominence.

Although it is not the focus of the present study, another line of research has looked at self-perception of global pronunciation-related qualities (accentedness and comprehensibility). These studies have obtained different degrees of correlation between self- and other-assessment (e.g., LI, 2018 versus TROFIMOVICH *et al.*, 2016), although the majority point to inaccuracy in self-assessment. The presence of the Dunning-Kruger effect has also prevailed across studies examining the self-perception of global dimensions of L2 speech (e.g., LI, 2018; SAITO *et al.*, 2020; TROFIMOVICH *et al.*, 2016; TSUNEMOTO *et al.*, forthcoming), corroborating the claim that L2 learners do engage in flawed self-assessment behaviors when judging their own pronunciation.

In short, most of the literature on L2 pronunciation self-assessment concludes that learners differ from external measures in the assessment of their own L2 pronunciation. Concerning the suprasegmental level—scope of this thesis—, self-assessment seems to be challenging and frequently flawed. Learners tend to have difficulties accurately attending to their own suprasegmental production, which results in a mismatch between self-perception and other measures of acuity. The reader is reminded, nonetheless, that success in self-assessment may be related to variables such as skill level (SAITO *et al.*, 2020; TROFIMOVICH *et al.*, 2016), L1 background (CROWTHER *et al.*, 2015), L2 use (SAITO *et al.*, 2020), task repetition and repeated self-assessment (STRACHAN; KENNEDY; TROFIMOVICH, 2019), and benchmarking (TSUNEMOTO *et al.*, forthcoming).

### 2.3 GAPS IN THE LITERATURE

While prominence in English has been widely investigated, research on the acquisition of English prominence by Brazilian learners of English is extremely limited. The two main

studies on the topic (i.e., KIVISTÖ-DE SOUZA, 2017; PASSARELLA-REIS, 2017) unveiled important issues, but a lot has yet to be determined regarding L1 BP speakers' learning and use of English prominence. Furthermore, the growing interest on L2 pronunciation self-assessment posed several questions to the scientific community. Most of them concern whether previous findings in L2 pronunciation self-assessment research hold true for all phonological forms—especially those relevant for intelligibility and communication—and when examined through different instruments—e.g., timed and untimed, controlled and uncontrolled tasks, with or without the use of rubrics. Moreover, with the exception of a couple of studies, (experienced) L1 speakers of the target language have been used as raters for other-assessment. Thus, there is still much to be understood in relation to how learners' self-perception differs (or not) from the perception of fellow L2 speakers.

## 2.4 RESEARCH QUESTIONS

With the objective of filling some of the gaps in the literature, this research targeted the self-assessment of a specific phonological form (i.e., prominence) by Brazilian learners of English. Two external measures of performance were adopted; namely, acoustic analysis of the productions and other-assessment by fellow L1 BP speakers of English. Moreover, in order to explore how certain characteristics of the rating task might affect self-assessment, participants judged prominence placement via a timed, speeded psycholinguistic task (adapted from KIVISTÖ-DE SOUZA, 2017). This task differs from the rating instruments adopted in prior research as it aimed at tapping at participants' tacit phonological knowledge/awareness rather than at their metalinguistic knowledge.

The present study sought to answer the following research questions:

1. What is the relationship between self-assessment of prominence placement and acoustic analysis of the productions?
2. What is the relationship between self- and other-assessment of prominence placement?

Drawing upon the body of social and cognitive research documenting inaccurate self-assessments, I hypothesize that L1 BP speakers of English will judge their own prominence use inaccurately; that is, differently from the external measures of performance. Given that the other-assessments are produced by fellow L1 BP learners of English, the relationship between

self- and other-assessment is predicted to be convoluted since other-assessment may be, in addition to subjective, inaccurate and dependent on several individual variables.

### 3 METHOD

The present study was submitted to the Ethics Review Board from Universidade Federal de Santa Catarina (CAAE: 39744420.4.0000.0121) and its approval is filed under Review number 4.493.182.

#### 3.1 PARTICIPANTS

Participants in the study were L1 Brazilian Portuguese speakers of English. Forty-one Brazilians volunteered to participate in the study and did not receive any type of compensation for their participation. Two participants had to be eliminated from data analysis; one due to insufficient proficiency to complete the tasks in English and one due to an error in one of the tasks completed. Therefore, the data reported comes from 39 participants (24 females and 15 males) who served as both speakers and listeners in the study. The research was broadly advertised on social media. No minimum proficiency level in English was established with the objective of investigating the issues described in the research questions in speakers at different learning stages, but potential participants were informed that the operational language of the instruments would be English.

Despite my attempt to reach participants with different background profiles, participants were chiefly highly educated and their backgrounds were mainly related to the fields of language teaching and/or applied linguistics. All participants were undergrad or graduate students. Twenty participants (51.28%) either had graduated or were majoring in Languages and Literatures (most of them in English, but some in English and Portuguese, French, or Italian), while the remaining participants had a background in varying fields. Sixteen participants (41.02%) reported being a teacher.

Table 1 summarizes information concerning participants' age (years), proficiency as estimated by vocabulary size (points out of 10,000)<sup>7</sup>, language learning experience (years), and experience in English-speaking countries (months). English was the second language in order

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<sup>7</sup> More information about the proficiency measure is provided in section 3.2.

of acquisition to all but two participants. About half the participants (53.84%) reported having been for at least two weeks in an English-speaking country, although only 25.64% attended an English course while abroad.

Table 1 – Summary of participants' background information

	Mean	95% CI	SD	Min	Max
Age	26.66	[24.75, 29.08]	6.41	20	45
Vocabulary size	7,249.41	[6934.28, 7564.53]	972.12	5,556	9,136
English learning experience	11.79	[9.91, 14.11]	6.21	2	30
Experience abroad	6.62	[1.83, 11.41]	13.36	0	84

Source: The author

### 3.2 TARGET STRUCTURE

As demonstrated in the Literature Review, although English and BP share some prominence assignment rules (such as when contrast is intended), prominence in BP is invariably assigned to the last constituent of the IP in broad-focus phrases, whereas English deaccents the last item if it is given information or a function word in the same context. Therefore, English deaccented sentences prove to be a fruitful target structure for the investigation of phonological acquisition by L1 BP EFL learners. In this thesis, I have chosen English declarative broad-focus phrases ending in function word(s) as the target structure.

In addition to the cross-linguistic difference, three other reasons supported the choice of the target prominence rule: (1) The regularity of default prominence assignment is responsible for making this the prominence pattern found in up to 90 percent of English IPs (CRYSTAL, 1969); (2) this is the most neglected prominence use in teaching materials (LEVIS, 2018); and (3) L1 BP speakers seem to be more aware about prominence in deaccented sentences—especially those deaccented due to ending in function word—than unaccusative sentences, (KIVISTÖ-DE SOUZA, 2017). Thus, declarative sentences ending in function word are an interesting site of investigation as its perception and production could reveal aspects of learners' sensitivity to a highly used phonological form—although not necessarily salient to L1 BP speakers—while strengthening the link between the present work and pedagogy.

A set of criteria was used to create the target sentences ( $n = 12$ ). Firstly, all the sentences had to end in at least one function word, and the number of each type of function word was balanced across sentences. Secondly, sentences had to be short, so that they all had eight or fewer words. Moreover, the vocabulary of the sentences was carefully selected so to avoid

typically challenging words for L1 BP speakers of English as it has been shown that the presence of complex words hinders expected prominence placement (PASSARELLA-REIS, 2017). The complete list of stimuli used in the Speech Elicitation Task is presented in Appendix A, and the target sentences (i.e., those ending in function word) are asterisked.

### 3.3 INSTRUMENTS

Five instruments were designed and/or adapted to the present research. One of the instruments designed was a metalinguistic multiple-choice test that aimed at tapping into participants' pragmatic (and, by extension, phonological, since meaning is expressed through prosodic devices) knowledge of prominence without requiring any verbalization of rules. Extensive pilot testing with L1 speakers of English revealed that the instrument was not sufficiently reliable; thus, it was not used in the final study<sup>8</sup>. This section describes the four instruments used in the study.

