

UNIVERSIDADE DE LISBOA

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**ACQUISITION OF PHONOLOGICALLY
WEAK FUNCTION WORDS IN L2 ENGLISH BY
SPEAKERS OF L1 BRAZILIAN AND EUROPEAN
PORTUGUESE**

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List of abbreviations

ΔC - variability of consonantal intervals

%V – proportion of vocalic intervals

CV(%) – coefficient of variation

AE – American English

BE – British English

BP – Brazilian Portuguese

CP – clitic proportion

EP – European Portuguese

ESL – English as a second language

fnc – function word

L1 – first language

L2 – second language

PPh – phonologic phrase

PW – prosodic word

SLA – second language acquisition

SVO – subject, verb, object

VP – vowel proportion

Resumo

O presente estudo é dedicado à aquisição das formas fracas das palavras funcionais em inglês como segunda língua (L2) por falantes nativos de duas variantes de português que são diferentes em termos de ritmo e de sistema de vogais átonas, o português europeu (PE) e o português brasileiro (PB).

O objetivo principal da pesquisa foi verificar se existem diferenças na aquisição das formas fracas em inglês L2 por falantes de L1 PE e L1 PB. Como a maioria dos voluntários falantes de L1 português que participaram na pesquisa falam inglês americano (IA), esta foi a variante apresentada no estudo.

No quadro teórico, partimos da ideia de que as formas fracas contribuem para a redução vocálica que, por seu turno, faz parte do ritmo. Adotamos a abordagem ao ritmo sugerida por Ramus, Nespors & Mehler (1999). De acordo com este modelo, o inglês é uma língua acentual (Giegerich, 1992; Ramus, Nespors & Mehler, 1999; Roach, 2009; Ladefoged & Johnson, 2011; Carr, 2013), o PE é acentual em termos de variação dos intervalos consonânticos e silábico com relação à proporção dos intervalos vocálicos e o PB é silábico em termos de variação dos intervalos consonânticos e moraico com relação à proporção dos intervalos vocálicos (Frota & Vigário, 2001).

De acordo com Yuan (2010), Ordin, Polyanskaya & Ulbrich (2011) e Ordin & Polyanskaya (2014, 2015), o ritmo em L2 acentual se desenvolve do silábico para o acentual, e a velocidade e a profundidade desse processo dependem da L1 do falante. Li & Post (2014) especificam que alguns parâmetros do ritmo em L2 desenvolvem-se seguindo um padrão universal, enquanto outros, como a proporção do material vocálico, dependem da L1 do falante.

No sistema de acentuação, uma característica em comum entre IA, PE e PB é que a duração permite distinguir entre as vogais tónicas e átonas (McCully, 2009; Ladefoged & Johnson, 2011; Grant, 2014; Plag et al., 2011; Correia, Butler, Vigário & Frota, 2015; Mendes Cantoni, 2009).

A redução vocálica em inglês e em PE é mais forte do que em PB (Giegerich, 1992; Mateus & d'Andrade, 2000; Câmara, 1972; Wetzels, 1992; Mateus & d'Andrade, 2000; Bisol, 2000; Bisol & de Magalhães, 2004; Bisol, 2005; Bisol & Veloso, 2016).

Quanto às formas fracas, o inglês possui mais classes de palavras funcionais que podem comportar-se como clíticos do que ambas as variedades de português. Em particular, verbos auxiliares e modais em inglês possuem formas fracas e em PE e PB não (Selkirk, 1996; Vigário, 2003; Dixon, 2007; Hewings, 2007; Roach, 2009; Cruttenden, 2014; Toneli, 2014; Carley & Mees, 2019).

As formas fracas em inglês são clíticos simples (Zwicky, 1977). Uma palavra funcional pode ter várias formas que resultam de reduções sucessivas, cuja escolha não pode ser definida de uma maneira fácil (Ladefoged & Johnson, 2011). Em português europeu, as formas fracas de pronomes são clíticos especiais, as outras formas fracas são “bound words”, na aceção de Zwicky 1977 (Vigário, 2003). Em português brasileiro as formas fracas de pronomes são clíticos especiais, outras podem ser também da mesma categoria ou “bound words” (Toneli, 2014).

Em relação à posição dos clíticos, adotamos o ponto de vista de Lahiri & Plank (2011) de que 1) o fraseamento fonológico e sintático em inglês nem sempre coincidem, 2) em inglês predomina a ênclise. Assumimos que os pronomes objeto e os verbos auxiliares em frases afirmativas em inglês são enclíticos. Verbos auxiliares em perguntas e os determinantes são proclíticos (Selkirk, 1996; Dixon, 2007; Lahiri & Plank, 2011). A maioria das formas fracas - inclusive os artigos, as preposições e os pronomes preverbiais - em PE são proclíticos; apenas os pronomes fracos objeto em posição pós-verbal são enclíticos (Vigário, 2003). Em PB, os proclíticos também predominam, sendo os enclíticos pronominais cada vez mais raros na fala (Bisol, 2000; Toneli, 2014).

Com base do quadro teórico apresentado acima, supomos que:

- 1) Os falantes de L1 PE L2 IA não mostrarão necessariamente os resultados que podem ser esperados de falantes de uma L1 com ritmo puramente acentual;
- 2) Os falantes de L1 PE L2 IA serão mais próximos dos falantes de L1 IA em termos da redução das formas fracas em comparação com os falantes de L1 PB L2 IA;
- 3) Os falantes de L1 PE de nível mais avançado de L2 IA demonstrarão uma tendência mais forte para a redução nas formas fracas do que os falantes de nível menos avançado. Os falantes de L1 PB podem mostrar menos essa tendência.
- 4) Os falantes de L2 IA serão mais próximos dos falantes de L1 IA em relação à redução nas formas fracas dos artigos do que nos verbos auxiliares;
- 5) Os falantes de L1 PE L2 IA serão mais próximos dos falantes de L1 IA do que os falantes de L1 PB L2 IA em relação à redução nas formas fracas dos pronomes objeto.

Os participantes da pesquisa foram 5 grupos de falantes: 1) L1 IA; 2) L1 PE e L2 IA B1/B2; 3) L1 PE e L2 IA C1/C2; 4) L1 PB e L2 IA B1/B2; 5) L1 PB e L2 IA C1/C2.

Como material para a pesquisa, foram usados três textos em formato de diálogos curtos em inglês que contêm três categorias de palavras funcionais: o artigo indefinido (9), verbos auxiliares/modais (8) e pronomes objeto (8).

Os participantes leram os textos em voz alta. A sua leitura foi gravada em formato WAV e segmentada em Praat. Para cada participante foi medida a duração da palavra prosódica que contém o elemento de teste e a duração dos clíticos (elementos de teste). Em seguida, foi feita a

computação da proporção do clítico para cada PW e a proporção da vogal nos verbos auxiliares e pronomes objeto.

A análise de dados foi feita através de testes estatísticos em SPSS Statistics. De acordo com os testes de Kolmogorov-Smirnov e Shapiro-Wilk, os dados relacionados com a PC (proporção do clítico na PW) não apresentam uma distribuição normal. Os dados relacionados com a PV (proporção da vogal na PW) não apresentam uma distribuição normal para os verbos auxiliares, mas apresentam-na para os pronomes objetos. Os testes foram aplicados de acordo com estes resultados.

A análise de dados confirmou parcialmente a primeira hipótese, sendo que os falantes de L1 PE L2 IA exibiram menos redução em verbos auxiliares comparado com os falantes nativos de IA. Apesar de não apresentarem diferenças significativas relativamente aos falantes nativos no nível mais alto de L2 IA em relação ao artigo indefinido, eles mostraram alguma dificuldade quando o artigo surgiu combinado com palavras multi-silábicas.

O estudo mostrou que os falantes de L1 PE com o nível mais alto de L2 IA foram em geral mais próximos dos falantes nativos de IA do que os falantes de L1 PB com o mesmo nível, o que comprova a terceira hipótese. Entretanto, os falantes de L1 PB com o nível mais baixo apresentaram um comportamento mais próximo do dos falantes nativos nos resultados para o artigo indefinido do que os falantes de L1 PE com o mesmo nível. Assim sendo, a segunda hipótese foi comprovada apenas parcialmente.

Os verbos auxiliares foram a categoria de clíticos em que os falantes de L1 PE e L1 PB foram menos próximos dos falantes nativos, em comparação com o artigo indefinido, já que para os verbos auxiliares as diferenças foram encontradas independentemente do nível de L2. Assim, a hipótese quatro foi comprovada.

Os falantes de L1 PB com o nível mais alto de L2 IA mostraram significativamente menos redução vocálica em pronomes objeto comparado com os falantes nativos. Entretanto, as diferenças foram registradas apenas para o pronome *us* e não para o pronome *me*, o que significa que não podemos relacionar estas diferenças com a direção de cliticização em PB.

Considerando que os dados analisados no presente estudo foram limitados, podemos falar apenas com mais certeza sobre o caso dos verbos auxiliares. Julgamos que a ausência de formas fracas desta classe de palavras no português dificultou sua aquisição em L2 IA por falantes de L1 português. Supomos que um estudo com um maior número de participantes poderia esclarecer com mais precisão se a direção de cliticização em L1 tem impacto na aquisição das formas fracas em L2. Apesar de encontrarmos algumas diferenças entre os falantes de L1 PE e L1 PB em relação às formas fracas de palavras funcionais em L2 IA, seria necessário estudar mais casos para poder

concluir sobre o impacto do ritmo em L1 para aquisição das formas fracas em L2. Nesta altura, podemos dizer que houve algumas indicações nesse sentido.

Abstract

The present work is a study on acquisition of weak forms of function words in English as a second language by native speakers of European and Brazilian Portuguese. Considering that the two varieties of Portuguese differ from each other and from English in terms of rhythm patterns and unstressed vowel system, we supposed that reduction in the weak forms of function words in L2 English would be different for the speakers of L1 EP and L1 BP.

The participants were divided into five groups according to their L1 and the level of L2. There were two groups of participants with a lower and a higher level of L2 both for L1 EP and L1 BP. They were asked to read out loud three dialogues in English, the voices were recorded and the data was segmented in Praat. The materials contained three categories of clitics: the indefinite article, auxiliary verbs, and object pronouns.

The statistical analysis showed certain differences between the speakers of L1 EP and L1 BP and the native speakers of AE. On the whole, the speakers of L1 EP seem to show more tendency to reduction in the weak forms of English function words than the speakers of L1 BP. At the same time, the speakers of both varieties of L1 Portuguese had less tendency to reduction in auxiliary verbs than the native speakers of AE.

Keywords: second language acquisition, weak forms of function words, English, European Portuguese, Brazilian Portuguese.

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Introduction

The present work is a study on acquisition of weak forms of function words in English as a second language (L2) by native speakers of European and Brazilian Portuguese (EP and BP). Our special interest lays in the fact that the two varieties are different both from each other and from English in terms of rhythm patterns and unstressed vowel system.

Rhythm and vowel reduction in English are described and analysed to this or that extent in almost any serious work devoted to English Phonetics and Phonology and their teaching to students of English as a second language (ESL). Some of them are Giegerich (1992), McCully (2009), Roach (2009), Ladefoged & Johnson (2011), Carr (2013), Cruttenden (2014), and Carley & Mees (2019). However, these works are aimed mainly at advanced learners and/or teachers of English Phonetics and Phonology. When it comes to General English textbooks and courses, especially those designed for students at initial levels of language proficiency, little attention is given to vowel reduction, weak forms of function words and other aspects of prosody. This fact is noted by Lengeris (2012: 26) and Busà (2012: 101) among others. Grant (2014: 7-10; 16-17) observes as well that scant attention to prosody in teaching practice is in contrast with the increasing interest among researchers.

One of the areas of research that shows a growing number of experimental studies is rhythm acquisition of L2 English by speakers of mother tongues (L1) with different rhythm patterns. Some of the examples are the studies conducted by Yuan (2010), Ordin, Polyanskaya & Ulbrich (2011), Ordin & Polyanskaya (2014; 2015), where the participants were speakers of L1 German, Russian, French, Spanish and Italian.

Our study aims at contributing to the knowledge on rhythm acquisition in L2 English by speakers of L1 Portuguese (EP and BP) based on the latest research into rhythm types. The work is focused on weak forms of function words as an aspect of rhythm. For the fact that most speakers of L1 EP and BP who agreed to participate in the study speak L2 American English (AE), the research is devoted to this variety.

This contribution can be of interest for researchers that work in the field of Second Language Acquisition, for teachers of ESL, pronunciation trainers as well as for professionals

and commercial entities that provide services related to oral communication, such as call centres, customer support, tourist information and guiding.

There are two main questions that we aim at answering in our study:

1. Is oral production in L2 English by speakers of L1 EP and BP different in terms of weak forms of function words?
2. Is there any difference in the acquisition of weak forms of function words in L2 English by the speakers of L1 EP and BP?

To answer these questions, we will study oral production in English by five groups of speakers: 1) L1 AE, 2) L1 EP with lower level of proficiency in L2 AE, 3) L1 EP with higher level of proficiency in L2 AE, 4) L1 BP with lower level of proficiency in L2 AE, and 5) L1 BP with higher level of proficiency in L2 AE. The focus will be on the quantitative characteristics of their speech. Firstly, we will measure the clitic proportion (CP) in prosodic words (PW). Secondly, we will measure the vowel proportion (VP) in the clitics where appropriate. We will compare the groups using these two variables.

In our theoretical framework, we adopt the approach to rhythm classification suggested by Ramus, Nespór & Mehler (1999) and base it on the results for Brazilian and European Portuguese obtained within that approach by Frota & Vigário (2001). As for weak forms in English and Portuguese, the research is based on the findings by Zwicky (1977), Selkirk (1996), Dixon (2007), Lahiri & Plank (2011), Vigário (2003), Bisol (2000), and Toneli (2014) that suggest seeing them as clitics. The terms “second language” and “acquisition” are used in the same sense as in Ellis (2015), i.e. the acquisition of L2 English is seen as learning/acquiring English in both formal and informal contexts as a language that is different from the learner’s mother tongue.