#### 3.3.1 Speech Elicitation Task

Participant's prominence placement was elicited through a self-paced reading task administered online. Participants were informed that they would read a contextualizing sentence and a dialogue composed of a question and an answer, but that they would only be recorded reading the answer to the question. First, contextualizing sentence, question, and answer were shown on the screen, and participants were instructed to read all the information silently. After reading the prompts, participants clicked on "record." They were then shown only the sentence they were expected to read out loud (i.e., an answer to a question). After recording the target sentence, participants clicked on 'next' to start the subsequent trial. Trials were presented in randomized order. The contextualizing sentences had the objective of making the situations presented in the question-answer more natural. The questions ensured that the answers were phrases that did not have any highlighting or contrastive intention; that is, that they were all in a broad-focus context. Finally, the answers were the target sentence. Furthermore, by allowing participants to read the target sentences before recording them, I aimed at reducing reading and orthographic effects on speech (HAYES-HARB; BARRIOS, 2021) and possibly making

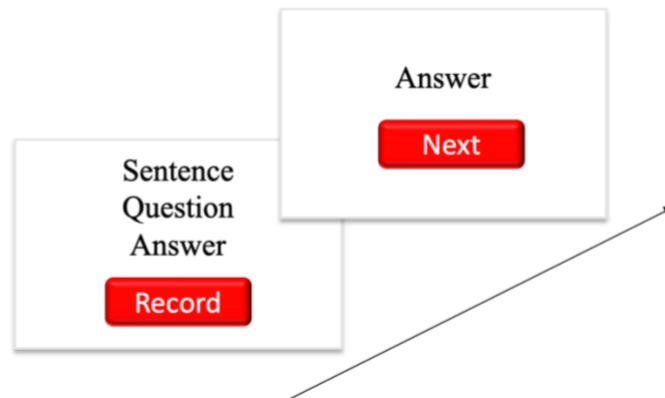
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<sup>8</sup> A sample of the test is available in Appendix B.



recordings sound less read-like. The stimuli used in the task were adapted from Kivistö-de Souza (2017). The task had 26 trials such as the one described above; three practice trials, 11 distractor (unaccusive sentences) and 12 test items (declarative sentences ending in function word) (see the list of stimuli in Appendix A). Figure 1 exemplifies the structure of the task.

Figure 1 - Structure of the Speech Elicitation Task

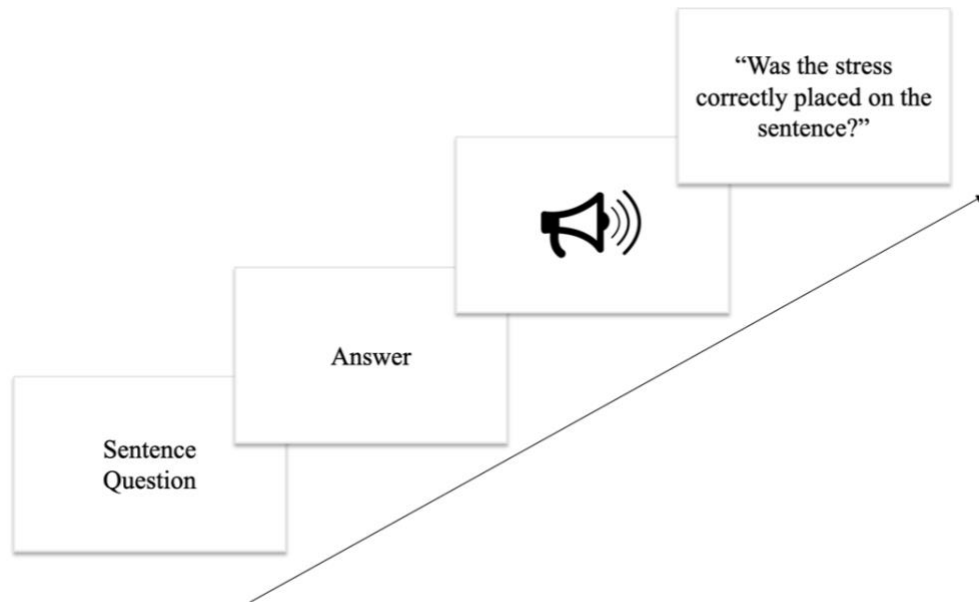


Source: The author

### 3.3.2 (Self-) Perception Task

The recordings collected through the Speech Elicitation Task served as stimuli for the (Self-) Perception Task. With the objective of testing participants' ability to judge the production of other speakers as well as their own in terms of prominence assignment, a psycholinguistic perception test was administered (adapted from KIVISTÖ-DE SOUZA, 2017). The test consisted in a timed, speeded, forced-choice, low-pass filtered prominence judgment task carried out online. Each trial had the following structure: Participants read a contextualizing sentence and a question, which remained on the screen for 6500 ms. Next, the answer to the question was orthographically shown on the screen for 2500 ms. Immediately after, the answer was replaced by the image of loudspeaker that accompanied the low-pass filtered version of the answer participants had just read silently. Following this, participants were asked to judge whether prominence was correctly used on the phrase by answering the question "Was the stress correctly placed on the sentence?" Participants had 5000 ms to click on the keys 'A' or 'L' on their keyboard to answer 'yes' or 'no,' respectively, but were instructed to answer the question as accurately and as fast as possible. After the 5000-ms span, a new trial started automatically. Figure 2 shows the structure of the task.

Figure 2 - Structure of the (Self-) Perception Task



Source: The author

This particular task was chosen in light of the objectives of the present study. To the best of my knowledge, all the studies investigating L2 pronunciation self-perception to date have relied on Likert scales or, more recently, 100- and 1,000-point scales. This type of rating procedure allows raters to use their metacognition to assess the speech samples, which usually involves listeners carefully reflecting upon what they hear. One of the objectives of this thesis was to investigate whether previous findings about L2 pronunciation self-assessment hold true when participants assess their own pronunciation via a controlled task. Therefore, the task employed was timed and speeded as an attempt to tap into participants' implicit, procedural knowledge (PLONSKY *et al.*, 2020; SPINNER; GASS, 2019). The time cap and the instructions for participants to judge prominence assignment as fast as possible served to limit participants' access to explicit, declarative knowledge as well as conscious reflection. Secondly, concerning the time spans of each part of the task described previously, the 6000- and the 5000-ms windows were established based on pilot testing. The time the answer remained on the screen prior to the presentation of the aural stimulus (i.e., 2500 ms) was the same duration used in Kivistö-de Souza (2017). In her study, the author established this time span based on pilot investigations that indicated it was enough time for participants to read, comprehend, and store

the question-answer sequence in their short-term memory. This then allowed them to compare their reading of the answer (which was expected to trigger the retrieval of the prosodic representation of the phrase from participants' long-term memory) with the low-pass filtered stimulus presented immediately after.

Furthermore, since the task was timed and speeded, it was deemed important that participants' attentional resources were not dispersed across several features of the speech signal. Thus, the recorded sentences were manipulated prior to being used as stimuli for the (Self-) Perception Task. Using Audacity®, the recordings were submitted to noise reduction, amplification, low-pass filtering at 400 Hz with a roll-off slope of 48 dB per octave, and normalization of peak amplitude to 0.0 dB. As a result, the recordings presented in the (Self-) Perception Task had their suprasegmental information intact, but presented no segmental cues. Low-pass filtering has been used to call listeners' attention to the prosodic level of speech in both L1 (e.g., ZENDRON DA CUNHA; SEARA, forthcoming) and L2 speech research (e.g., JILKA, 2000; PASSARELLA-REIS; GONÇALVES; SILVEIRA, 2016; TROFIMOVICH; BAKER, 2006) .