Based on the characteristics of BP and EP in terms of vowel reduction, we expect that there will be certain differences in the speed of acquisition of this aspect in L2 English. More detailed hypotheses are developed in the first section where the theoretical framework is set. That chapter reviews experimental and theoretical work on rhythm and its acquisition in L2 unstressed vowel system, vowel reduction at the word level, strong and weak forms of function words in English and Portuguese (EP and BP). The aim of the chapter is to present the theoretical grounds for the hypotheses put forth and the method adopted in this study. In section 2, we give a more detailed description of the participants, the materials and the method of

collecting data. In section 3, we present the results of the statistical analysis. The conclusions are presented in section 4.

1. Theoretical framework

The concepts related to rhythm and its acquisition in L1 and L2 became the starting point for building the theoretical framework of this study, therefore these topics are the first to be presented in this section.

1.1 Rhythm and L2 acquisition

In subsection 1.1, we give an overview of the existent knowledge on rhythm and its significance in L2 acquisition and communication. Next, a summary on the recent research into rhythm acquisition in L2 and its patterns is presented, in particular, the findings concerning speakers of stress-timed L2. Finally, a description of rhythm in English, EP and BP is given according with the modern theoretical framework.

1.1.1 The role of rhythm in L1 and L2 acquisition

There is a body of research that highlights the crucial role of rhythm in L1 acquisition. As follows from a study by Nazzi, Bertoni & Mehler (1998), rhythm serves as the basis for language discrimination in newborns. Their study consisted in testing the ability of infants to discriminate between unfamiliar languages depending on their rhythm patterns. Four groups of L1 French infants aged 2 to 5 days heard sequences of sentences in stress-timed (English and Dutch), syllable-timed (Spanish and Italian) and mora-timed (Japanese) languages read by native speakers. The sentences were filtered so that the infants would be exposed to suprasegmental information only. The measurements of high-amplitude sucking rates showed that infants successfully discriminated between two languages with different rhythm patterns (English and Japanese), but failed when both languages had similar rhythm patterns (English and Dutch). The combination of languages during the familiarization and the test phases also had an impact on the results. The group of infants who first listened to two stress-timed and then to two syllable-timed languages (or vice versa) noticed the change. The other group, that was first familiarized with two rhythmically different languages and then heard another two rhythmically distinct languages, didn't react to the change. The authors concluded that the

information related to language rhythm serves as an important cue for language discrimination in infants.

In further research Ramus, Houser, Miller, Morris & Mehler (2000: 349-351) studied the ability of language discrimination in human newborns and primates. It showed that both human newborns and top-cotton tamarin monkeys could distinguish between unfamiliar languages based on rhythm. However, this ability decreased in primates when the speech was resynthesized, which can mean more sensitivity to segmental rather than prosodic cues. On the contrary, resynthesized speech facilitated the discrimination between the languages for the human newborns. Thus, newborns rely on prosodic cues to discriminate between languages to a larger extent than on segmental ones. This fact also supports the idea that the ability to discriminate between languages based on prosodic cues is unique to humans and plays an important role in language acquisition.

Gervain & Mehler (2010) observe that the infants' ability to distinguish between unfamiliar languages serves as the foundation for L1 acquisition, together with other abilities, such as the ability to discriminate between most existent phonemes (with reference to Dehaene-Lambertz & Dehaene 1994, Eimas et al. 1971, Werker & Tees 1984b), to recognize word boundaries following acoustic cues (with reference to Christophe et. al. 1994), to distinguish between words with different word stress (with reference to Sansavini et al. 1997), and to distinguish between content and function words (with reference to Shi et. al.1999). The prosodic characteristics of the speech heard by an infant trigger statistical computations that target certain units of speech. When the speech is segmented, the rules of extraction and generalization begin to act. These mechanisms complement each other in L1 acquisition.

Post & Payne (2017) observe that, notwithstanding the fact that rhythm is a complex phenomenon that stimulates discussion among researchers, its role in L1 is crucial as it serves to perceive segmentation and thus is essential for the acquisition of lexicon and syntax. Besides, it fits both nativist and non-nativist approaches.

Being so, it would also be reasonable to question whether rhythm may perform similar functions and have a similar significance for L2 acquisition. An experiment conducted by Campfield & Murphy (2013) suggests that it is possible to be so. Their research involved three groups of 8-year-old Polish learners of L2 English. Two groups of children had additional 12 hours of English classes. The first group of children was exposed to rhythm salient input, such

as nursery rhymes, and the second group was exposed to prose. The control group did not have any interventions. The researchers tested the acquisition of word order and function words in the view that none of the groups had any explicit training on these. The experiment showed that word order acquisition is more successful when learners receive rhythm salient input. Although it did not make much difference for function words acquisition, apart from some prepositions, on the whole, it was possible to conclude that appropriate rhythm input does seem to provide important clues for the acquisition of grammar and lexicon in L2.

Another study by the same researchers followed in 2014 and supported previous results. Campfield & Murphy (2014) emphasize that, in context of formal education, young learners of L2 English rarely receive as much input denoted as rhythm-salient as is the case of native speakers of English. They suggest that such input, with greater distinction between stressed and unstressed syllables, may benefit young learners of L2 English and lead to better structural knowledge of the language. The study involved Polish children at the age of 8 years and 4 months. One group of learners was exposed to rhythm-salient input in English such as nursery rhymes, another to prose and one more served as a control group. The control group had more regular classes of English to compensate for the intervention. The results of the test that consisted in elicited imitation showed that the learners from the first and the second group were more fluent and accurate than those from the control group, their structural knowledge of L2 English was concluded to be better. The most significant difference was that between the children from the first group and the control group. Thus, it was inferred that rhythm salient input is beneficial for young beginner learners of L2, confirming the previous study.

As to the role of rhythm for L2 acquisition by adults, Campfield & Murphy (2014) refer to Vanderplank (1993), who demonstrated that explicit rhythm training in L2 English is beneficial for adult learners.

1.1.2 The role of prosody and rhythm in L2 communication

Let us now turn to the role of prosody and rhythm in L2 communication. In this respect, prosody and its aspects, including rhythm, have been the focus of attention for a number of authors, especially those addressing their works to L2 teachers.

One of the reasons for such close attention is that prosody is related to the level of the speaker's intelligibility and comprehensibility, which, according to Derwing & Munro (2014: 44-45), should be the main focus of modern pronunciation teaching in L2.

Intelligibility in this context is defined in Munro & Derwing (2011: 478-480) as the ability of the speaker to be understood, i.e. an utterance is intelligible if it is understood by the listener.

An example of problems with intelligibility caused by misuse of strong and weak forms of function words is given by Grant (2014: 32). An ESL student intended to indicate the time of a meeting as *three to five* but used the strong form of the preposition and the teacher that he addressed understood it as the number of the room where the meeting would take place, *three two five*.

As for comprehensibility, according to Munro & Derwing (2011: 478-480), it reflects the listener's judgement about the easiness or difficulty in understanding the speaker. It is rather related to time and effort spent than the final result. Thus, comprehensibility is a perceptual parameter. Perception of L2 speech may include other parameters, such as accentedness defined by the authors as the degree to which the speaker's pronunciation is different from that in some local variety. Accentedness does not necessarily lead to lower intelligibility or comprehensibility. However, the research indicates that unintelligible speech is always perceived as accented as well. There are other authors who discuss the perceptual consequences of non-native patterns in L2 speech, in particular in prosody. Ladefoged & Johnson (2011: 111), for instance, characterize oral production of a speaker who does not use weak forms and assimilations sufficiently as stilted, i.e., too formal, unnatural and not smooth.

Busà (2012: 101), Lengeris (2012: 25-26), Derwing & Munro (2014: 44-45), and Grant (2014: 25), argue that prosody contributes to intelligibility and comprehensibility of L2 speech to a larger extent than segmental elements. The negative consequences of using "non-native prosodic patterns" may lead the speaker to convey unintended meaning and produce a wrong image, creating negative contexts for their social and professional life (Busà 2012: 101).

The second reason to suppose that rhythm plays a significant role in SLA comes logically from the first and from the fact that a higher level of proficiency in pronunciation means better decoding of oral speech (Grant 2014:16). A speaker of L2 who manages to acquire

successfully the aspects of its prosody has more chances to be understood and at the same time has a better understanding of oral production in that language.

It is interesting to note that this relation also works in the opposite direction. According to Derwing & Munro (2014 in Grant 2014: 45), improvement of oral perception may give a positive effect on oral production in terms of pronunciation. This fact is illustrated with an experiment made by Bradlow, Pisoni, Akahane-Yamada, and Tohkura in 1997 that consisted in training a group of speakers of L1 Japanese to discriminate between /r/ and /l/ in L2 English. As a result of that experiment, the subjects not only became more effective in perception of those phonemes but also improved their pronunciation, although the training did not involve any work on oral production. We may suppose that a similar effect is possible for the suprasegmental level as well.

1.1.3 Rhythm acquisition in L2

A number of studies provide evidence of transfer from L1 to L2 in rhythm acquisition.

According to Yuan (2010), the rhythm in L2 English produced by the speakers of stress-timed and syllable-timed L1-s is different. The representatives of the first group (L1 Russian and German) demonstrated characteristics that were closer to native English speakers than those of the second group (L1 French, Italian and Spanish). At the same time, Yuan (2010) observes that all speakers of L2 English on average had shorter stressed vowels and longer unstressed vowels if compared with speakers of L1 English. On the one hand, this study supports the idea of transfer from L1 to L2 in rhythm acquisition. On the other hand, it indicates that even speakers of stress-timed L1-s would still be different from native speakers of an L2 with the same rhythm type in terms of stress-timing.

Ordin, Polyanskaya & Ulbrich (2011) undertook a study into rhythm development in a stress-timed L2 for the speakers of a stress-timed L1. The experiment involved 51 speakers of L1 German and L2 English with different levels of proficiency. The speakers were divided into groups of 3 levels: lower-intermediate, intermediate and advanced. The method of study applied in the experiment was based on the measurements of durational characteristics of syllables and calculations of consonantal and vocalic intervals, which makes it especially relevant for our work (see part 1.1.4). The results indicate that advanced speakers of L2 English and L1 German

have more tendency to stress-timing and their rhythm patterns are more consistent than it was registered for lower-intermediate and intermediate speakers.

Another study by Ordin & Polyanskaya (2014) aimed at comparing the development of stress-timed rhythm in L1 and L2. It showed that in both cases it develops from syllable-timed to stress-timed.

Further, Ordin & Polyanskaya (2015) undertook research into rhythm acquisition in a stress-timed L2 that would compare its development for the speakers of a stress-timed L1 (German) and a syllable-timed L1 (French). The experiment confirmed previous findings in that the speakers of L1 German moved from syllable-timed to stress-timed rhythm patterns in L2 English. Their results for developmental stages are similar to those of the speakers of L1 French. These conclusions indicate that rhythm in a stress-timed L2 develops from syllable-timed to stress-timed independent of the rhythm patterns in the speaker's L1. However, the speakers of L1 German achieved more proximity to the characteristics of native English speakers than the speakers of L1 French.

This body of research adds to the study conducted by Yuan (2010), who, as it was previously mentioned, notes that 1) there is a transfer of rhythm from L1 to L2, and 2) both speakers of syllable-timed and stress-timed mother-tongues had shorter stressed vowels and longer unstressed vowels in a stress-timed L2 than it was demonstrated by native speakers. In sum, it implies that rhythm in a stress-timed L2 probably develops from syllable-timed to stress-timed, and the speed of that process, as well as the depth of changes, depends on the speaker's L1.

Additionally, a study into rhythm acquisition in a stress-timed L2 by Li & Post (2014) suggests that some of rhythm parameters may follow universal patterns of development, while others are subject to transfer from the learner's L1. The study involved speakers of a stress-timed L2 (American English, AE) and a) a syllable-timed L1 (Mandarin), b) a stress-timed L1 (German). The speakers were divided into groups according to their L1 and the level of proficiency in L2 (B1 or C1 within CEFR). Their oral production was compared with that of native speakers of AE. The results of the study showed that vocalic variability, and final and accentual lengthening in L2 take universal paths of development. The proportion of vocalic material was shown to be influenced by transfer from the speakers' L1.

Based on the studies presented above, we suppose that the acquisition of rhythm in a stress-timed L2 may differ depending on the learner's L1 and its rhythm. The speakers may acquire rhythm in a stress-timed L2 sooner or later depending on the rhythm type of their L1. The differences in rhythm acquisition may also be related to its level (or depth). The acquisition of weak forms in particular may contribute to the proportion of vocalic material.

In this work, we analyse oral production in L2 English by native speakers of two Portuguese varieties that are different in terms of rhythm patterns both from English and from each other. In the following subsection, we describe the rhythm of each language and language variety and the theoretical grounds for the rhythm classification that was adopted in our research.

1.1.4 Rhythm in English, EP and PB

English is traditionally described as a stress-timed language, this classification can be found in Giegerich (1992), Roach (2009), Ladefoged & Johnson (2011), and Carr (2013). It has not changed since it was first introduced by Pike in 1945 (Ramus, Nespov, & Mehler 1999). However, the above-mentioned authors use the notion of stress-timing based on isochrony. According to this view, as stated in Giegerich (1992: 258-259), rhythm type in languages depends on “certain identifiable phonetic events” that “recur at roughly isochronous intervals”; in syllable-timed languages these phonetic events are syllables and in stress-timed languages, they are feet.

The idea of isochrony as applied to rhythm in languages was challenged by a number of studies showing that it can be strictly applied neither to stress-timed languages nor to syllable-timed, as observed in Ramus, Nespov & Mehler (1999). This research was undertaken on the basis of previous findings 1) by Dasher & Bolinger (1982), who suggested that rhythm in languages is related to their specific phonological characteristics, 2) by Dauer (1983), who notes that the most important phonological characteristics to take into consideration are the syllable structure and vowel reduction, and 3) Mehler et al. (1996), who propose that speech perception in newborns is centred on vowels and an infant perceives it as a sequence of vowels interrupted by noise (consonants). The results of the study showed that the proportion of vocalic intervals (%V) and the variability of consonantal intervals (ΔC) within the sentence are two

parameters related to the perception of rhythm classes. Stress-timed languages show lower %V and higher ΔC in comparison with syllable-timed languages.