The task had fifty-one trials as the one previously described organized in two testing blocks. After reading the instructions (which included an accessible explanation of prominence), participants completed three practice trials. Following the practice trials, the first testing block began. In this block, participants judged the use of prominence by three fellow L2 speakers—which were not shared across all participants—in 36 trials. At the end of the first block, participants were informed that, from that point on, they would judge their own productions. They were also offered to take a short break before starting the second testing block. After assessing their own sentences for prominence placement, participants answered three debrief questions. The measure obtained from this task was percent accuracy in prominence assignment.

### **3.3.3 Proficiency and Language Background Questionnaire**

Participants' linguistic and demographic background was assessed through a proficiency test and a language background questionnaire. Participants' receptive vocabulary size was estimated as a measure of L2 proficiency. Participants completed the V\_YesNo test (MEARA; MIRALPEIX, 2017), which has 200 trials to which participants have to select 'yes' in case they know the meaning of the word, or 'no' in case they do not know its meaning or are unsure.

Scores range from 0 to 10,000, and participants obtained 7,249.41 points on average (SD = 972.12, min = 5556, max = 9136). Scores from 4,500 to 7,500 are thought to indicate “a good level of competence;” scores from 7,500 to 9,000 represent “a very high level of proficiency;” whereas scores above 9,000 are obtained by “[e]ducated native speakers and very fluent learners” (MEARA; MIRALPEIX, 2017). Although there are limitations in estimating proficiency through a receptive vocabulary size test, several studies have investigated the reliability of this type of measure. A recent study examining the same test used in the present thesis found a large correlation between vocabulary size and L2 speaking proficiency (UCHIHARA; CLENTON, 2020).

Furthermore, participants answered a Language Background Questionnaire. Adapted from Kivistö-de Souza (2015), Nagle, Trofimovich, and Bergeron (2019), and Park and Ziegler (2014), this questionnaire aimed at collecting information about participants’ demographics, English learning experience, and L2 use. The questionnaire also asked participants to assess their own L2 proficiency and pronunciation.

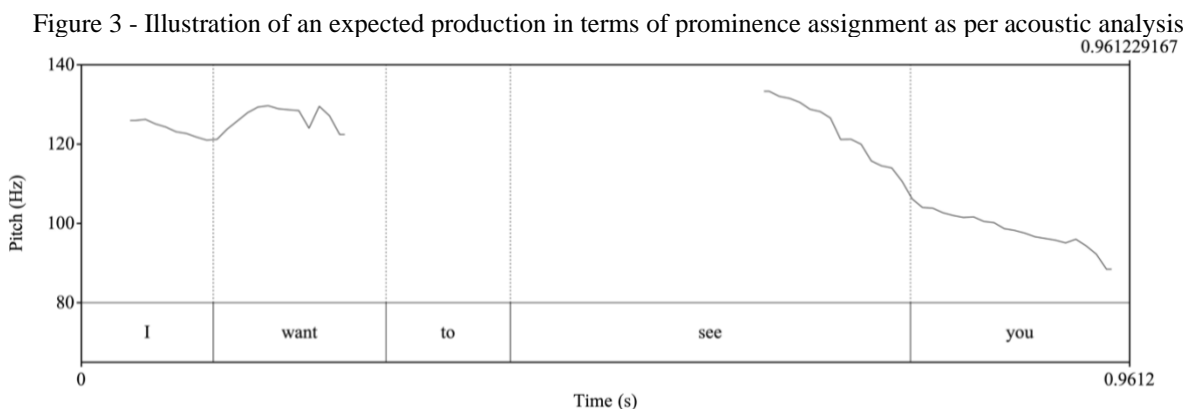
### 3.4 PROCEDURES

Data collection took place in two online, remote sessions. In the first session, participants completed the vocabulary size test and, right after, the Speech Elicitation Task. Between four and six weeks later, participants completed the second data collection session, which included, in this order: The Language Background Questionnaire, the (Self-) Perception Task, and the multiple-choice test not included in data analysis. Prior to completing the tasks described above, participants signed a consent form (Appendix C).

The Speech Elicitation Task and the (Self-) Perception Task were administered via Testable (REZLESCU *et al.*, 2020), an online platform for behavioral experiments, surveys, and data collection. Participants’ speech data were recorded at a sampling rate of 48,000 Hz with a resolution of 16 bits and saved using opus ogg format. Participants were encouraged to wear headphones, but that was not a condition to take part in the study. Online, remote speech data collection was deemed appropriate for the current study despite microphone limitations and the lossy audio format used because  $f_0$ , the main phonetic correlate of prominence, seems to be resistant to these variables (CAVALCANTI *et al.*, 2021; ZHANG *et al.*, 2021).

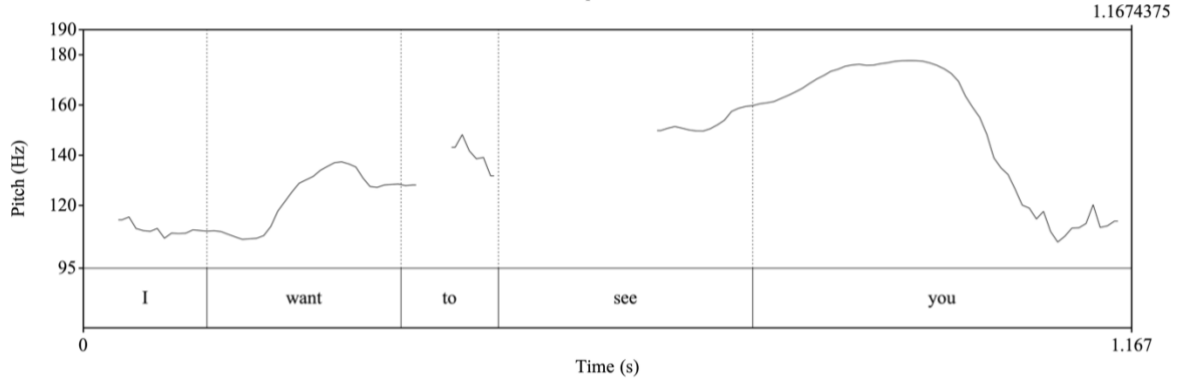
### 3.5 DATA ANALYSIS

Two types of analyses were conducted in order to determine the accuracy of self-assessment. The first research question asked to what extent self-perception of prominence placement is aligned with the results from acoustic analysis of the sentences. To this end, all the productions were acoustically analyzed using Praat (BOERSMA; WEENINK, 2021). To determine whether prominence use was expected or unexpected, changes in  $f_0$  associated with prominence were examined. According to the literature, a difference of at least four semitones in speech characterizes conscious, intended prominence placement, whereas “smaller  $f_0$  changes are not prominence-lending” (VAN HEUVEN; TURK, 2021, p. 8). Therefore, whenever a change in  $f_0$  was equal to or greater than four semitones in the stressed syllable of the word that should receive prominence, prominence use was deemed expected. A second step in the analysis was adopted for the cases in which the four-semitone threshold was not met but that there was an acoustic and auditory salience. These cases were submitted to auditory analysis. Unexpected uses were those in which (1) there was no prominent syllable in the IP; (2) prominence was placed on an unexpected constituent; or (3) prominence was correctly assigned, but the use of prominence also required deaccenting other constituents of the IP (such as in the case of declarative sentences ending in function word), which was not met. The measure obtained from the acoustic analysis was percent accuracy in prominence assignment. Figure 3 depicts a production of the sentence “I want to see you” which was classified as expected, and Figure 4 shows an unexpected production of the same sentence. To answer the first research question, a Spearman correlation test between self-assessment and acoustic analysis was used.



Source: The author

Figure 4 - Illustration of an unexpected production in terms of prominence assignment as per acoustic analysis



Source: The author

As mentioned previously, the speech samples were submitted to self- and other-assessment through the (Self-) Perception Task. Every three speakers were judged by a group of three raters who did not rate anyone else except for those three speakers<sup>9</sup>. Therefore, each participant rated and was rated by three participants. A mean other-perception score (from the three raters) was computed for each participant with the objective of correlating self- and other-perception. Following McKay and Plonsky (2021), two reliability analyses were conducted to determine raters' agreement (Kuder Richardson 20 and Fleiss' kappa). The results revealed that, overall, raters' agreement was lower than ideal<sup>10</sup>. Since it was of interest to obtain a representative picture of other-assessment that could be compared with self-assessment, the least agreeing rater, according to the KR-20 coefficients, was eliminated from the analyses. Therefore, each participant received a mean accuracy score of other-perception that was computed from the judgements made by the two raters who agreed the most with one another.

Since the productions were rated by non-unique raters, obtaining a single correlation between self- and other-perception was considered unfit because the ratings did not come from a single source. Therefore, in order to answer the second research question (What is the relationship between self- and other-assessment of prominence placement?), within-person Spearman correlations between self-assessment and other-assessment were used. In other

<sup>9</sup> Considering that each participant produced 12 target sentences that served as stimuli for the (Self-) Perception Task, it was deemed unviable to obtain judgments from all the participants in relation to all the participants. If that was the case, participants would have to judge 468 phrases in addition to their own.

<sup>10</sup> Possible reasons that may account for insufficient agreement are discussed in section 5.

words, 38<sup>11</sup> correlations were run between participants' self-perception of each of the 12 sentences and mean other-perception of each item. To determine the mean correlation between self- and other-assessment across the participants, Fisher r-to-Z transformations were computed, averaged, and then transformed back to r for interpretation.

Following prior research (TROFIMOVICH *et al.*, 2016), to investigate whether participants had misjudged their own productions relative to the external measures of performance, two sets of overconfidence scores were obtained. These scores were calculated by subtracting (1) mean acoustic analysis and (2) mean other-assessment scores from self-assessment scores. To determine the mismatch between self-assessment and acoustic analysis of the productions, a Spearman correlation test was run between the first set of overconfidence scores and the results of the acoustic analysis. Within-person Spearman correlations between the second set of overconfidence scores and other-perception were conducted to examine the discrepancy between self- and other-assessment. Once again, Fisher r-to-Z transformations were computed, averaged, and then transformed back to r for interpretation.

#### 4 RESULTS

The first research question was concerned with learners self-assessment of prominence placement relative to an external, objective measure: Acoustic analysis of the productions. Table 2 presents descriptive statistics for self-perception and acoustic analysis.

Table 2 - Descriptive statistics for self-assessment and acoustic analysis

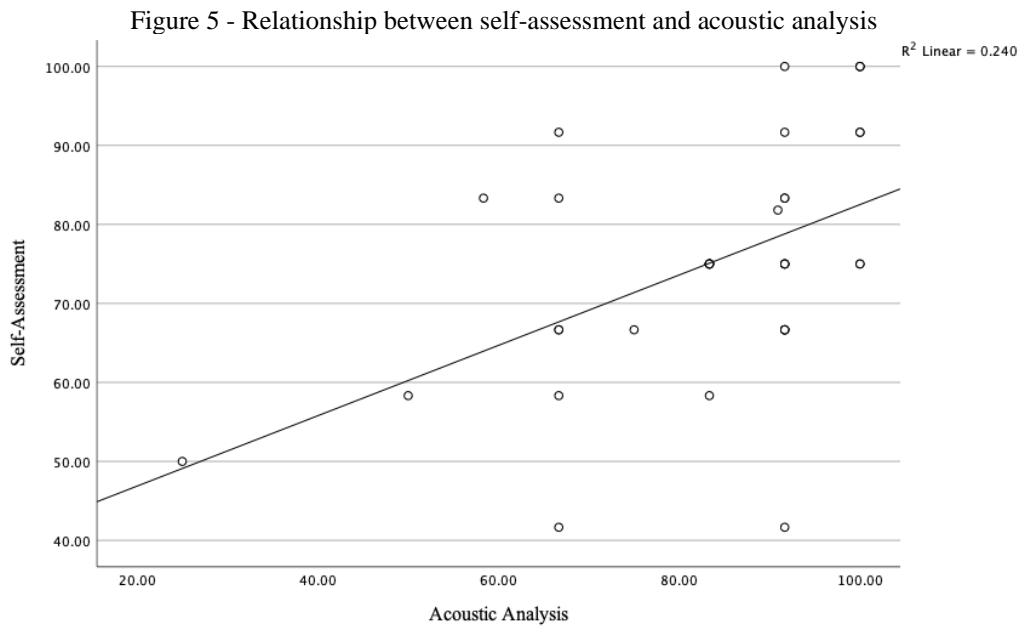
	Mean (%)	95% CI	SD	Min	Max
Self-assessment	75.17	[70.31, 80.04]	14.79	41.67	100
Acoustic analysis	83.53	[78.18, 88.87]	16.25	25	100

Source: The author

A nonparametric Wilcoxon signed-ranks test was run to determine whether the difference between self-assessment (mean = 75.17%) and acoustic analysis accuracy (mean =

<sup>11</sup> The reliability analyses conducted revealed that the average covariance among the items of a given participant was negative. Since this violates reliability model assumptions, this participant was left out of the correlational analyses.

83.53) was statistically significant ( $Z = -2.995$ ,  $p = .003$ ). The correlation between self-assessment of prominence placement and the actual prominence use as per acoustic analysis was  $\rho(38) = .48$ ,  $p = .002$ . This coefficient indicates that the correlation between the variables was of medium strength (PLONSKY; OSWALD, 2014). Put differently, acoustic analyses of the productions were moderately correlated with self-assessment, and acoustic analyses found participants to assign prominence accurately more often than speakers' themselves. Figure 6 shows the relationship between self-assessment and the results of acoustic analysis.



The second research question concerned the relationship between self-assessment and an external, subjective measure: Other-assessment of prominence placement. Table 3 presents descriptive statistics for other-assessment with self-assessment replicated from Table 2 for the sake of convenience.

Table 3 – Descriptive statistics for self- and other-assessment

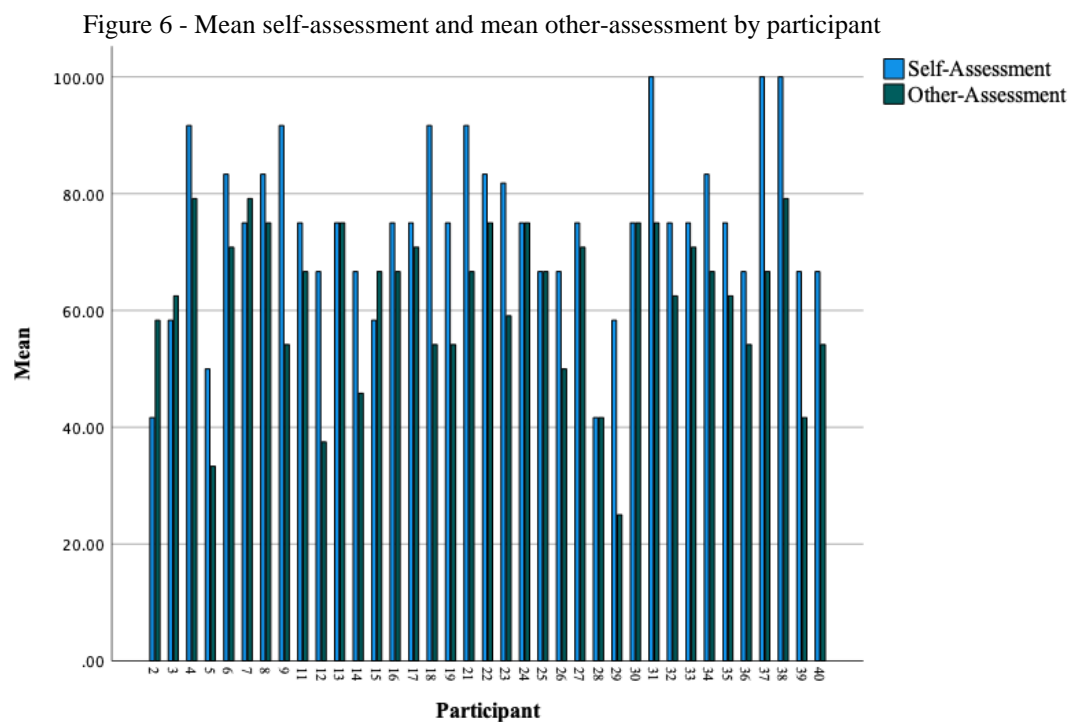
	Mean (%)	95% CI	SD	Min	Max
Self-assessment	75.17	[70.31, 80.04]	14.79	41.67	100
Other-assessment	62.73	[57.95, 67.52]	14.55	25	95.80