An approach similar to that of Ramus et al (1999) was applied in research into correlates of rhythm distinction in European and Brazilian varieties of Portuguese by Frota & Vigário (2001). It indicates that the latter are mixed languages, each demonstrating patterns of two rhythm classes at the same time. EP was classified as stress-timed in relation to ΔC and syllable-timed in relation to %V. This conclusion cancels earlier classifications of EP as a stress-timed language. As for BP, it was classified as syllable-timed regarding ΔC and as mora-timed regarding %V. Further on we hold to this classification.

Taking into consideration the findings presented above, we suppose that acquisition of rhythm in L2 English would differ for speakers of L1 EP and L1 BP. In this work, we concentrate on weak forms of function words, which in their turn are related to vowel reduction, an aspect contributing to speech rhythm. We suppose that 1) the speakers of L1 EP will not necessarily demonstrate the results that could be expected from speakers of a purely stress-timed L1, as EP does not show stress-timed patterns concerning vocalic intervals, 2) the results for the speakers of EP and BP will differ; in particular, we expect certain differences in the speed and depth of L2 English rhythm acquisition for the native speakers of these two varieties of Portuguese.

As we focus on the acquisition of weak forms of function words in English L2 by the learners whose native language is EP or BP, our next step is to present their description of these in English, EP and BP, which shall serve as the basis for more detailed hypotheses.

1.2 Reduction in function words - Clitics

In this subsection we summarize the main theoretical findings that served as the basis for the description of weak forms in English, EP and BP.

In the framework of our study, weak forms of function words will be discussed as clitics. Among the authors whose publications are crucial in this respect are Zwicky (1977) and Selkirk (1996).

Zwicky (1977) classified clitics into three types in terms of their phonological proximity to the original strong form, their position in the sentence and the relation with

adjacent words. According to the author, there are simple clitics, special clitics and bound words.

Both simple and special clitics are unstressed bound forms of free morphemes. They coexist in the language with their strong forms, the latter being used mainly in the context of emphasis or in isolation. Simple clitics are phonologically reduced versions of the strong forms and the phonological relation between the two can be easily noted. Special clitics are different in that their phonological relation to the strong form is not obvious. Another difference is that simple clitics take a regular position in a sentence, while it is not always true for special clitics. Besides, special clitics can be used together with their strong versions within one sentence. Both simple and special clitics are subordinated to an adjacent word. The author notes that the fact that special clitics are not always in a regular position in the sentence is related to their tendency to take a certain position in relation to a word of a specific category. For example, the French pronouns *me*, *le* always precede the verb even though the word order in this language is SVO. Compare examples (1) and (2) given in Zwicky (1977: 3-6):

(1) *Je vois Jean.*

I see Jean

(2) *Je le vois.*

I him see (I see him).

Bound words, that represent the third type of clitics in Zwicky (1977: 6-7), are defined as morphemes that are always bound to the adjacent word and are always unstressed but still have syntactic freedom. Bound words are exemplified with the English possessive morpheme, which is related semantically to the noun phrase and tends to appear at its end, as shown by the author:

(3) *Germany's defences;*

The Queen of England's hat;

The woman I talked to's arguments;

The woman I interviewed's arguments.

Zwicky (1977) raises the question of the direction of cliticization. The author observes that some simple clitics may be both enclitics and proclitics, i.e. precede or follow the word they depend on. As for special clitics and bound words, they tend to appear in certain positions in the sentence. This topic is analysed in more detail in Selkirk (1996). Endoclititics are discussed in Zwicky (1977) as well, but they are not the focus of our work and thus are left out of this review.

Selkirk (1996) suggests a classification of clitics that reflects their relationship with the host. In this context, clitics are defined as morphosyntactic words that are not prosodic words on their own but are “organized” into ones. In this way, the author describes three types of clitics: free clitics, affixal clitics and internal clitics. Their relation to the host is represented and classified in the following way, where, respectively, the clitic function word (fnc) may directly attach to the phonological phrase (PPh) that includes the following prosodic word (PW), it may incorporate into the host PW, or it may become an adjunct to the following PW:

- (4) ((fnc (lex)_{PW}))_{PPh} - free clitic;
- ((fnc lex)_{PW})_{PPh} - internal clitic;
- ((fnc (lex)_{PW})_{PW})_{PPh} - affixal clitic.

As observed in Toneli (2014:98), function words in different languages may differ in terms of phonological patterns. In subsection 1.3 we give an overview of vowel reduction and such patterns in English.

1.3 Vowel reduction and weak forms in American English

In this subsection, we will first look at how stressed syllables are produced, at the difference between the stressed and unstressed syllables, the degrees of stress, the general patterns of stress at the word level in AE, and vowel reduction at the word level. Then we will focus on weak forms of function words in AE.

1.3.1 Stress and vowel reduction at the word level in AE

Different authors list various factors that permit producing a stressed syllable in English.

The acoustic correlates of English stress mentioned independent of the language variety are loudness, pitch, duration (McCully 2009: 67; Ladefoged & Johnson 2011: 11; Grant 2014: 23), fundamental frequency (McCully 2009: 67), greater energy and effort made (Ladefoged & Johnson 2011: 111). It is notable that despite listing different acoustic correlates of English stress, all the authors see duration as an important one. As for American English specifically, Carley & Mees (2019: 4-5) describe a stressed syllable only in terms of greater energy and effort made, seeing these parameters as the most significant. According to Plag et al. and therein (2011: 363-364) all the above-mentioned parameters permit distinguishing between stressed and unstressed syllables in American English.

Within an English word, a syllable may carry primary stress, secondary stress, or to be unstressed (Giegerich 1992: 179-181; McCully 2009: 71; Ladefoged & Johnson 2011: 114-116; Carr 2013: 164-170). This is not different for American English (Plag et al. and therein 2011: 363-364; Carley & Mees 2019: 4-5).

As for the general patterns of English lexical stress, in this work we do not aim at calculating it, but rather at seeing how stressed and unstressed syllables are distributed in English words. Here we adopt the principles related to English lexical stress stated in Carr (2013: 170-173), the transcription is given according to online Cambridge Essential American English Dictionary (as of 10.11.2020):

- 1) The primary stress in English is calculated from the end of the word and normally falls on the ultimate, penultimate or antepenultimate syllable, e.g. *Japanese* [ˌdʒæp.ənˈiːz], *spider* [ˈspaɪ.də], *cinema* [ˈsɪn.ə.mə];
- 2) English words can begin with no more than one unstressed syllable and may have up to four unstressed syllables at the end;
- 3) The second principle is kept in polysyllabic and derived words with the help of secondary stress. The latter tends to fall on the syllable that carries primary stress in the word from which it was derived, e.g. *character* [ˈker.ək.tə] – *characterization* [ˌker.ək.tə.rəˈzeɪ.ʃən];
- 4) There cannot be two adjacent stressed syllables.

Vowel reduction in English occurs not only as a result of connected speech but also at the word level, i.e. even citation forms demonstrate vowel reduction (Giegerich 1992: 66-69), which makes the above-mentioned important in terms of understanding its patterns.

On the one hand, as mentioned by Ladefoged & Johnson (2011: 97; 116), unstressed syllables in English can either contain a reduced vowel or a full one, and it is not always easy to calculate where vowel reduction will occur and where not. For instance, the vowels in the final syllables of *postman*, *bacon* and *gentleman* are reduced, while in *mailman*, *moron* and *superman* they are not, which is explained by the difference in time during which these words have been in common use. On the other hand, full vowels are less common in unstressed positions, and the number of vowels that may occur in such positions is very limited (Carley & Mees 2019: 127).

As for the full vowels in positions that are traditionally considered unstressed, some authors question the fact that they do not carry any stress. Giegerich (1992: 179-181) argues that such vowels carry at least a secondary stress. According to the author, it is true even for disyllabic words like *lampoon*. Its transcription then would be [ˌlæmˈpuːn] and not [læmˈpuːn]. Similarly, Cruttenden (2014: 158) claims that such syllables carry a degree of stress described by the author as weak.

To avoid any ambiguity related to stressed and unstressed English syllables, and as we do not intend to discuss English lexical stress in all its complexity in this work, we will adopt the terms “weak” and “strong”. Some authors, such as Roach (2009: 64-72) describe strong syllables as those that contain a full vowel without necessarily being stressed. Within this approach, weak syllables are always unstressed and contain reduced vowels or syllabic consonants. Such classification permits focusing either on full or reduced forms. Carley & Mees (2019: 127) in their description of American English pronunciation apply the terms “strong” and “weak” to vowels that typically occur in stressed and unstressed syllables respectively, the first normally containing full and the latter reduced vowels.

Carley & Mees (2019: 201-204) list the following vowels as weak [ə] (schwa), [ɚ] (schwar), [ɪ], [ɪ], [u], and [ʊ]. [ɪ] and [ʊ] are mentioned as vowels that are possible but are much less common in unstressed positions. Weak syllables may also contain syllabic consonants: syllabic [l], [n], and [m]. Sequences of syllabic consonants are possible.

Schwa is universally seen as the most common weak vowel in English, whether British or American. Unstressed vowels are normally reduced to [ə] (Giegerich 1992: 68; McCully 2009: 67; Roach 2009: 65; Cruttenden 2014 and therein: 138-139, 158; Grant 2014: 23; Carley & Mees 2019: 201).

Traditionally, especially in descriptions by British authors, schwa is related exclusively to unstressed positions (Carr 2013: 67). In North-American literature that describes American English pronunciation, such as Carley & Mees (2019) or Merriam-Webster Dictionary (as of 10.11.2020), schwa is seen as a sound that can be stressed or unstressed. Szigetwari (2018) shares this position in relation to schwa in British English too. However, within that approach, the stressed schwa is described as a sound whose quality is different from that of the unstressed schwa. The stressed schwa corresponds to [ʌ] (Carley & Mees 2019: 127, 146-147, 201; Szigetwari 2018). In the framework of our study, we follow the traditional stand, as, whether [ə] should be paired with [ʌ] as its full pair vowel, or not, it does not cancel the fact that the “unstressed schwa” is a reduced sound and, as it was mentioned above, any English vowel can be reduced to it.

According to Ladefoged & Johnson (2011: 97-98), [ə] falls in the range of vowels with “central, reduced quality”. Carley & Mees (2019: 148) describe it as a mid, central, unrounded vowel.

As for its positions within a word, schwa may be found at the beginning, in the middle and at the end of it both in British and American English (Giegerich 1992: 66-69; Roach 2009: 64-72; Carr 2013: 67; Carley & Mees 2019: 148-149). It can be illustrated by examples taken from Carley & Mees (2019: 148-149), where the underlined vowel is pronounced as [ə]:

- (5) first syllable: adore, suggest;
- (6) in the middle: autograph;
- (7) last syllable: pizza, circus, carrot.

As follows from the general patterns of word stress presented above, sequences of unstressed syllables are possible in English. Consequently, sequences of syllables with a reduced vowel are possible as well. Below are some examples of words containing multiple syllables with [ə] taken from Carley & Mees (2019: 148-149):

- (8) adequate, cathedral, asparagus.

[ə̃] (also described as “unstressed schwa”) has the same quality as [ɚ] (also described as “stressed schwa”) but the first is shorter. This sound is an r-coloured variation of [ə] and is a short, mid, centred, unrounded vowel. It may occur in the first, medial or final syllables. Words with multiple syllables containing [ə̃] are possible, which can be illustrated by the examples in Carley & Mees (2019: 150-154):

- (9) first syllable: *forget*;
(10) in the middle: *interview*;
(11) final syllable: *anger*, *actor*;
(12) multiple [ə̃]: *performer*, *murderer*.

[ɪ] (also described as “unstressed [i]”) in American English has the same quality as [i:] (also described as “stressed [i]”) and is only possible word-finally as in *happy* or *valley*, or before vowels as in *memorial* (Carley & Mees 2019: 127, 155-159).

[u], [ʊ], and [ɪ] are rare in unstressed positions and are not different in quality from their stressed equivalents (Carley & Mees 2019: 137-140, 159-162, 201-202).

Syllabic consonants tend to occur word-finally and in many cases are an alternative for [ə] + consonant, i.e. occur when schwa is omitted. For example, such words as *bottl* and *buttŋ* can be pronounced as [bɑ:tl̩] and [bʌŋ̩] instead of [bɑ:təl] and [ˈbʌtən] respectively (Carley & Mees 2019: 202-204).

1.3.2 Reduction, weak and strong forms of function words and direction of cliticization in AE

The category of English function words includes determiners, prepositions, conjunctions, auxiliary and modal verbs, personal, relative pronouns and object pronouns, possessive adjectives, complementizers, and other types of particles. Monosyllabic function words may occur both in their strong (full, unreduced) and weak (reduced) form (Selkirk 1996).

These two observations are true both for British (Dixon 2007: 574-575; Hewings 2007: 48-51; Roach 2009: 89-96; Cruttenden 2014: 273-274) and American English (Carley & Mees 2019: 205-217).

According to Cruttenden (2014: 273-274), some disyllabic function words (conjunction *because* and reflexive pronouns *herself, himself, themselves, yourself, yourselves*) have weak and strong forms as well, but their number is limited. Carley & Mees (2019: 205-217) do not mention the same for AE. However, according to online Cambridge Essential American English Dictionary (referred to 16.01.2021), reflexive pronouns *herself* and *themselves* have a weak form in American English as well. We suppose that it can be true for other reflexive pronouns.

Based on Carley & Mees (2019: 205-217) and the above-mentioned, we present a table of function words that commonly have weak forms in AE:

Table 1. Clitics in AE.

functional categories	monosyllabic	disyllabic
definite articles	<i>the</i>	
indefinite articles	<i>a, an</i>	
determiners	<i>some</i>	
conjunctions	<i>as, and, but, or, than, that</i>	
prepositions	<i>as, at, for, from, of, to</i>	
infinitival complementizer	<i>to</i>	
personal pronouns	<i>he, she, we, you</i>	
object pronouns	<i>her, him, them, us, you</i>	
relative pronouns	<i>that</i>	
reflexive pronouns		<i>herself, himself, themselves, yourself, yourselves</i>

possessive adjectives	<i>her, his, your, their</i>	
adverbs	<i>as, there</i>	
auxiliary verbs	<i>am, are, do, does, can, could, have, has, had, must, shall, should, was, were, would, will</i>	

Additionally, according to Carley & Mees (2019: 216) such function words as *I, my,* and *so* may be weak, but it is seldom among the speakers of AE. Therefore, we did not include them in the table.

The vowel that occurs in most weak forms of AE function words presented in the table above is [ə]. The r-coloured schwa or schwar [ɚ] occurs in such words as *are, her, herself, your, their, for* and others that contain letter “r” before vowel in writing. Other vowels are rarer in such forms. They are [ɪ] (in *is, him, his*), [i] (in *he, she, we* and in *the* before vowels), and [u] (in *you* and *do* before vowels) (Carley & Mees 2019: 205-217).

As for the types of clitics, the choice of weak or strong forms of function words and the direction of cliticization that will be discussed below, no differences between British and American English were mentioned in the literature used in our study. For this reason, we will refer to the description of these phenomena as universal for the two varieties of English.

According to the classification suggested by Zwicky (1977: 10-11), most English weak function word forms fall into the category of simple clitics. The researcher claims that all the possible sources of clitics suggested in their work, have corresponding examples in the form of simple clitics in English.

As it was mentioned in section 1.2, simple clitics have a straightforward phonological relation to their strong forms and undergo reduction and deletion in the same way as most unstressed syllables. As a result, some English clitics have versions with successive reductions and deletions (Zwicky 1977; Dixon 2007: 578). One of the examples is the auxiliary verb *can*, that allows at least four variants of pronunciation (Zwicky 1977: 26):

- (13) *can* - [kən], [kɚ], [kɪ], [ʔɪ].

Although Zwicky (1977: 26) observes that we may expect reduction and deletion in simple clitics to occur under the same conditions as in the unstressed syllables of content words, Ladefoged & Johnson (2011: 109) note that it is not always possible to say which version of this or that weak form should be used in each particular case. There may be certain guidelines but they do not give a definite answer.

One of such guidelines is the influence of the adjacent sounds. For instance, the conjunction *and*, which, similar to *can*, has several versions of weak forms, tends to drop its vowel when it follows words ending with an alveolar consonant, e.g. in *cat and dog* or *his and hers*, although it is not something that happens invariably (Ladefoged & Johnson 2011: 109). Other function words tend to be influenced by the initial phoneme of the word on their right. They are the definite article *the*, the preposition *to* and the auxiliary verb *do*. All these function words undergo a lower degree of reduction when they precede a word beginning with a vowel, as exemplified in (14) (Ladefoged & Johnson 2011: 110; McCully 2009: 69; Roach, 2009; Carley & Mees 2019: 211, 213, 215).

- (14) *the*: [ði] before vowels vs [ðə] before consonants;
to: [tu] before vowels vs [tə] before consonants;
do: [u] before vowels vs [də] before consonants.

Carley & Mees (2019: 211, 213, 215) suggest that the function words mentioned in (14) can be considered not to have a weak form when preceded by a word beginning with a vowel.

An important fact about English function words is that weak forms are predominant. The strong forms are only used in some contexts. They are contrast, emphasis, citation and phrase-final position (Selkirk 1996; Roach, 2009; Ladefoged & Johnson 2011: 109).

According to Selkirk (1996), English function words act as prosodic words when they are strong and as free clitics when they are weak. As for the direction of cliticization, the views on it have been changing.

For Selkirk (1996) most weak function words in English are proclitics. The researcher observes that, if less frequent and more specific contexts such as emphasis, citation and contrast are excluded, the main factor that makes English function words act as prosodic words or as clitics is their position in the phrase. Most function words in this language are weak when they

are followed by a content word. Here is an example that illustrates Selkirk's approach (the author's symbol used for reduced vowels was substituted by underlining):

(15) *Diane can paint her portrait of Timothy at home. But she found that the weather was too hot for painting.*

In the model suggested by Selkirk (1996), the prosodic and the syntactic phrasing coincide. It can be illustrated by this sentence given by the author, where *at* is phrase-final both in terms of syntax and prosody:

- (16) a. [What did you VP[look PP[at]PP]VP last time]
 b. PPH(What did you look at)PPH PPH(last time)PPH

According to Selkirk (1996), the only type of function words that may behave as enclitics in English are object pronouns. The author concludes that English object pronouns following a verb may both occur in their strong or weak form. The weak forms of object pronouns were classified as affixal clitics. These are some combinations verb + object pronoun where the author compares the latter to content words with similar reductions:

- (17) *need him, them* ≈ *Needham* [nidm];
will it ≈ *billet* [bîlît];
stroke her ≈ *stroker* [strokr];
feed us ≈ *fetus* [fidîs];
gimme (give me) ≈ *Jimmy* [dzimi];
see you ≈ *Mia* [mij].

Further research supports the idea that English object pronouns in their weak forms behave as enclitics. Dixon (2007: 597-598) uses transitive phrasal verbs to illustrate it. Different from nouns, object pronouns do not permit moving the preposition of the phrasal verb to the left in phrases like *put something off*. It is possible to say *the manager put the meeting off* and *the manager put off the meeting*, but only one option is possible when the object of the phrasal

verb is a pronoun: *the manager put it off*. The object pronoun cannot be separated from the verb, because the first is an enclitic and the second is its host.

As for other function words, Dixon (2007) extends the category of enclitics, adding to it the weak forms of auxiliary verbs. According to the author, they normally behave as enclitics in affirmative sentences. The exception is the auxiliary verb *are* that acts as an enclitic when the subject is a pronoun and as a proclitic when the subject is not a pronoun. In questions, *are* behaves as a proclitic, the same is true for *do* and *does*. The negative particle *not* is classified by Dixon (2007) as an enclitic as well.

Later research by Lahiri & Plank (2011: 370-394) suggests that enclisis is predominant in English. Their analysis is based on the fact that Germanic languages, including English, had tendency to form enclitics and not proclitics throughout their history. In particular, inflexion in Germanic languages is normally suffixal and not prefixal, with some suffixes having developed from enclitics. One of the examples is the English suffix “ed” denoting past tense. It developed from a verb that used to act as an enclitic. As for function words preceding content words, they didn’t lead to similar results and weren’t productive in terms of inflexion.

According to Lahiri & Plank (2011: 380-381), English auxiliary verbs have a tendency common to several Germanic languages, where in combinations of two function words following one another, the second word becomes part of the first over time. The English particle *not* following auxiliaries in their negative form is an example of that tendency. It loses its vowel and joins the stem of the auxiliary verb, as illustrated by the authors:

(18) is-nt, wasn-t, have-nt, does-nt, would-nt, etc.

The tendency described above serves as a good explanation for the fact that modal and auxiliary verbs *am, are, is, was, were, can, could, do, does, have, has, had, shall, must* and *should* are strong in their negative forms, as it is said in Roach (2009: 94-96). In this case, the auxiliary precedes the other function word or incorporates it. Some of these verbs, such as *will, would, am, is, are, have, and had* act as enclitics in the affirmative form. They drop the onset consonant (if there is one) and their vowel to join the preceding word. The same happens with the auxiliary *have* when it follows *should* as shown in Lahiri & Plank (2011: 386):

(19) *will - 'll, would - 'd, am - 'm, is - 's, are - 're, have - 've, had - 'd;*

(20) *should have come - [əv].*

As for the fact that the above-mentioned auxiliary verbs are strong phrase-finally, in our opinion, their prosodic status can be explained not only by their position. In such cases, the “auxiliary” is normally the only verb in the phrase. That means it acts as the main verb and not as an auxiliary or modal verb. Remarkably, describing such contexts, Carley & Mees (2019: 206) do not mention the auxiliary verbs’ position, but note the fact that they are used without any main verb. Here are some examples given by the author:

(21) *You can [kən] swim, and I can [kæn] too.
I've seen it; you know I have [hæv].
Yes, I am [æm].*

Another important point that should be mentioned in relation to English auxiliary verbs is that a number of textbooks on pronunciation practice mention that they are weak both in yes/no questions and in questions beginning with question words (Marks 2007: 88; Hancock 2003: 80; Hewings: 2007: 48). Hancock (2003: 80) notes that faster speech favours the use of weak forms of auxiliary verbs in questions. The same is observed by Carley & Mees (2019: 206).

These observations suggest that in questions, English auxiliary verbs may behave as proclitics. At least for yes/no questions it is true, as the auxiliary does not have any possibility to join a host on the left. If the behaviour of auxiliary verbs as proclitics depends on the speed rate, it supports the general tendency towards enclitization suggested by Lahiri & Plank (2011).

As follows from Lahiri & Plank (2011: 385-386), complementizers, conjunctions, and prepositions may as well behave as enclitics. Their analysis includes the assimilation of infinitival complementizer *to* to the preceding auxiliary or governing verb (see 22), the preposition *of* that tends to join the preceding noun (see 23), and the conjunction *and* that also joins the preceding conjunct rather than the following (see 24) as it was also mentioned earlier:

- (22) ough(t)=ta, haf=ta, gon=na, wan=na, spos(t)=ta, plan=ta, etc;
- (23) pint=a milk, *pint a=milk;
- (24) semantic grouping: & <fish, chips>
 syntactic grouping: [fish] [and [chips]]
 phonological phrasing: (fish=n) (chips).

Dixon (2007: 580-585) defends that prepositions behave as proclitics. The author's argument is that depending on the syllable structure, resyllabification occurs between the weak form of a preposition and the following word. If the preposition ends in a consonant and the following word begins in a vowel, the clitic's consonant joins it to form a CV syllable. Determiners show a similar tendency and, according to the author, normally behave as proclitics too. If a determiner and a preposition co-occur, they both join the same host. The following examples are taken from Dixon (2007: 585; 583):

- (25) [ə.v=ə.n=idʒət] - of an idiot;
 [sə.m= æplz] - some apples.

However, the transformations described in (22), (23), and (24) are not observed on the right edge of prepositions, conjunctions, and the infinitival particle. As follows, the possibility of becoming an affix to what previously was the host, which is characteristic of clitics (Spencer & Luís 2012: 3), exists only leftwards. Consequently, we have to admit that at least for the preposition *of*, the conjunction *and*, and the infinitival particle *to* the tendency is enclitization, as was affirmed by Lahiri & Plank (2011: 385-386).

As for determiners, we have not found in the literature examples of transformations similar to (22), (23), and (24), where a clitic joins a content word. In languages where such transformations exist, for example, in Arabic, the article joins the noun it is related to (Spencer & Luís 2012: 22). Considering this and the above-mentioned findings by Dixon (2007), we will further see English determiners as proclitics.

We adopt the position suggested by Lahiri & Plank (2011: 370-394) in that phonological and syntactic phrasing in English do not always coincide and enclitization is predominant. Object pronouns, auxiliary verbs in affirmative sentences, the infinitival complementizer *to*, the preposition *of*, and the conjunction *and* in their weak forms will be seen as enclitics further on. Weak forms of auxiliary verbs in questions and the determiners will be seen as proclitics.

Additionally, Roach (2009: 89-96) suggests that some function words may be strong or weak depending on their semantic meaning. The examples are the modal verb *must* used to express certainty, the determiner *some* indicating an unknown person or creature and the adverb *there* in its demonstrative meaning. According to the author, these function words tend to be strong independent of their position when used in such semantic contexts. It can be illustrated with the following examples taken from Roach (2009: 93):

(26) *I think some animal broke it* (strong) vs *Have some more tea* (weak).

(27) *There it is* (strong) vs *There should be a rule* (weak).

Other attempts to explain the factors that affect reduction, in particular, in English function words, were that of Jurafsky, Bell, Gregory & Raymond (2001: 229–254) and Jurafsky, Bell & Girand (2002). The initial proposal was a Probabilistic reduction hypothesis, according to which the higher is the probability of a word, the higher are the chances that it would be reduced. The hypothesis was confirmed by a corpus study of reduction and the durational reduction of function words and content words ending in *t* and *d*. In both cases, the level of probability influenced the level of vowel reduction and the duration of the words. The second study, that of 2002, was to see whether lemma in its psycholinguistic understanding could play any role in the pronunciation variation of four function words: *to*, *that*, *of* and *you*. Each of the words has more than one lemma, e.g. *to* corresponds to an infinitival particle and to a preposition, which are two different lemmas. The research was to show whether the duration of the above-listed words changes depending on the lemma that the speaker has to access in order to pronounce them. In the case of *to* it was found that the infinitive lemma was more frequent and more predictable than the preposition lemma and it was much shorter in duration. There was no lemma effect for *to*, i.e. the duration of this word depended on the predictability and

frequency rather than on the type of lemma. The lemma effect, as it is called by the authors, was found only for coda deletion in *of*, the partitive *of* showing more tendency for it than the genitive and the complement. The partitive *of* was also the most frequent lemma and had a shorter duration. The three lemmas of *you* (*you know*, generic *you* and referential *you*) had more or less the same duration. As for *that*, the pronoun (as in *thinking about that*) and the determiner (as in *things of that nature*) were more likely to contain a full vowel than the relative *that* (as in *a topic that you enjoy*) and the complementizer (as in *proposed to me that I could*), although the pronoun was found to be the most frequent. However, the authors refrained from any conclusions related to lemma effect for *that* as there was not enough evidence.

1.4 Vowel reduction and weak forms in European Portuguese

This subsection is devoted to the theoretical knowledge and research related to vowel reduction and weak forms in EP. It is presented in the same order as for AE.

1.4.1 Stress and vowel reduction at the word level in EP

Andrade & Viana (1989) see duration as an important acoustic property of stress in EP that makes stressed syllables different from the unstressed. According to Correia (2009: 23-24), who gives a summary on the acoustic properties of stress in EP based on Delgado (1986, 1988), Mateus et al. (2003), Andrade & Viana (1989), and Frota (2000), another parameter that is characteristic of EP stressed syllables is their higher intensity. However, the research by Correia, Butler, Vigário & Frota (2015) showed that duration is the main correlate of stress in EP. In particular, vowel duration serves as the parameter that permits the listener to discriminate between stressed and unstressed syllables in a word, which is equally true for nuclear and post-nuclear positions.

There are at least three degrees of stress in Portuguese words: primary stress, secondary stress and absence of stress (Mateus & d'Andrade 2000: 120).

Primary stress within a word falls on the ultimate, penultimate or antepenultimate syllable. Its location is related to lexical and morphologic information associated with the word, i.e. its nature is lexical (Vigário 2003: 65-66).

As for the secondary stress, according to Vigário (2003: 118) and references therein, it can be non-rhythmic, positionally determined (initial stress). This stress is postlexical, operating within the domain of a PW, usually falling on its first syllable. Some authors also consider that there may be rhythmic secondary stresses (echo-stresses) in EP, in particular in careful speech (Mateus & d'Andrade, 2000).