Source: The author

To verify whether participants differed in the way they assessed themselves relative to the way others assessed them, a nonparametric Wilcoxon signed-ranks test was run using the



mean self-perception and the mean other-perception scores from each participant ( $Z = -4.384$ ,  $p < .001$ ). The average correlation across participants was  $\rho_{\text{mean}} = .27$  (min =  $-.46$ , max =  $.90$ ,  $N = 33$  with five missing cases due to lack of variance in self- or other-assessment). According to field-specific guidelines (PLONSKY; OSWALD, 2014), this coefficient corresponds to a small correlation between the variables. In other words, self- and other-perception of prominence placement were mildly related, and participants perceived their own productions as more accurate in terms of prominence use than others did. Figure 7 shows mean self-assessment and mean other-assessment by participant.



Furthermore, the analyses of overconfidence revealed a pattern of erroneous self-assessment. Two sets of overconfidence scores were calculated, one for acoustic analysis and another for other-assessment. Overconfidence scores were a numerical difference that could range from  $-100$  to  $+100$ . Negative numerical differences indicated that participants underestimated their pronunciation relative to the external measure, whereas positive values corresponded to participants overestimating their prominence use. Values around zero represented self-ratings aligned with those provided by the external measures of performance. Descriptive statistics for overconfidence score for acoustic analysis and other-assessment are presented in Table 4.

Table 4 - Descriptive statistics for overconfidence score for acoustic analysis and other-assessment

	Mean	95% CI	SD	Min	Max
Acoustic analysis	-8.35	[-13.52, -3.18]	15.74	-50	25
Other-assessment	11.78	[6.99, 16.56]	14.56	-33.33	37.50

Source: The author

Spearman correlation between overconfidence scores for acoustic analysis and the results of the acoustic analysis revealed a weak-to-moderate negative correlation between the two variables ( $\rho = -.39$ ,  $p = .014$ ). Moreover, within-person Spearman correlations between overconfidence for other-assessment and other-assessment revealed a moderate-to-strong average correlation ( $\rho_{\text{mean}} = -.57$ ,  $\text{min} = -.92$ ,  $\text{max} = .20$ ,  $n = 33$  with five missing cases due to lack of variance in self- or other-assessment).

Although averaged to allow for a more comprehensive view of self-assessment of prominence placement, not all the within-person correlation analyses yielded significance. However, averaging significant and nonsignificant correlations was deemed appropriate since listing a p-value for correlations is not a requirement (LARSON-HALL, 2016) considering that  $r$  is an effect size per se.

## 5 DISCUSSION AND CONCLUSIONS

The present thesis aimed at investigating self-perception of L2 prominence placement. Previous research has shown L2 pronunciation self-assessment to be often flawed. This study intended to examine the self-perception of a phonological form that L2 learners may not be aware of (e.g., WREMBEL, 2015)—despite its relevance to intelligibility (LEVIS, 2018)—relative to two external measures; namely, acoustic analysis and other-perception.

The first research question asked “What is the relationship between self-assessment of prominence placement and acoustic analysis of the productions?” To answer this question, a Spearman correlation test was conducted between mean self-perception (percent accuracy) and the results of the acoustic analysis of the productions (which classified the productions as expected or unexpected). A moderate correlation was found between participants’ self-assessment and their actual productions ( $\rho = .48$ ,  $p = .002$ ). Furthermore, a Wilcoxon signed-

ranks test revealed that prominence was more often correctly placed as per acoustic analysis than participants' self-assessment.

Results indicate a discrepancy between self-assessment and the external measure: Relative to acoustic analysis (mean = 83.53 points out of 100), participants underestimated their pronunciation (mean = 75.17 points out of 100). Overall, participants' mean accuracy in prominence assignment as per acoustic analysis—an objective measure of performance—was fairly high. In fact, 73.68% of the participants obtained accuracy scores in the top quartile (i.e.,  $\geq 75\%$ ). Therefore, the results are in line with previous research on the Dunning-Kruger effect (e.g., CARTER; DUNNING, 2008) and on L2 pronunciation self-assessment (e.g., TROFIMOVICH *et al.*, 2016) whose findings showed that top performers tend to underestimate their performance. Nevertheless, the difference between self-assessment and acoustic analysis was, on average, 8.36 points, which means that participants judged a correct phrase as incorrect only once. Hence, it seems like the use of a controlled task and the focus on a particular phonological form did not prevent learners from engaging in inaccurate self-assessment behavior, although it might have attenuated the tendency skilled learners have to underestimate their performance.

Despite the lack of overall alignment between self-assessment and acoustic analysis, a medium-strength correlation was found between these variables. This finding is consistent with the results obtained by Strachan et al (2019) who observed that speakers differed from listeners in the assessment of comprehensibility, but found a moderate correlation between self- and other-assessment. Other studies have also reported flawed self-assessment behavior in tandem with non-null correlations between self-assessment and external measures. Ortega, Mora and Mora-Plaza (2021) found moderate correlations between self-perception and L1 listeners' ratings for comprehensibility and that the pattern characterizing self-assessment was in line with the Dunning-Kruger effect. Li (2018) also obtained moderate correlations between the same variables for comprehensibility and accentedness. The author reported that learners' self-assessment was consistent with the Dunning-Kruger effect.

Participants' inaccurate self-assessments were further supported by investigating the correlation between overconfidence scores and the external measure of assessment, which is how the pattern of self-assessment is typically characterized. Results of a Spearman correlation test between overconfidence scores for acoustic analysis and the acoustic analysis of the productions confirmed that learners did engage in flawed self-assessment behavior ( $\rho = -.39$ ,  $p = .014$ ). The negative relationship between the variables indicates that more accurate

participants (as per acoustic analysis) perceived their prominence use as inaccurate more often. This finding is again consistent with the Dunning-Kruger effect. This coefficient is similar to the ones obtained by Li (2018) for accentedness ( $r = -.32$ ) and comprehensibility ( $r = -.44$ ) as perceived by L1 English listeners<sup>12</sup>.

On the other hand, a closer look at the instrument used to elicit participants' judgements suggests that the task itself might have been the source of lower self-perceived accuracy. In a recent meta-analysis, Plonsky et al (2020) found that one characteristic of judgement tasks that influences results is whether the task is timed or untimed. The authors state that whenever timed judgements tasks are used, participant scores are, on average, lower by one standard deviation relative to when a time limit is not imposed. This difference is, according to the authors, "comparable to the difference typically observed between pre- and post-tests in L2 instruction research" (p. 601). Therefore, if the (Self-) Perception Task were untimed, it is likely that participants would have judged their prominence placement as accurate more often, resulting in mean self-assessment scores closer to those obtained through acoustic analysis. This points to the hypothesis that the timed nature of the perception task was responsible for the discrepancy between self-assessment and acoustic analysis. By extension, if one is to believe this assumption, it would seem as if the psychological effect of underestimation—the "undue modesty of top performers" (DUNNING *et al.*, 2003, p. 85)—had not taken place. Thus, eliciting self-assessments of prominence placement via an untimed, low-pass filtered judgement task would present itself as a way of eliciting realist self-assessments.