The difference between the vowels in stressed and unstressed syllables and a stronger tendency to vowel reduction are important characteristics of EP making it distinct from BP (Câmara 1972: 35; Mateus & d'Andrade 2000: 17-20, 134).

As described in Mateus (1982: 28-34), Mateus & d'Andrade (2000: 17-20, 134-136) and Vigário (2003: 67-73), the processes that lead to vowel reduction in unstressed syllables of EP are raising and centralization, affecting predominantly open syllables. Non-high round vowels [ɔ] and [o] raise to [u] and the low [a] raises to [ɐ]. As for non-high non-back vowels [ɛ] and [e], they undergo both raising and centralization and reduce to [ɨ]. As a result, the vowels found in pretonic and posttonic unstressed syllables in EP are the following: [ɨ], [i], [u], [ɐ]. It can be illustrated by the examples taken from Mateus & d'Andrade (2000: 135):

- (28) **d**edo [e] – **d**edada [ɨ]
f**e**sta [ɛ] – f**e**stejo [ɨ]
f**o**go [o] – f**o**gueira [u]
p**o**rta [ɔ] – p**o**rteira [u]
g**a**ta [a] – g**a**tinho [ɐ].

Additionally, high non-back [i] can be centralized to [ɨ], but usually only at the end of verbs as in *part**e***, *dorm**e***, *abr**e*** and *cobr**e*** (Vigário 2003: 71-70 with reference to Andrade (1980)).

As for the characteristics of the vowels found in EP unstressed syllables, [ɨ] is the sound that could be considered the schwa in this variety of Portuguese. It is a high central unrounded vowel that occurs mainly as a result of vowel reduction but may also be epenthetic and in some contexts is discussed as a stable schwa. This vowel is generally observed as a phone, although there are also claims that it should be attributed the status of a phoneme (Veloso 2007: 55-60).

[ɐ] is described in the context of unstressed positions but may occur in stressed syllables as well, for example as a result of [e] centralization before palatals (Mateus 1982: 28-34; Mateus & d'Andrade 2000: 17-20, 134-136; Vigário 2003: 68-73, 78-83) and in nasal contexts (Vigário 2003: 45).

[i] and [u] in unstressed syllables are the same as in the stressed ones (Mateus M.H. 1982: 30).

As it was observed above, vowel reduction occurs in both pretonic and posttonic positions, but it should be noted that, possibly because the left edge of the PW is a prominent position, vowels that start a PW do not show such tendency to reduction as the others. Initial front vowels /e/, /ɛ/ and low round /ɔ/ raise one degree but they are not reduced to [i] and [u] respectively. Initial /a/ normally raises to [ɐ]. Initial /ɛ/, /e/, /ɔ/, and /o/ can be pronounced as [ɛ] or [e], [e] or [i], [ɔ] or [o], [o] or [u] respectively. Initial high vowels /i/ and /u/ are not subject to any similar variation (Vigário 2003: 93-94).

The strongest tendency to vowel reduction in EP is in final and post-stressed syllables. It is in such positions that vowel deletion occurs most often. Two vowels that can be deleted when unstressed are [i] and [u]. The first may be omitted independent of its position in the word. The latter is normally left out word-finally or when it follows a labial. The omission of [u] is less frequent than that of [i]. This type of vowel deletion takes place both in citation forms and in connected speech (Mateus & d'Andrade 2000: 17-20, 134-136). It is illustrated in Mateus & d'Andrade (2000: 134) by a sentence that could be pronounced with vowel deletion (29b) or without it (29a) (the stress signs of the original version were substituted by bold font):

(29) *O estudo da fonologia exige precisão, rigor e muita paciência.*

The study of phonology demands accuracy, strictness and much patience.

- a. [u ftudu də funuluʒiɐ iziʒi pɾisizẽw̃ Rigor i mũj̃tɐ pɛsiẽsiɐ]
- b. [u ftu də fnuluʒiɐ iziʒ pɾisizẽw̃ Rigor i mũj̃tɐ pɛsiẽsiɐ].

However, as observed in Vigário (2003: 104-114), the deletion of final non-back, round and central vowels also depends on some factors that are related to the position of the word within the prosodic structure of the phrase, the initial sound and word stress in the word that

follows in the phrase, as well as the prosodic status of the latter. That is, although vowel deletion in word-final position is frequent in EP, it cannot be always computed within the citation forms.

The comparison of these descriptions with those presented for L1 AE in 1.3.1 leads to a conclusion that duration is a common characteristic that permits distinguishing between stressed and unstressed vowels in both AE and EP. This means we may expect that speakers of L1 EP will have durational distinction between stressed and unstressed syllables in L2 AE. In EP the variety of vowels that may occur in unstressed positions is slightly higher than in AE and their quality is different. Neutral vowels in EP and AE are both centralized, but in EP schwa is also high.

1.4.2 Reduction, weak and strong forms of function words and direction of cliticization in EP

EP function words that undergo reduction and fall into the category of clitics are described and classified in Vigário (2003: 175-222; 273-324) based on the findings concerning the properties and types of clitics in Zwicky (1977), Selkirk (1996) and others.

The majority of EP clitics are monosyllabic, the number of disyllabic clitics is limited. Function words that act as clitics in EP include definite articles, some conjunctions and prepositions, as well as certain pronouns and complementizers. The vowels that commonly occur in EP clitics are [ɨ], [ɐ], [u] and in some cases [e]. The list of clitics suggested in Vigário (2003: 175-179) includes the following function words:

Table 2. Clitics in EP.

Functional categories	monosyllabic	disyllabic
definite articles	<i>a(s), o(s)</i>	
conjunctions	<i>e, mas, ou</i>	<i>porque, para</i>
prepositions	<i>a, de, por, com, em</i>	<i>para</i>
prepositions + definite articles	<i>do(s)/da(s); no(s)/na(s);</i>	<i>pelo(s)/pela(s)</i>

	<i>ao(s)/à(s)</i>	
personal pronouns	<i>me, te, se, lhe(s), nos, vos, o(s), a(s)</i>	
accusative + dative pronouns	<i>mo(s)/ma(s); to(s)/ta(s); lho(s)/lha(s)</i>	
quantifier, pronoun		<i>cada</i>
complementizers	<i>que, se, de, em, por, a</i>	
interrogative and relative pronouns	<i>que</i>	<i>porque</i>

Within Zwicky's (1977) classification, Vigário (2003: 182) describes weak forms of pronominal function words as special clitics and the rest of monosyllabic function words with [i] and [e] as bound words. The function words that do not belong to either category may be simple clitics or bound words.

According to Vigário (2003: 180-181), in EP there are only two function words that can be strong or weak depending on their position in the intonational phrase. They are (*o*) *que* and *porque*, that are pronounced with [i] when found at the beginning of the sentence and with [e] in final position, which is registered in writing by a diacritic, as shown in these examples given by the author:

(30) *O que viste tu? vs Tu viste o quê?*

(31) *Porque fizeste isso? vs Fizeste isso porquê?*

As for the direction of cliticization in EP, Vigário (2003: 184-203) concludes that postverbal pronouns behave as enclitics. The verb serves as their host and they are incorporated into the prosodic word that it makes part of. Veloso (2012) describes postverbal pronouns as

“verb+clitic”, i.e. in that work they are seen as enclitics as well. The relation of EP enclitics with the host can be illustrated with the following examples taken from Vigário (2003: 187)

- (32) a. (pede-o) PW
 b. (peço-te) PW

Other weak function word forms, such as definite articles, prepositions, prepositions + definite articles, conjunctions and preverbal pronouns, do not have tendency to enclitization, according to Vigário (2003: 184-203). In general, EP tends to proclitization rather than to enclitization. Proclitics are adjuncts to their hosts, which are prosodic words, and together they form a new prosodic word (Vigário 2003: 195-203):

- (33) a. (do (governador) PW) PW;
 b. (a (catalogadora) PW) PW.

The above-mentioned behaviour of clitics has some implications for reduction. Firstly, enclitics behave as the right frontier of a prosodic word that consists of a verb and a pronoun. As a result, they prevent the deletion of final [i] in the verb, whereas in the pronoun itself such deletion becomes obligatory (like, in general, in other PW ending with [i]). Similar pattern applies to final unstressed [u] and [ɐ] followed by a word with initial non-high non-central vowel, with the difference that their deletion at the right edge of the prosodic word is not obligatory but optional. As for proclitics, they serve as the left edge of the prosodic word and so the deletion of [i] is only optional and not obligatory. The deletion of [u] and [ɐ] does not occur in proclitics (Vigário 2003: 186-190). These observations can be illustrated by the examples given by the author:

- (34) *pede-o já* - [j] vs *peço-te agora* - 0
 (pede-o)PW já (peço-te)PW agora

- (35) *embalo-a já* - [w] vs *posso vê-lo agora* - [w]/0
 (embalo-a)PW já posso (vê-lo)PW agora

(36) *a gata, pude vê-la outrora* - [v̥]
a gata, pude (vê-la)ω outrora

(37) *apenas te ofereci* - [j]/[0]
apenas (te (ofereci)ω)ω

(38) *gosto do artigo* - [w]
gosto (do (artigo)ω)ω

(39) *falo da organização* - [v̥]
falo (da (organização)ω)ω.

Secondly, as proclitics become adjuncts of their host and the host is a prosodic word of its own, it leads to the alternation of the initial stress, as it may fall either on the proclitic or on the first syllable of the host, each element patterning as PW initial. Both options are possible for the same phrase as illustrated in this example given in Vigário (2003: 198) with reference to Frota & Vigário (2000) (the stressed syllables in question are written in bold):

(40) *a **inteligência** da **catalogadora** foi **determinante**;*
*a **inteligência** **da** **catalogadora** foi **determinante**.*

Proclitics may carry emphatic stress as well but they still behave as clitics in this case, i.e. it does not make them prosodic words. Thus, function words with [i̯] and [v̥] in proclitic position keep these vowels even when they carry emphatic stress (Vigário 2003: 201-203).

As for vowel reduction and vowel deletion in some particular EP clitics, the latter may occur in consonant + [i̯] clitics. Faster speech rate favours it, although not necessarily. Complementizers show less tendency to [i̯] deletion than the preposition *de* and proclitic pronouns. The pronouns have deletion more often than the preposition *de* but the difference is not as big as the one between these two types of clitics complementizers. The initial position in an intonational phrase disfavours [i̯] deletion. Also, there is a certain level of variation

depending on the speaker, some having more tendency for such deletion and others less. *Para*, *pelo/pela* may undergo vowel deletion in the first syllable, and *ao*, *em* may undergo monophthongization. These processes are less likely to occur in the initial position in an intonational phrase. (Vigário 2003: 283-295).

Com is different from the other EP clitics, as it is affected by the segmental material and the grammatical category of the following word. It is always in its strong form [kõ] when followed by a word that starts with a consonant (Vigário 2003: 295).

Similar to English, frequent content and function words in EP often undergo reduction, including vowel reduction in particular. However, as it is observed in Vigário (2003: 303-309), it does not occur in all frequent words although lack of stress is a favourable context for reduction.

Based on the facts presented above and in 1.3.2, we observe that English has a wider range of classes of function words that behave as clitics than EP. Namely, they include such categories as auxiliary and modal verbs. It is interesting to compare the level of acquisition of the weak forms for this category in L2 English with that for a category that has weak forms in EP, for example the article. An additional factor that can make the acquisition of the weak forms of auxiliary verbs in L2 English more difficult for the speakers of L1 EP is that they are simple clitics and have many versions. Another important point is that the direction of cliticization in English and EP is different, with enclitics being predominant in the first and proclitics in the latter. Weak forms of English auxiliary and modal verbs in affirmative sentences are enclitic, which is in contrast with the main tendency in EP. It makes us suppose that their acquisition in L2 English can be more difficult for speakers of L1 EP in comparison with the acquisition of weak forms of auxiliary verbs in interrogative sentences, articles and object pronouns. Object pronouns are enclitics in both languages, which may facilitate the acquisition of their reduced forms in L2 English for speakers of L1 EP. However, as it was mentioned before auxiliary verbs do not have weak forms in EP, while object pronouns do. Therefore, it seems more reasonable to use only object pronouns to test the possible influence of the direction of cliticization in L1 on the acquisition of weak forms in L2. This way, we would exclude any other factors apart from the direction of the cliticization from the test.

1.5 Vowel reduction and weak forms in Brazilian Portuguese

The theoretical findings on vowel reduction in BP are unfolded in this subsection in the same way as in previous ones, from the sounds found in unstressed syllables to vowel reduction at the word level and, further, in function words.

1.5.1 Stress and vowel reduction at the word level in BP

As described in Mendes Cantoni (2009: 94), the acoustic correlates of stress in BP are the duration and the intensity of the syllable, i.e. the stressed syllables are longer and are pronounced with more intensity than the unstressed ones. This description is not different from that for EP, although Câmara (1972: 23) argues that in BP the stress is less intensive and the contrast between stressed and unstressed syllables is not as distinct.

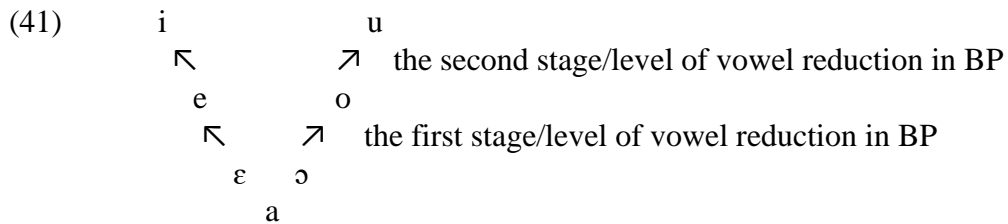
In BP, in the same way as in EP, primary stress within a word falls on the penultimate, antepenultimate or ultimate syllable, the first option being the most common (Câmara 1972: 24-27; Walters 1994: 70). As observed in Wetzels (1992: 24-25), the primary stress is quantity sensitive and, consequently, ultimate or penultimate syllables are stressed if they are heavy, or penultimate if they are light. In further publication the author specifies that this is true for non-verbs, while in verbs the stress is related to the tense system (Wetzels 2007).