The second research question asked "What is the relationship between self- and other-assessment of prominence placement?" A small correlation was found between self- and other-assessment of prominence placement ( $\rho_{\text{mean}} = .27$ ), and a Wilcoxon signed-ranks test showed that participants significantly assessed themselves as more accurate than fellow L2 speakers. At first, it may seem as if participants overestimated their pronunciation, contradicting the results of RQ1. The central difference between RQ1 and RQ2 is the external measure to which self-assessment is compared. While RQ1 investigated how self-assessment relates to an

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<sup>12</sup> The reader should be aware of the limitations of comparing the results obtained here from acoustic analysis as an external measure of performance and previous studies that employed L1 raters. Although human raters are the gold standard for research, ratings are subjective, and several reasons may lead L1 listeners to evaluate L2 speakers in an unrealistic manner (e.g., social influences; TAYLOR REID; TROFIMOVICH; O'BRIEN, 2019).

objective measure of performance, RQ2 elicited judgements of fellow L1 BP speakers of English, which is a subjective measure of performance. As such, divergence between the external measures are expected, and this is likely to be one of the sources of dissonance between the results of RQ1 and RQ2.

Assuming that acoustic analysis is a reliable source of assessment and that participants underestimated their pronunciation implies that the participants did not provide accurate other-assessments either. This argument lies in that mean other-assessment was significantly lower than mean self-assessment, which, by its turn, was significantly lower than acoustic analysis. Therefore, this suggests that participants were harsher when rating others in comparison to when rating themselves. Possible explanations for this hypothesis lie in the task employed in this study, which may have led participants to provide harsher ratings. As mentioned before, timed tasks naturally produce lower scores. Moreover, the low-pass filtering of the stimuli has certainly upgraded the degree of difficulty of both recognizing the stimuli and the task itself. Zendron da Cunha and Seara (forthcoming), for instance, tested the identification of different intonation patterns using low-pass filtered and natural stimuli. The authors found that participants performed significantly better (i.e., obtained a higher rate of accurate identification) in the perception task that presented natural stimuli. Furthermore, it is likely that participants were not aware of the existence of prominence (cf., WREMBEL, 2015) and had never been asked to judge prominence assignment before. Altogether, these claims argue in relation to the complexity and demand of the task, which may have led participants to perceive the productions as inaccurate more often than they actually were.

When investigating self- and other-assessment of accentedness and comprehensibility by L2 speakers and listeners who shared the same L1, Li (2018) found that listeners provided ratings that did not differ from those provided by the speakers themselves, which the author interpreted as a shared L1 benefit. Since speakers and listeners differed significantly in the present study, it seems that the perception task attenuated a potential shared L1 benefit. Previous research has demonstrated that when both speaker and listener share the same L1, intelligibility is enhanced (e.g., BENT; BRADLOW, 2003; HAYES-HARB *et al.*, 2008), and Li's results suggest that the shared-L1 intelligibility benefit does extrapolate to accentedness and comprehensibility. Therefore, one could speculate that the same phenomenon happens in relation to accuracy, so that being highly familiar with L1 BP accented English, listeners would find the productions more accurate than they actually are. Conversely, it is likely that forcing participants to attend to prosody—by means of presenting low-pass filtered stimuli—and

requiring them to judge whether prominence had been correctly used in a very short time span led to more accurate assessments. Therefore, by limiting participants' retrieval of explicit and meta-knowledge when judging the samples (which is likely achieved by the timed, speeded nature of the (Self-) Perception Task), their judgements were seemingly based on a comparison between the stimulus heard and the implicit representation of how that utterance should sound. Thus, it is plausible to argue that the perception test employed in this study prevented L2 listeners from providing L1-benefited ratings. Nonetheless, as previously argued, it might have evoked unrealistic judgments for different reasons.

Human ratings are subjective per se. However, when rating L2 linguistic skills, native and nonnative speakers of the target language may differ considerably. Li (2018), for instance, found that L2 listeners and L2 speakers from the same L1 background provided statistically the same ratings. This finding did not hold true for L1 listeners who did differ from speakers. Another factor worth considering when analyzing the other-perception variable of this study is that the ratings of only two listeners were averaged to compute mean other-assessment scores. Previous studies investigating L2 pronunciation self-assessment such as Dłaska and Krekeler (2008), Lappin-Fortin & Rye (2014), and O'Brien (2019) have also employed two raters; nevertheless, any ratings provided by only two people cannot be interpreted as representative of *other-assessment*, especially in the case on nonnative raters whose varying individual variable profiles might impact perception. Furthermore, interrater reliability coefficients were often below field-specific benchmarks. Several reasons may account for low agreement: (1) Raters were fellow L2 speakers of English, and the (Self-) Perception Task was designed with the objective of tapping into participants' implicit knowledge of the L2. As such, the representation to which participants were expected to compare the stimuli partially depends on learners' interlanguage and proficiency level, which were varied. (2) The forced-choice format of the task is more cognitively demanding since participants do not have the opportunity to compare the stimuli with other stimuli or choose between numerous alternatives (VANLANCKER–SIDTIS, 2003). (3) It is probable that running traditional interrater reliability measures across the binary judgements of 12 items made by two raters is not the most ideal way of determining agreement between raters. Due to the small sample size, measures such as percent agreement may be more adequate. In fact, the aforementioned studies that employed two raters did not report any interrater reliability or agreement measures, except for O'Brien (2019) that reported percent agreement.

Concerning the mean correlation coefficient obtained between self- and other-assessment, studies investigating L2 pronunciation self-perception have found strikingly different associations between these variables. Trofimovich et al (2016), for instance, found no association for accentedness and a weak association for comprehensibility. Using similar research designs, however, Li (2018) and Isbell and Lee (2021) found moderate and moderate-to-strong relationships for accentedness and comprehensibility. To investigate whether participants had misjudged their own productions relative to other-assessment, within-person Spearman correlations between overconfidence scores for other-perception and other-perception were conducted. The average correlation across participants was  $\rho_{\text{mean}} = -.57$ . Moderate-to-strong correlations between overconfidence and actual performance such as the one found are consistent with the Dunning-Kruger effect. Moreover, the fact that the mean correlation obtained is negative suggests that the speakers who judged their prominence placement as accurate in most of the samples also had most of their prominence use perceived as inaccurate by the listeners. This correlation is very similar to that obtained by Trofimovich et al (2016) ( $r = -.56$ ) and Saito et al (2020) ( $r = -.58$ ) for comprehensibility. Moreover, the mean overconfidence for other-assessment was 11.78. The reader is reminded that positive values correspond to participants overestimating their prominence use. However, it is likely that the mean overconfidence obtained for other-assessment was only positive due to the low other-assessment mean. Therefore, it is arguable that participants overestimated their pronunciation relative to other-assessment, but since other-assessments were inaccurate, participants did not overestimate their prominence use in reality; rather, they underestimated it (relative to acoustic analysis which is an objective measure of performance).

In summary, self-assessment of English prominence by L1 BP speakers was inaccurate. This conclusion comes from (1) the relationship between self-assessment of prominence placement and acoustic analysis of the productions, an objective measure of performance; and (2) the association between learners' overconfidence score for acoustic analysis and the acoustic analysis of the productions. Learners' self-assessments were characterized as underestimated in relation to acoustic analysis; nevertheless, the variables differed mildly<sup>13</sup>. Other-assessment, a subjective measure of performance, was weakly correlated with self-perception, which pointed to the inaccuracy of other-perception. In other

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<sup>13</sup> Caution is necessary when generalizing the results obtained as it is hard to determine whether the difference between self-assessment and acoustic analysis of prominence placement lies in that participants erred in their judgements or in the characteristics of the (Self-) Perception Task.

words, self-assessment was closer to the control measure of performance (i.e., acoustic analysis) than to other-assessment, indicating that participants judged other speakers more harshly than they judged themselves. Participants' perception of their own prominence assignment was also harsher than reality, but closer to it. The fact that participants produced the target structure skillfully but that they underestimated their performance is consistent with the Dunning-Kruger effect. Evidence suggests that the previous patterns of faulty self-perception found in L2 pronunciation research persist even when self-assessment focuses on a specific phonological form and takes place via a controlled, timed, speeded, psycholinguistic perception task. Nonetheless, the (Self-) Perception Task seems to have minimized the Dunning-Kruger effect (in comparison to prior research) and attenuated the benefits of shared L1 frequently observed in L2 pronunciation assessment.