As for secondary stress, the pretonic syllables may gain stronger stress than the posttonic ones (Câmara 1972: 24-27). The secondary stress in BP is not sensitive to syllable weight, i.e. there is no tendency to attribute it to syllables that end in a consonant or a glide (Wetzels 1992: 24-25; Bisol 2005: 159-165;). Stressed and unstressed syllables alternate when possible and sequences of either stressed or unstressed syllables are not common. The exceptions are some compound words and words with an odd number of pretonic syllables. In the last case, the secondary stress may fall either on the first or the second syllable. As for the secondary stress in derivatives, it is not always placed on the syllable that gains primary stress in the words from which they are derived (Bisol 2005: 159-165).

Vowel reduction at the word level in BP is not as strong as in EP or AE, as can be seen from the descriptions given below. The fact that in BP the vowels are less affected by the absence of stress than in EP is noted in a number of academic works. It is widely observed that the vowels found in unstressed syllables in BP are [i], [o], [a], [e], [u] (Câmara 1972: 32-36;

Mateus & d’Andrade 2000: 17-20; Bisol & Magalhães 2004). One more vowel is also suggested in Mateus & d’Andrade (2000: 17-20) as a possible option, but only in word-final position. It is [ɐ] as in *jura* [ˈʒurɐ].

Vowel reduction in unstressed syllables in BP is described as a result of vowel neutralization in Câmara (1977: 57-59), Wetzels (1992), Bisol & Magalhães (2004), Bisol & Veloso (2016). In terms of vowel quality vowel reduction in BP has two levels, which can be shown schematically based on the illustrations given in Bisol & Magalhães (2004: 200-201):



The first stage consists in neutralization of the opposition between the mid vowels. Lower mid vowels [ε] and [ɔ] are reduced to [e] and [o] on this stage. Wetzels (1992: 21-24) describes this process within the model of autosegmental phonology suggested by Clements (1999b, as referred by the author) and Clements’ model of the Geometry of Vocalic Node for Vowels. This model is applied to aperture (the degree of openness of the vowel). As maintained by the author, the vowels in BP have the following degrees of aperture:

(42)

aperture	i/u	e/o	ε/ɔ	a
open1	-	-	-	+
open2	-	+	+	+
open3	-	-	+	+

According to Wetzels (1992: 21-24), the opposition between the upper and lower mid vowels in BP is less basic than the one between the high and low vowels. As a result, the distinction between the mid vowels is abandoned in the first place and the open3 tier is erased.

The second stage consists in neutralization of the opposition between the non-high mid vowels [e] and [o] and the high vowels [i] and [u], only the latter are left as the possible options

(Câmara 1977: 58-59; Wetzels 1992; Bisol & Magalhães 2004: 200-201). None of the stages affects [a] (Câmara 1977: 58-59; Bisol & Magalhães 2004: 200-201).

In pretonic positions, the number of vowels reduces from seven to five ([i], [o], [a], [e], [u]). This happens as a result of neutralization that affects the mid vowels of the third degree of aperture, after which only the mid vowels of the second degree are preserved, i.e. there is no [ɛ] and [ɔ] in pretonic syllables in (most dialects of) BP (Wetzels 1992: 22; Bisol 2000: 14; Bisol & Magalhães 2004: 201-204; Bisol 2005: 172-174; Bisol & Veloso 2016: 70-73). Here are some examples taken from Bisol & Magalhães (2004: 204) illustrating vowels in pretonic positions of derived words, where [i], [u], [e], [o] and [a] remain as such either in stressed or in pretonic syllable, while [ɛ] and [ɔ] are reduced to [e] and [o] respectively when they appear in pretonic position:

- (43) *fĩno* [i] - *fineza* [i]
luto [u] - *enlutado* [u]
sede [e] - *sedento* [e]
tolo [o] - *tolice* [o]
belo [ɛ] - *beleza* [e]
mole [ɔ] - *moleza* [o]
casa [a] - *caseiro* [a].

Differently from EP, in BP there is normally no reduction of pretonic [e] and [o] to [i] and [u] (Mateus & d'Andrade 2000: 17-20), although it may occur when they are immediately followed by the stressed vowel (Câmara 1972: 32-36). Such reduction may also occur as a variation when pretonic mid-vowels raise to the level of the vowel in the following syllable as a result of harmony (Bisol 2000: 14; Bisol 2005: 172-174; Bisol & Veloso 2016: 69, 76-79). Mid front vowels in initial position followed by [s] also tend to reduction and to be pronounced as [i] Câmara (1972: 32-36). These observations can be illustrated by the examples given by the authors:

- (44) BP: *morar* (to reside) - [mo'rar], *murar* (to wall in) - [mu'rar];
 EP: *morar, murar* - [mu'rar];

(45) *suar* (to sweat), *soar* (to sound) - [su'ar];
ciar (to hiss), *cear* (to eat supper) [si'ar];

(46) *pepino* [e] ~ [i] ;
coruja - [o] ~ [u];

(47) *expor* (to expose) - [is'por];
estar (to be) - [is'tar].

In non-final post-stressed positions, only five vowels are possible as well (Bisol & Magalhães 2004: 200-205; Bisol & Veloso 2016: 70-73). Wetzels (1992: 22) indicates only four vowels for such syllables, with the distinction between [o] and [u] being always neutralized in posttonic positions. It can be shown by the following examples taken from the author:

(48) *ótimo* [i] *século* [u]
tráfego [e] *fósforo* [u]
ébano [a].

In final unstressed syllables, [e] and [o] are reduced to [i] and [u] (Bisol & Magalhães 2004: 200-205; Câmara 1972: 34; Walters 1994:75; Wetzels 1992: 22). Bisol & Veloso (2016: 73) state that such neutralization is obligatory in final open syllables and final syllables ending in [s]. As a result, only three vowels are possible in such syllables, as can be illustrated by an example taken from Wetzels (1992: 22):

(49) *Xavánte* - [i], *Boróro* - [u], *Wanináwa* - [a] (names of Indian tribes).

As observed in Câmara (1972: 34), the few exceptions from the rule concerning final unstressed syllables are normally words borrowed from other languages.

The patterns of neutralization leading to vowel reduction described here are classified by Wetzels (1992: 30) as postlexical.

Vowel neutralization in BP and EP is compared in Bisol & Veloso (2016: 82). The authors note that the difference between the two varieties of Portuguese is that in BP this process includes two stages, while in EP it is rather a single operation, i.e. in the latter [ɛ] and [ɔ] can be directly reduced to [i] and [u] respectively.

Based on the comparison of these descriptions with those presented for L1 AE in 1.3.1 and EP in 1.4.1, it can be concluded that duration is a common characteristic which permits distinguishing stressed and unstressed vowels for the three. It means we may expect that both speakers of L1 EP and L1 BP will have durational distinction between stressed and unstressed syllables in L2 AE. However, BP has less tendency to vowel reduction than EP (and, consequently, than AE), especially in pretonic positions, as well as a weaker distinction between stressed and unstressed syllables. BP has a wider variety of vowels that are possible in unstressed positions and among them there is none that could be considered a neutral vowel or schwa. Based on this, we suppose that speakers of L1 BP may have less durational distinction between stressed and unstressed vowels in L2 AE than speakers of L1 EP. They may have weaker tendency to vowel reduction in L2 AE, particularly at lower levels of proficiency. Especially it may be relevant for sequences of syllables with reduced vowels.

1.5.2 Reduction, weak and strong forms of function words and direction of cliticization in BP

Like in EP, in BP there are function words that do not carry word stress. Câmara (1977: 46) is one of the first authors to observe it and to conclude that such words fall into the category of clitics. Clitics in BP include weak personal pronouns, monosyllabic prepositions, complementizers, and definite articles. Clitics are a closed class of highly frequent words that in Portuguese may consist of maximum two syllables (Toneli 2014: 100; Santos & Vigário 2016).

It is important to note that, as well as in EP (Vigário 2003: 175-179), many BP function words, even monosyllabic ones, do not have weak forms at all (Toneli 2014: 100-102). Toneli

(2014: 108) presents a table of function words that, according to the author, should be classified as clitics in BP and are inert in terms of stress (the translation is ours):

Table 3. Clitics in BP.

Functional categories	monosyllabic	disyllabic
definite articles	<i>o(s), a(s)</i>	
conjunctions	<i>e, ou, se, mas, que</i>	<i>porque</i>
prepositions	<i>a/ à/ ao, de, em, com, por, do(a)(s), no(a)(s)</i>	<i>para</i>
personal pronouns	<i>me, se, te, lhe(s), o(s), a(s), nos, vos</i>	
interrogative and relative pronouns	<i>que</i>	<i>porque</i>

The unstressed nature of these function words (Bisol 2000: 24; Toneli 2014: 107) implies that they are subject to reduction in some way. Toneli (2014: 101-104) gives an overview of the phenomena that are typical for unstressed syllables in BP and occur in clitics as well. Among them is the raising of [e] and [o] to [i] and [u], also observed by Bisol (2000: 20) and Câmara (1976: 35-36). Clitics that are pronounced with [i] include *de, me, te, se, lhe(s), que, em, porque, e, se, que*. Function words that are pronounced with [u] include *o(s), com, do(s), no(s), nos, vos, por, porque*.

According to Câmara (1972: 35-36) and Bisol (2000: 20), the raising of [e] and [o] occurs both in enclitics and proclitics. The examples in (50) and (51) are taken from these authors:

- (50) *t_e falou, falou-t_e* (he/she spoke to you) - [i];
sei-o (I know it), *o lavo* (I wash him) - [u];

- (51) *do menino* - d[u] menin[u];
de ferro - d[i] ferr[u];
me leve - m[i] lev[i];
leve-me - lev[i] m[i];
sente-se - sent[i] s[i];
se sente - s[i] sent[i].

As for [a], Toneli (2014: 107) observes that there are some accounts of its pronunciation as [ə] or [ɐ] in such clitics *as a(s)*, *à*, *da(s)*, *mas*, *na(s)*, namely found in Cristóforo (2005: 86). The possible pronunciation of *mas* with [ɐ] is mentioned in Câmara (1972: 35-36) as well.

It is observed in Toneli (2014: 106) with reference to Bisol (2000, 2005) and Toneli (2009) that preposition *para* may undergo vowel deletion or reduction, which is sometimes even fixed in writing with forms like (the transcription is ours):

- (52) *para* – *pra*, *pa* [pra], [pa];
para + um - *prum* [prum];
para + o - *pro*, *pó* [pro], [pɔ].

According to Toneli (2014: 105), the function word *que* may undergo reduction depending on its position in an intonational phrase, as it was previously observed in relation to EP. When this word is inside an intonational phrase, [e] can reduce to [i] and, in the cases when it is preceded by a vowel, it may form a diphthong with it or be deleted. When *que* is the final element of an intonational phrase, such changes are impossible, which can be seen from the examples given by the author:

- (53) *O que ele está fazendo?* - [i];
Eu não sei o que ele falou - [i]/0;
Ele quer o que? - [e].

As stated in Toneli (2014: 106), the conjunction *porque* also shows reduction partly dependent on its position within the intonational phrase. Vowel [o] in the first syllable may

reduce to [u] in all positions, vowel [e] in the second syllable may reduce to [i] in all positions, except when the conjunction is at the end of an intonational phrase, which can be illustrated by the examples taken from the same author:

- (54) a. Por que você não quer sair? P[o]/[u]rqu[e]/[i]/[0] eu não quero.
b. Vou embora, p[o]/[u]rqu[e]... p[o]/[u]rqu[e]/[i]/[0] estou cansada.

As for the types of clitics that are found in BP, Toneli (2014: 114) suggests that, with the basis on the research done by Vigário and the classification proposed by Zwicky (1977), function words in BP can be of three types:

- 1) special clitics (pronominal clitics);
- 2) simple clitics;
- 3) bound words.

Concerning the direction of cliticization in BP, according to Bisol (2000:10), in terms of syntax there is a tendency to proclitization. Describing the relation between the phonological clitics and their hosts, the author states that proclitics are the main tendency as well. Pronominal enclitics as in *sente-se* are becoming a rarer option that appears mainly in writing. Such behaviour of pronominal clitics is different from that in EP, where they tend to be enclitics (Bisol 2000:20). Toneli (2014: 115) considers proclitization to be the prevalent tendency in BP with an observation that enclitics are only possible when the function word is found in the final position in an intonational phrase.

As for the status of clitics in the prosodic structure, the views on it differ. Bisol (2000: 16-24) maintains that clitics join a well-formed phonological word (the host) and together they form a clitic group. Toneli (2014: 100-118) affirms that they adjoin the prosodic word. However, both authors agree about the fact that the relation of the clitic and the host in BP is done postlexically by means of adjunction and not by incorporation.

The fact that clitics adjoin their hosts postlexically means that some rules, including vowel reduction, are applied to them postlexically as well, which is shown in Bisol (2000: 20-21). For example, the above-mentioned raising of [e] and [o] to [i] and [u] in proclitics does not

occur in prefixes or pretonic syllables that become part of the word. At the same time, proclitics are not sensitive to the neutralization rule that applies to pretonic syllables and consists in the reduction of lower-mid vowels [ɛ] and [ɔ] to [e] and [o]. Both these facts were described by Câmara (1977: 64-65) as well.

Additionally, Toneli (2014) notes that clitics in BP may behave as prosodic words when they are emphasized. The same is observed for some clitics in Câmara (1977: 66-67).

Based on the facts presented above and in subsections 1.3.2 and 1.4.2, we observe that English has a wider range of function words that behave as clitics than both EP and BP. The latter do not have auxiliary and modal verbs behaving as clitics. Additionally, the direction of cliticization in EP and BP is different from that in English, where enclitics are predominant. The weak forms of auxiliary and modal verbs in affirmative sentences behave as enclitics as well. An additional factor that can make the acquisition of the weak forms of auxiliary and modal verbs in L2 English more difficult for the speakers of L1 Portuguese is that they are simple clitics with a succession of versions with reduction. These facts make us suppose their acquisition can be more difficult than the acquisition of articles, a category of function words that has weak forms both in English and Portuguese, the latter being proclitics in both languages. Additionally English articles, although they are classified as simple clitics, do not have as many versions as auxiliary verbs.