## 5.1 IMPLICATIONS

Understanding self-perception and its mechanisms is paramount for both pedagogy and L2 users individually. Theoretical accounts posit that L2 development takes place when learners direct conscious efforts into changing and improving their pronunciation based on their ability to notice the gap between their own speech and a model's (SCHMIDT, 1990, 2001). However, prior research has documented that learners face difficulties when assessing their own linguistic skills, including L2 pronunciation. Therefore, self-perception skills might play a role in what learners attend to in terms of differences between their own productions and the input they receive. Moreover, how learners perceive their abilities might also affect their decision-making processes, which has consequences for determining whether certain learning experience is skill-adequate or whether they need to try to improve pronunciation features that are leading to communication breakdowns or reduced comprehensibility, for instance. Furthermore, the phonological feature under investigation has its significance to communication greatly theorized and evidenced.

The results obtained by this study suggest that learners produced inaccurate assessments (of other speakers) and self-assessments of whether prominence had been correctly assigned to phrases. Thus, teachers may wish to encourage peer- and self-assessment in the classroom as a way of enhancing learners' assessment skills (TSUNEMOTO *et al.*, forthcoming). Prior research has demonstrated that training in self-assessment and self-reflection leads to a greater



alignment between self- and other-assessment of pronunciation (BABAI; TAGHADDOMI; PASHMFOROOSH, 2016; MERITAN; MROZ, 2019). Moreover, learners would likely benefit from having their attention drawn to specific phonological forms, especially those known to impact intelligibility and that learners may not be (explicitly) aware of. Finally, the results also have implications for research that elicits L2 listeners' judgements. It seems that the most inaccurate judgements participants produced were in relation to other speakers, since other-assessment was more incorrect than self-assessment. Although both L1 and L2 speakers produce subjective assessments, L2 assessments are presumably done on the basis of learners' interlanguage, and variables such as raters' level of phonological awareness may come into play. Hence, the findings raise the concern of employing L2 speakers in accuracy studies as they may not produce truthful judgments.

## 5.2 LIMITATIONS AND FUTURE RESEARCH

Shortcomings call for the findings to remain preliminary. The most remarking limitation is the small number of listeners who judged each speaker and the lower-than-ideal consistency among raters. Therefore, more other-assessments would arguably have yielded a different relationship between self- and other-assessment and, possibly, a different pattern of self-assessment (relative to other-assessment). Moreover, it becomes evident from the results that the L1 BP speakers did not provide reliable judgments of L2 prominence. Hence, eliciting judgments from a unique group of raters (i.e., a group of raters who assess all the participants) and/or from L1 speakers of the target language should strengthen this aspect of the study.

Future studies may investigate if the results obtained in this research hold true for different phonological forms. In addition, comparisons between the way people assess themselves and the way they assess others may be included to look at self-assessment from a different perspective. Finally, learners' individual differences should be examined as an attempt to obtain a clearer picture of the underlying mechanisms of (flawed) self-assessment.

## 5.3 CONCLUDING REMARKS

To conclude, this study looked into self-assessment of prominence placement relative to two external measures of performance: Acoustic analysis and other-assessment. Correlational analyses revealed (1) a moderate association between self-assessment and the

acoustic analysis of the productions; (2) a weak correlation between self- and other-assessment; and (3) that participants underestimated their own prominence use in accordance with the Dunning-Kruger effect and previous research on L2 pronunciation self-assessment. In addition, the findings indicate that participants provided harsher other-assessments than self-assessments. Finally, evidence suggests that inaccurate self-assessment patterns persisted even though judgements were elicited via a timed, speeded, low-pass filtered judgment task, although they may have been attenuated.

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## APPENDIX A – STRUCTURE OF THE SPEECH ELICITATION TASK

Structures recorded by participants via the Speech Elicitation Task are under *answer*. Target structure (i.e., broad-focus declarative sentences ending in function word) trials are asterisked.

### PRACTICE TRIALS (N = 3)

TRIAL N	Sentence	Question	Answer
1	You are telling your friend that Bob forgot about Lisa's birthday	And then what happened?	<u>She got mad at him</u>
2	Your friend is visiting you and breaks a glass	Where can I buy a new one?	<u>Don't worry about it</u>
3	You tell your friend that you saw Lisa crying	What's the matter with her?	<u>Her arm hurts</u>
<b>TEST ITEMS (N = 23)</b>			
TRIAL N	Sentence	Question	Answer
1	You were sitting at home when you heard a loud noise	What happened?	<u>A window broke</u>
2	Your neighbors' kids are upset	Why are the kids upset?	<u>Their cat disappeared</u>
*3	You are talking to a friend over the phone. She thinks you sound sad	What's the matter?	<u>I want to see you</u>
*4	Peter called you 10 times and you didn't answer his calls	Why didn't you answer his calls?	<u>I'm annoyed with him</u>
5	You are telling your friend about an accident	And then what happened?	<u>The house collapsed</u>
*6	You are telling a friend about a bank that was robbed by a gang	And then what happened?	<u>The police found them</u>
7	You are in the kitchen	What's that smell?	<u>The cake burned</u>
*8	Your friend is telling you how unhappy she's been feeling about her job	What should I do?	<u>You should talk to your boss about it</u>
9	Luke is in his bedroom	Why is he crying?	<u>His relationship ended</u>
*10	You are trying on a dress and your friend thinks you look unhappy	What's the matter with the dress?	<u>It doesn't fit me</u>
*11	The intercom rings and you answer it. It's for your roommate	What's that?	<u>There's a delivery for you</u>

<b>TRIAL N</b>	<b>Sentence</b>	<b>Question</b>	<b>Answer</b>
<b>*12</b>	Your friend is reading the paper and she sees something shocking	Have you seen today's paper?	<u>No, give it to me</u>
<b>13</b>	You are telling a friend about a movie you watched yesterday	And then what happened?	<u>The criminal died</u>
<b>*14</b>	Your friend is visiting your house	Do you have a computer?	<u>No, I have to buy one</u>
<b>*15</b>	You are telling a friend that Tina didn't answer her boyfriend's calls	Why didn't Tina answer his calls?	<u>She's not in love with him</u>
<b>*16</b>	You and a friend are talking about Mary's job interview	Did you hear what happened at the interview?	<u>No, I didn't ask her about it</u>
<b>17</b>	Your friend is going on a trip. You tell her to be careful	Why is the road wet?	<u>The snow melted</u>
<b>*18</b>	You tell your friend you can't wear your shirt	What's the matter with your shirt?	<u>There's a hole in it</u>
<b>*19</b>	You and a friend are talking about yesterday's party	Did you hear what happened at the party?	<u>No one told me</u>
<b>*20</b>	Your friend lost her keys	Have you seen my keys?	<u>No, I haven't seen them</u>
<b>21</b>	You tell your friend that your boss has been upset lately	Why is your boss upset?	<u>The sales decreased</u>
<b>22</b>	You welcome your friend back from a trip	What happened last week?	<u>Our favorite bar closed</u>
<b>23</b>	You are telling a friend that Anna got into a car crash	What caused the accident?	<u>The motor failed</u>

**APPENDIX B – SAMPLE OF THE PROMINENCE ASSIGNMENT TEST**

Instructions: This next questionnaire is similar to the task you've just completed, but instead of saying whether you think the stress is placed on the correct word or not, you should choose the alternative in which you think the stress is correctly placed. Read the sentence describing the context of the situation. Then, choose the answering option you consider correct. The stressed word in each alternative is written in underlined capital letters. Important: Remember that the word that should be stressed depends on the context; therefore, please pay attention to the context provided.

## Question 1

A guy on the other side of the street is trying to tell you something, but you are wearing headphones. You say:

I CAN'T hear you.

I can't HEAR you.

I can't hear YOU.

## Question 2

When you got to work, you noticed there was a problem with your shirt. You say:

My SHIRT has a hole in it.

My shirt has a HOLE in it.

My shirt has a hole in IT.