As it was observed in 1.3.2, in spite of the general tendency to proclitization, EP has pronominal enclitics. In BP they tend to be rare in oral speech. For this reason, we expect that speakers of L1 EP will have more facility in the acquisition of the weak forms of English object pronouns, that behave as enclitics, whereas speakers of L1 BP will not have such facility.

1.6 Segments' duration measurements

In this section, we present the theoretical grounds for the procedures involved in our research and the design of the materials used. The latter should be appropriate to permit segmentation and durational measurements.

According to researchers, such as Turk, Satsuki & Sugahara (2006: 6), Ladefoged & Johnson (2011: 209-211), spectrograms are reliable for segmentation and consequent segments' duration measurements. Ladefoged & Johnson (2011: 209-211) recommend using wide-band

rather than narrow-band spectrograms for such purposes as they have sufficient precision in the time dimension.

Spectrograms of the recorded speech can be obtained with the help of special software. Simonet (2011) recommends Praat as reliable, scriptable, free, and suitable, among others, for studying the duration patterns of vowels.

To segment the recorded speech with the help of a spectrogram, one has to define the boundaries between the segments. Firstly, we will look at detecting the boundaries between vowels and consonants. Turk, Satsuki & Sugahara (2006: 2-4) observe that it is not always easy to define the point where a consonant ends and a vowel begins and vice versa because segments following one another tend to overlap. Such difficulties are noted by Ladefoged & Johnson (2011: 198-204) as well. The solution proposed in Turk, Satsuki & Sugahara (2006: 2-4) consists in using the oral constriction criteria, i.e. the onsets and releases of oral constrictions, rather than onset and offset of voicing. The first can clearly be seen on a spectrogram for a range of phones, which makes the segmentation more reliable if the materials are properly selected. Within this method, a duration of a vowel is the interval between the constriction release of the preceding consonant and the constriction onset of the following consonant.

Based on the theory of the relationship between the articulation and acoustics with reference to Stevens (2002) and authors' own experience in segmenting speech in different languages, including American English and some varieties of British English, Turk et al. (2006: 4-5) classify consonant and semi-consonant phones depending on the reliability of their segmentation. For contexts in which it is important to identify the boundary between a vowel and the preceding or following consonant (in CV or VC syllables) the following phones are listed as reliably segmented: oral stops (such as [p], [t], [k], [b], [d], [g]), sibilants (such as [s], [z], [ʃ], [ʒ]), and affricates (such as [tʃ], [dʒ]). Nasal stops (such as [m], [n]) and weak voiceless fricatives (such as [θ], [f]) can be reliably segmented in some contexts. It is recommended to avoid central and lateral approximants (such as [w], [l]), [h], and weak voiced fricatives (such as [v], [ð]). Similar conclusions can be made from the description of some characteristics of the consonants and semi-vowels given in Ladefoged & Johnson (2011: 198-204).

Further, we describe some characteristics of vowels reflected on a spectrogram. Then the same is done for the consonants that were classified above as reliably segmented.

According to Ladefoged & Johnson (2011: 190-194), vowels normally have at least three formants that can be seen on the spectrogram as horizontal bars and are usually denoted as F1, F2 and F3. Apart from that, a spectrogram shows vertical lines indicating vibrations of the vocal tract.

As for oral stops, according to Turk, Satsuki & Sugahara (2006: 5-8), closures in VCV contexts can be detected by “a decrease in overall amplitude” and “cessation of all but the lowest formant and harmonic energy”. The closure is best identified with the help of F2, the parameter that reflects the decreasing amplitude after a vowel ends. However, this parameter is not universal. One of the contexts, when F2 cannot be used to detect a closure is the substitution of an oral stop by a glottal stop, which in English may occur in syllable-final positions. As for stop releases, they can be identified by a burst or multiple bursts (as is the case of velar stops). When the burst(s) is (are) not evident, the parameter to consider is the onset of F2.

Turk, Satsuki & Sugahara (2006: 8-9) and Ladefoged & Johnson (2011: 198-200) note that when stops are aspirated, as is often the case with the English [p], [t], [k], the aspiration is reflected on the spectrogram. Ladefoged & Johnson (2011: 198-200) relate it to the light, almost white colour, which is explained by the fact that almost no energy is applied for aspiration. Turk, Satsuki & Sugahara (2006: 9) suggest that the element related to aspiration should be considered as part of the consonant and should not be included in the following vowel.

Additionally, Turk, Satsuki & Sugahara (2006: 9-10) observe that stops may have allophonic versions in English, which may cause difficulties in segmentation. Different from that, sibilant fricatives do not have much tendency to allophonic versions within languages.

The parameters that can be used to identify the boundaries of a sibilant are the onset and offset of frication energy. F2 of the vowel can serve as an additional parameter but is less reliable. Special attention should be paid to aspiration noise (Turk, Satsuki & Sugahara 2006: 10-11). Ladefoged & Johnson (2011: 201-202) observe that fricatives, in general, have a very high frequency (up to 8000 Hz and more) and are produced with a lot of energy, which makes them clearly visible on a spectrogram.

As for affricates, Turk, Satsuki & Sugahara (2006: 11) suggest using the same parameters as the ones for the stops to identify their onset and those for the fricatives to identify their offset.

The spectrogram below taken from Turk, Satsuki & Sugahara (2006: 8) illustrates the guidelines concerning stops, sibilants and affricates given:

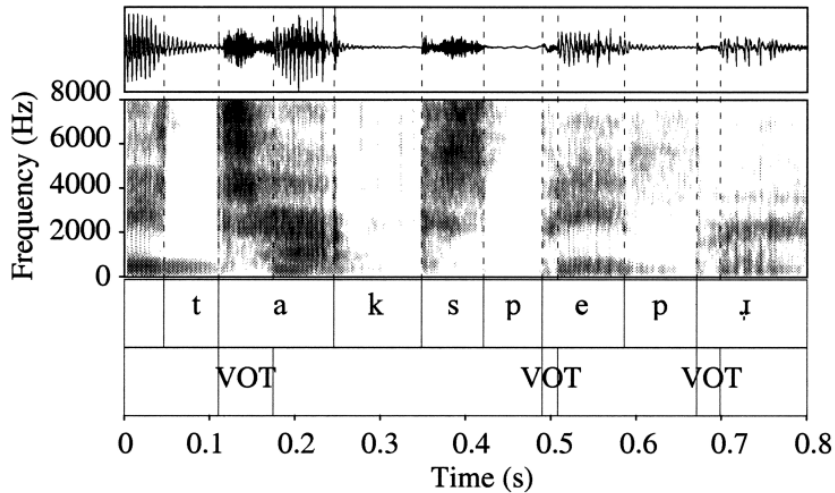


Figure 3: *Tax paper*, spoken by a female Scottish English speaker. The boundaries for the offsets of /a/ and /e/ are placed on the last glottal pulse peak in the intervals delimited by continuous F2.

As for detecting the boundaries between two consonants, similar principles can be applied when they differ by place and manner of articulation. If a cluster of consonants contains phones with similar parameters of articulation, it may be more appropriate to rely on their correlates than on oral constriction and oral release (Turk, Satsuki & Sugahara 2006: 15).

As regards the analysis of the measurements obtained with the help of spectrograms, Simonet (2011) pays particular attention to the fact that when comparing oral production of different speakers, the researcher should take into consideration non-linguistic factors, such as the differences in vocal tract size and others. More precision in the results can be obtained either with the help of normalization procedures or by avoiding the “normalization problem”. The author illustrates the latter with reference to Tsukada et al. (2005), who studied the differences in the production of contrastive vowels between English-Korean bilinguals and speakers of L1 English. The researchers opted for measurements done for each speaker rather than a comparison across the speakers. They measured how strong the contrast was for each speaker and then compared the data.

1.7 Summary

In this subsection, the main points of the theoretical framework and the hypotheses are summarized.

As it was shown in 1.1, rhythm plays not only a crucial role in the acquisition of lexicon and syntax in L1 (Nazzi, Bertoni & Mehler, 1998; Ramus, Houser, Miller, Morris & Mehler 2000: 349-351; Gervain & Mehler, 2010; Post & Payne, 2017), but also contributes to acquisition of L2 both by young and adult learners (Campfield & Murphy and references therein: 2013, 2014). Rhythm and prosody have a great impact on the speaker's intelligibility and comprehensibility and consequently to a considerable extent they determine success in L2 communication (Munro & Derwing, 2011; Busá, 2012; Lengeris, 2012; Derwing & Munro, 2014; Grant, 2014). These observations lead us to a conclusion that acquisition of weak forms of function words in English as an aspect of vowel reduction and rhythm contributes to acquisition of L2 English and successful communication in that language.

Our next step was to look at the way rhythm is acquired in a stress-timed L2. Studies by Yuan (2010), Ordin, Polyanskaya & Ulbrich (2011) and Ordin & Polyanskaya (2014, 2015), show that it develops from syllable-timed to stress-timed and the speed of that process, as well as the depth of changes, depend on the speaker's L1. Additionally, a study by Li & Post (2014) showed that some rhythm parameters follow universal patterns of development, while others, such as the proportion of vocalic material, are influenced by transfer from the speaker's L1. We suppose that the acquisition of weak forms may contribute to the proportion of vocalic material, which in its turn affects rhythm. We also suppose that the acquisition of rhythm in L2 and weak forms of function words in particular will depend on the rhythm type in the speaker's L1. It can affect the level/depth of acquisition and its speed.

Further we described rhythm in English, EP and BP using the approach suggested by Ramus, Nespors & Mehler (1999), who propose the proportion of vocalic intervals (%V) and the variability of consonantal intervals (ΔC) within the sentence as the two parameters related to the perception of rhythm classes. Stress-timed languages show shorter %V and higher ΔC in comparison with syllable-timed languages. Within this model, English kept to be classified as a stress-timed language (Giegerich, 1992; Ramus, Nespors & Mehler, 1999; Roach, 2009; Ladefoged & Johnson, 2011; Carr, 2013), while Brazilian and European varieties of Portuguese

are described as mixed languages. EP is stress-timed in relation to ΔC and syllable-timed in relation to %V. BP is syllable-timed regarding ΔC and mora-timed regarding %V (Frota & Vigário, 2001). Based on that, we suppose that 1) the speakers of L1 EP will not necessarily demonstrate results that could be expected from speakers of a purely stress-timed L1, as EP does not show stress-timed patterns concerning vocalic intervals, 2) the results for the speakers of EP and BP will differ; in particular, we expect certain differences in the speed and depth of L2 English rhythm acquisition for the native speakers of these two varieties of Portuguese.

Duration appears to be a common characteristic that permits distinguishing stressed and unstressed vowels in the three language varieties (McCully 2009: 67; Mendes Cantoni 2009: 94; Ladefoged & Johnson 2011: 111; Plag et al. and therein 2011: 363-364; Grant 2014: 23; Correia, Butler, Vigário & Frota 2015: 5). As for vowel reduction at the word level, in English and EP it occurs not only as a result of connected speech but also in citation forms (Giegerich 1992: 66-69; Mateus & d'Andrade 2000: 17-20, 134-136). In BP, vowel reduction at the word level is not as strong (Câmara 1972: 23, 35; Wetzels 1992: 22; Mateus & d'Andrade 2000: 17-20, 134; Bisol 2000: 14; Bisol & Magalhães 2004: 201-204; Bisol 2005: 172-174; Bisol & Veloso 2016: 70-73). Within a BP word, stressed and unstressed syllables tend to alternate when possible, and sequences of unstressed syllables are not common (Bisol 2005: 159-165). BP also has a wider variety of vowels that are possible in unstressed positions and among them there is none that is commonly seen as a neutral vowel or schwa. In EP the vowel inventory for unstressed positions is more limited and includes a neutral vowel (Câmara 1972: 32-36; Mateus & d'Andrade 2000: 17-20; Bisol & de Magalhães 2004) that potentially could be described as a schwa (Veloso 2007: 55-60). In English vowel reduction is the strongest with the most limited number of vowels possible in unstressed syllables, among which schwa is the most common option (Giegerich 1992: 68; McCully 2009: 67; Roach 2009: 65; Cruttenden 2014 and therein: 138-139, 158; Grant 2014: 23; Carley & Mees 2019: 201).

Based on the descriptions of stress and vowel reduction in AE, EP and BP, we may expect that both speakers of L1 EP and L1 BP will have durational distinction between stressed and unstressed syllables in L2 English. However, we suppose that such distinction may be weaker for speakers of L1 BP. In general, speakers of L1 BP may have weaker tendency to vowel reduction in L2 English, especially at lower levels of proficiency. It may be particularly relevant for sequences of syllables with reduced vowels.

As for weak forms of function words, English has a wider range of function words that behave as clitics than EP or BP. In particular, they include such categories as auxiliary and modal verbs that do not behave as clitics in EP and BP (Selkirk, 1996; Vigário 2003: 175-179; Dixon 2007: 574-575; Hewings 2007: 48-51; Roach 2009: 89-96; Cruttenden 2014: 273-274; Toneli 2014: 108; Carley & Mees 2019: 205-217).

Weak forms in English fall into the category of simple clitics within the classification given by Zwicky (1977: 10-11, 26). The same function word may have versions with successive reductions and deletions, the choice of which is not always easily calculated (Ladefoged & Johnson 2011: 109). In EP, weak forms of pronominal function words are special clitics, while others are bound words (Vigário 2003: 182). In BP, weak forms of pronominal function words are special clitics, while others can be either special clitics or bound words (Toneli 2014: 114). We adopt the position suggested by Lahiri & Plank (2011: 370-394) in that phonological and syntactic phrasing in English do not always coincide and enclitics are predominant. Based on the analysis of the research done by Selkirk (1996), Dixon (2007) and Lahiri & Plank (2011), we conclude that English object pronouns, auxiliary verbs in affirmative sentences, the infinitival complementizer *to*, the preposition *of*, and the conjunction *and* in their weak forms are enclitics. Auxiliary verbs in interrogative sentences and determiners are proclitics.

Most weak forms in EP are proclitics. This is true for EP articles, prepositions and preverbal pronominal clitics. Enclitics are represented by pronominal clitics in postverbal position (Vigário 2003: 184-203). In BP, proclitics are the main type of weak forms as well, with pronominal enclitics becoming rarer in oral speech (Bisol 2000: 10, 20; Toneli 2014: 115).