## APPENDIX C – TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO

Eu, Cesar Antônio Teló, aluno do curso de graduação em Letras – Inglês da Universidade Federal de Santa Catarina, gostaria de convidá-lo(a) a participar da minha pesquisa de Trabalho de Conclusão de Curso, orientada pela Professora Dra. Hanna Kivistö-de Souza. O meu projeto de pesquisa é intitulado Conhecimento de frases em inglês. Seu objetivo é investigar o conhecimento que aprendizes brasileiros de inglês possuem sobre frases em inglês. De forma geral, este estudo visa contribuir para o conhecimento sobre o processo de aprendizagem de inglês, o que informa o modo como a língua inglesa é ensinada na sala de aula. Peço, gentilmente, que você leia este formulário de consentimento atentamente e tire todas as dúvidas que possam surgir antes de concordar em participar do estudo. Se você aceitar participar do estudo, você será solicitado(a) a completar uma série de tarefas remotamente, de forma online. São elas: (i) responder um questionário sobre sua experiência com a língua inglesa (como, por exemplo, com quantos anos você começou a estudar inglês e o quanto você utiliza a língua inglesa para realizar uma série de tarefas) e informações demográficas (como, por exemplo, idade e cidades onde já morou); (ii) fazer uma tarefa que estima quantas palavras você sabe em inglês; (iii) fazer uma tarefa em que você lerá e gravará diálogos em inglês (essa tarefa registrará sua voz na plataforma onde a tarefa será sediada. Apenas os pesquisadores terão acesso às gravações. Não haverá registro de imagem.); (iv) fazer uma tarefa em que você ouvirá frases em inglês e julgará se elas estão corretas; (v) completar um questionário de múltipla escolha que medirá o seu conhecimento sobre frases em inglês. O tempo necessário para participar da pesquisa é de aproximadamente 90 minutos, divididos em duas sessões, que só ocorrerão caso você aceite participar da pesquisa e registre o consentimento neste formulário. Na primeira sessão, você utilizará em torno de 10 minutos para fazer a tarefa de vocabulário (item ii do parágrafo anterior) e 30 minutos para completar a tarefa de fala (item iii do parágrafo anterior). Já na segunda sessão, você utilizará em torno de 20 minutos para a tarefa de julgamento (item iv do parágrafo anterior), 15 minutos para a tarefa de conhecimento de frases em inglês (item v do parágrafo anterior), e 15 minutos para responder o questionário biográfico (item i do parágrafo anterior). Em decorrência da participação nesta pesquisa, você pode estar exposto(a) a eventuais riscos, mesmo que baixos, tais como ansiedade, nervosismo, constrangimento, cansaço ou aborrecimento inerentes a qualquer situação de avaliação, assim como a quebra de sigilo e privacidade, mesmo que de maneira involuntária e não intencional.

Para minimizar a possibilidade de desconforto, sessões de prática serão feitas antes da aplicação dos experimentos para que você possa se familiarizar com os procedimentos. Além disso, a coleta de dados se dará em duas sessões que ocorrerão em dias diferentes, e você poderá optar por fazer pequenas pausas durante as atividades. Como os experimentos serão realizados remotamente, orientamos que busque um local em sua residência que seja confortável e propício para a realização da coleta de dados. Recomendamos cadeiras confortáveis, iluminação e temperatura adequadas e posicionamento adequado do monitor do computador, de acordo com a sua altura a fim de se evitar e minimizar os desconfortos físicos associados a realização das tarefas. Com o objetivo de minimizar os riscos de quebra de sigilo e privacidade, o seu nome será omitido dos dados coletados, sendo substituído por um código. Ademais, todos os dados coletados e informações que possam levar a sua identificação, como endereço de e-mail e chave dos códigos de identificação, serão armazenados em arquivos criptografados aos quais somente os pesquisadores envolvidos neste estudo (Cesar Antônio Teló e Hanna Kivistö-de Souza) terão acesso. Os resultados desta pesquisa serão divulgados em eventos ou publicações científicas sem qualquer identificação dos participantes. Você poderá ter acesso aos resultados da pesquisa a qualquer momento entrando em contato com os pesquisadores. Você poderá, a qualquer momento e sem nenhum prejuízo, deixar de participar da pesquisa informando aos pesquisadores de sua decisão (o que pode ser feito através dos contatos abaixo). Se fizer isso, os pesquisadores descartarão todos os seus dados. De acordo com a legislação brasileira, sua participação é voluntária e não remunerada. A participação nesta pesquisa não acarreta, de forma alguma, em prejuízos ou em privilégios. No entanto, os participantes da pesquisa receberão um Certificado de Participação em Pesquisa e um feedback individualizado sobre seu desempenho nas tarefas. Os pesquisadores estarão à disposição para esclarecimentos, antes, durante e depois da pesquisa, comprometendo-se a garantir acompanhamento e assistência durante toda a pesquisa. Os procedimentos metodológicos adotados obedecem aos preceitos éticos implicados em pesquisas envolvendo seres humanos, conforme normatizado pela Resolução do Conselho Nacional de Saúde nº 510 de 07 de abril de 2016, que dispõe sobre as normas aplicáveis a pesquisas em Ciências Humanas e Sociais. Os pesquisadores deste estudo também aderem a esse documento e comprometem-se a conduzir a pesquisa de acordo com o que preconiza a referida Resolução. Além do mais, asseguramos que esta pesquisa e o presente Termo de Consentimento Livre e Esclarecido foram aprovados pelo Comitê de Ética em Pesquisa com Seres Humanos (CEPSH) da Universidade Federal de Santa Catarina. Para seu conhecimento: “O CEPSH é um órgão colegiado interdisciplinar, deliberativo, consultivo e

educativo, vinculado à Universidade Federal de Santa Catarina, mas independente na tomada de decisões, criado para defender os interesses dos participantes da pesquisa em sua integridade e dignidade e para contribuir no desenvolvimento da pesquisa dentro de padrões éticos” (<https://cep.ufsc.br/>). Para maiores informações, você pode contatar o CEPESH: Prédio Reitoria II, R: Desembargador Vitor Lima, nº 222, sala 401, Trindade, Florianópolis/SC, CEP 88.040-400. Contato: (48) 3721-6094, [cep.propesq@contato.ufsc.br](mailto:cep.propesq@contato.ufsc.br). Caso haja algum dano material ou imaterial, devidamente comprovado, advindo da pesquisa, este documento garante o reparo ao dano que deve ser pago de acordo com a Resolução 510/16. Caso a sua participação nessa pesquisa lhe traga alguma despesa, você tem direito a ressarcimento. Por favor, contate um dos pesquisadores para mais informações caso você precise de algum ressarcimento ou reparo de dano. Tendo qualquer dúvida sobre a pesquisa, você pode entrar em contato a qualquer momento com o pesquisador assistente Cesar Antônio Teló pelo e-mail [cesaratelo@gmail.com](mailto:cesaratelo@gmail.com) ou pelo telefone (48) 99136-1313. Alternativamente, você pode contatar a pesquisadora responsável pela pesquisa, Professora Dra. Hanna Kivistö-de Souza através do e-mail [hanna.kivistodesouza@gmail.com](mailto:hanna.kivistodesouza@gmail.com) ou pelo telefone (48) 3721-9288. O endereço profissional de ambos os pesquisadores é na sala 111 do prédio B do Centro de Comunicação e Expressão, Universidade Federal de Santa Catarina, Campus Reitor João David Ferreira Lima, s/n, Trindade, 88040-900, Florianópolis - SC, Brasil. Ao clicar no campo “Aceito participar da pesquisa”, você será redirecionado para uma seção onde informará o seu nome, RG e endereço de e-mail. Esse Termo será enviado automaticamente para o seu endereço de e-mail e para o endereço de e-mail do pesquisador assistente (Cesar Antônio Teló). A data e horário do envio ficam registrados automaticamente. Guarde cuidadosamente a sua via, pois é um documento que traz importantes informações de contato e garante os seus direitos como participante da pesquisa. Caso você não deseje participar da pesquisa, clique em “Não aceito participar da pesquisa”.