Additionally, Roach (2009: 89-96) suggests that some function words may be strong or weak depending on their semantic meaning. Jurafsky, Bell, Gregory & Raymond (2001: 229–254) and Jurafsky, Bell & Girand (2002) in their research confirmed dependency between vowel reduction, durational reduction and the frequency and predictability of function words. Even when it comes to different grammatical use of the same word, e.g. *to*, vowel reduction and durational reduction were stronger for more frequent and more predictable ones. Similar results were obtained for EP, where frequent content and function words often undergo reduction, including vowel reduction in particular. However, as it is observed in Vigário (2003: 303-309), it doesn't occur in all frequent words with lack of stress being a favourable context for reduction.

Based on what was mentioned above concerning the reduction and weak forms in AE, EP, and BP, we suppose that the speakers of L1 EP and L1 BP may differ in the acquisition of the weak forms of function words in L2 English. We also suppose that the acquisition of auxiliary verbs will be more difficult than the acquisition of articles for the speakers of L1 Portuguese. The acquisition of the weak forms of object pronouns in L2 English will be easier for the speakers of L1 EP than for the speakers of L1 BP.

Summing up, we formulate the following hypotheses that will be tested further:

Hypothesis 1. The speakers of L1 EP will not necessarily show the results that can be expected from speakers of a stress-timed L1 in terms of reduction in weak forms of function words;

Hypothesis 2. The speakers of L1 EP L2 AE will be closer to the speakers of L1 AE in terms of reduction of weak forms in comparison with the speakers of L1 BP L2 AE;

Hypothesis 3. The speakers of L1 EP will have more tendency to reduction in the weak forms at a higher level of proficiency in L2 AE. This tendency will not necessarily be as strong for the speakers of L1 BP.

Hypothesis 4. The speakers of L1 Portuguese and L2 AE will be more similar to the speakers of L1 AE in terms of reduction in the weak forms of articles than in auxiliary verbs;

Hypothesis 5. The speakers of L1 EP L2 AE will be more similar to the speakers of L1 AE than the speakers of L1 BP L2 AE in terms of reduction of the weak forms of object pronouns.

If hypotheses 1, 2, and 3 are confirmed, we may conclude that our research supports the idea that the proportion of vocalic material involves transfer from L1 and affects the acquisition of weak forms. If hypothesis 4 is confirmed, it will be possible to say that the absence of weak forms of certain function words in L1 makes their acquisition in L2 more difficult. If hypothesis 5 is confirmed, it will mean that the direction of clitics predominant in L1 influences the acquisition of weak forms in L2.

Additionally, we observed theoretical grounds for durational measurements to design the materials. Spectrograms of recorded speech can be used for this purpose (Turk, Satsuki & Sugahara 2006: 6; Ladefoged & Johnson 2011: 209-211) with consequent segmentation in Praat (Simonet, 2011). To detect the boundaries between the segments we will adopt the principles suggested in Turk, Satsuki & Sugahara (2006): 1) oral constriction onsets and releases define

the boundaries between a vowel and a consonant or two consonants with different place of articulation; 2) if a cluster of consonants contains phones with similar parameters of articulation, it may be more appropriate to rely on their correlates than on oral constriction and oral release. As noted by Simonet (2011), to exclude non-linguistic factors from data analysis, either normalization should be applied or the “normalization problem” should be avoided.

2. Method of study

2.1 Subjects

All the participants read the informed consent and signed the declaration of informed consent, which were presented to them in Portuguese or in English according to their L1 (see Appendix 1).

The first step in the selection of the participants was application of a questionnaire. The speakers of L1 Portuguese filled in Questionnaire 1.1 (see Appendix 2) with questions concerning their L1 and the variety of English that they speak and are most frequently exposed to. Most volunteers that agreed to participate in the research indicated AE as their L2. Based on that, AE was chosen as the variety to be analysed. One of the speakers with L1 EP and L2 English reported that she studied the British variety, but had more contact with the American English. This participant was consequently added to the group of advanced/proficient speakers of L1 EP and L2 AE.

Apart from L1 and L2, the inclusion factors were defined as the following: 1) age between 18 and 45 years, 2) education at the level not lower than secondary school. Although the questionnaire included questions about the participants’ experience of language immersion and the time during which they had been learning English, these were not the decisive factors in the selection. As noted by Grant (2014: 12-13), L2 learners do not normally acquire pronunciation only for the fact of being exposed to it.

The second step was to divide the speakers of L1 EP and L1 BP according to their level of proficiency in English. CEFR (Common European Framework of Reference for Languages: Learning, teaching, assessment 2001: 24-31) was used as a reference to distinguish between the levels.

Part of the participants are students of Lisbon University and their level of proficiency in English was certified by FLUL (Faculdade de Letras da Universidade de Lisboa – Department of Philology of Lisbon University). One participant had a CPE (Cambridge English: Proficiency) certificate stating his level of proficiency as C2. Others took a level test.

The level test consisted of two parts. The first part is self-evaluation of oral and written production and comprehension in English according to CEFR Companion volume (2020). The second part is a grammar and vocabulary test chosen on the basis of the answers to the first part. If the speaker's answers fell in the range of B1/B2, they did Use of English test from sample papers for B2 First Cambridge (2015). If the speaker's answers fell in the range of C1/C2, they did the Use of English test from sample papers for C1 Advanced Cambridge (2015).

Finally, a group of native speakers of AE was formed. It included 4 speakers of L1 AE. Questionnaire 1.2 (see Appendix 1) was applied to select these participants.

As a result, the 20 speakers were divided into five groups:

Group 1. L1 AE – 4 participants;

Group 2. L1 EP, L2 intermediate/upper-intermediate AE – 4 participants (B1, B2, B2, B2);

Group 3. L1 EP, L2 advanced/proficient AE – 4 participants (C2, C2, C1, C2)

Group 4. L1 BP, L2 intermediate/upper-intermediate AE - 4 participants (B2, B2, B2, B1);

Group 5. L1 BP, L2 advanced/proficient AE – 4 participants (C2, C1, C1, C1).

The groups are numbered according to the descriptions presented in theoretical background: from the language/language varieties that show more stress-timed traits to the ones that have less patterns of that type.

At the time when the recordings were made, the speakers of L1 EP were living in Lisbon, Portugal. Two speakers, one with L2 AE B2 and one with L2 AE C2 had had an experience of living in English-speaking countries. The first spent two years (from 2015 to 2017) in Glasgow, Scotland. The other lived in the UK and in Sri Lanka for two years in total but did not specify when.

The speakers both in Group 2 (L1 EP L2 AE B1/B2) and Group 3 (L1 EP L2 AE C1/C2) are from continental Portugal. The speakers in Group 2 were aged 21 to 28, with the mean age of 22.5. The speakers in Group 3 were aged 19 to 41, with the mean age of 25.25.

All the speakers of L1 BP except two were living in Lisbon, Portugal. All of them had lived in Portugal for at least two years. One speaker of L1 BP with L2 AE B1 was living in Montevideo, Uruguay. One speaker of L1 BP with L2 AE C1 was living in Cork, Ireland. This speaker had lived in Ireland for four years and before that, she also lived for three years in Lisbon, Portugal. Another speaker of L1 BP with L2 AE C1 lived in London, the UK, for four months in 2015.

The speakers in Group 4 (L1 BP L2 AE B1/B2) come from the states of Espírito Santo (1), Minas Gerais (1), Paraná (1), and São Paulo (1), Brazil. They were aged 20 to 39 with the mean age of 31.25. The speakers in Group 5 (L1 BP L2 AE C1/C2) come from the states of Paraná (1), Rio de Janeiro (1), Rio Grande do Sul, and São Paulo (1). They were aged 30 to 34 with the mean age of 32.25. As the speakers of BP in both groups come from different regions of Brazil, we have to bear in mind that it implies certain limits for our research.

2.2 Materials

The materials consist of three texts in the form of short conversations.

The first two texts are based on conversations from Ponsonby (1998) found in the chapters devoted to stress and weak forms. The conversations were manipulated to fit the purposes of our study. Firstly, the phrases that cannot be used in the research were omitted when possible. Secondly, test elements were added so that each category of words to test had at least 8 elements. Finally, the texts were adjusted following the parameters mentioned in section 1.6. The third text was elaborated by us with the consideration of the above-mentioned parameters.

The test elements belong to three groups of function words:

1. articles: *a* (9);
2. auxiliary/modal verbs: *am* (1), *can* (2), *could* (3), *does* (2);
3. object pronouns: *us* (4), *me* (4);

Here we present the three conversations with the clitics to test marked in bold, = is used to indicate their attachment to the host.

Conversation 1

A: Does Ana already know what she's going to do after college?

B: Mr McKenzie told=**us** Ana=**could** make **a**=career as **a**=photographer.

A: To do photography she'll need **a**=ton of skills!

B: Well, Mr McKenzie told=**us** Ana=**could** win the Observer competition. Yes!
He=**advised**=**us** to buy a new camera for her.

Conversation 2

A: What are you doing?

B: What **am**=I doing? I'm reading. What **does**=it=look like I'm doing?

A: Is it **a**=magazine?

B: It's **a**=book, silly. You=**can** see it's not **a**=magazine.

A: **Could**=I take **a**=glance at it? Is it **a**=good book?

B: Yes, it's **a**=good_book.

A: **Does**=it=have pictures? Let=**me** see ...

B: OK, but then go away and let=**me** finish reading.

Conversation 3

A: **Can**=you help=**me** carry this bag?

B: What's in it?

A: Twenty bananas.

B: Are you kidding=**me**, Sally?

A: The doctor recommended us eating more fruit. I want=**us** to be healthy!

In some cases, more than one clitic could belong to the PW containing the tested elements. Depending on the adjacent segments, they were either included in the PW or not. For example, in the sentence *OK, but then go away and let me finish reading*, the words *and=let=me* may be seen as a PW. However, we will only do the measurements for *let=me*. We consider

that it does not influence the results of the analysis, as the clitic in focus is *me*. Besides, this solution prevents us from having to separate one vowel from another on the left border of the PW.

In the case with auxiliary verbs, we had to add a verb to the PWs containing personal pronouns that tend to have weak forms (*does it look, does it have, can you help*). Based on the theoretical points presented in 1.3.2, we do not expect the personal pronoun I to be weak and did not include the verb in the PW (*am I, could I*).

This way we obtained the following elements for further analysis (the clitics are marked in bold):

Table 4. Test elements.

PW with an article	PW with an auxiliary verb	PW with an object pronoun
a career as	Ana could (1)	told us
a photographer	Ana could (2)	told us
a ton	am I	he advised us
a magazine (1)	does it look	let me
a book	you can	let me
a magazine (2)	could I	help me
a glance	does it have	kidding me
a good (1)	can you help	want us
a good (2)		

An example of the papers with the instructions and the conversations for reading distributed to the participants can be found in Appendix 4.

2.3 Procedure

The procedure involved voice recording to acquire data that would permit us compare the differences in the acquisition of weak forms in L2 AE by the speakers of L1 EP and L1 BP.

For the recording, all the speakers of L1 Portuguese (EP and BP) and L1 AE were asked to read out loud the same texts in English. Each informant was instructed to read the text to

themselves first and had three attempts to read it aloud, as our study does not aim at testing reading abilities. On the contrary, it was preferable to avoid any difficulties and pauses related to reading itself and not to natural oral production. Each attempt was recorded.

When possible, the recordings were made with the use of a Philips SBC ME 400 unidirectional condenser microphone. The recordings took place during the pandemic of COVID-19, which is why it was necessary to take certain precautions. Therefore, each speaker used an individual microphone protector but took off their mask for the recording to avoid a negative impact on the quality of the recordings. A microphone holder was used to set the microphone in a stable and comfortable position. The speakers sat so that they could comfortably keep the distance of 10 or 15 cm between their mouth and the microphone.

These recordings were made in Praat as mono sound with the sampling rate 22050 Hz as recommended in Low (2015). The computer with Praat was set approximately 3 meters away from the microphone to avoid noise.

The recordings were saved in WAV format.

In the cases when presential recordings were not possible, the informants were instructed to record their voices with the help of their mobile phones. Two mobile applications that permit recording in WAV format were chosen after tests for quality. *Voice Recorder and Audio Editor* was used on mobile phones with iOS and *QuickRec Shinshow* on mobile phones with Android.

The number of recordings made with the help of mobile phones is the following: three in Group 1 (native speakers of AE), one in Group 2 (speakers of L1 EP with a lower level of L2 AE), two in Group 3 (speakers of L1 EP with a higher level of L2 AE), one in Group 4 (speakers of L1 BP with a lower level of L1 BP with a lower level of L2 AE), and two in Group 5 (speakers of L1 BP with a higher level of L2 AE).

The obtained recordings were then selected by quality of sound and spectrogram for further annotation. If the three recordings did not present significant differences in quality, i.e. none of the samples prevented from doing segmentation, the first sample was chosen. 20 recordings were selected for the analysis:

Group 1. L1 AE – 4;

Group 2. L1 EP, L2 intermediate/upper-intermediate AE – 4 (B1, B2, B2, B2);

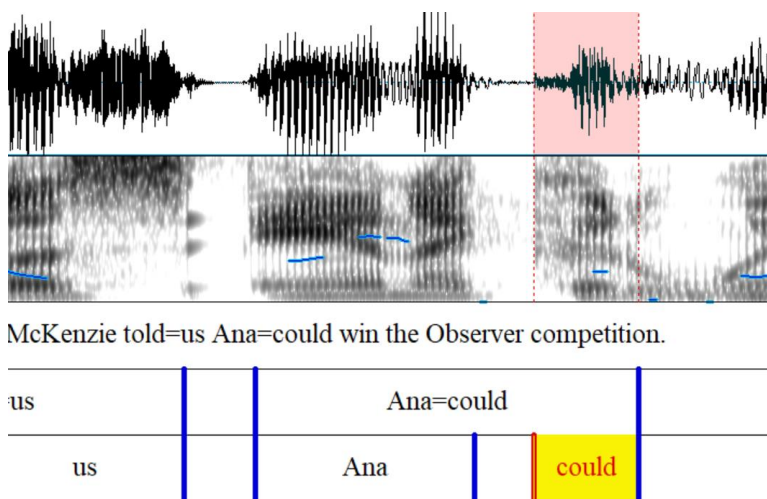
Group 3. L1 EP, L2 advanced/proficient AE – 4 (C2, C2, C1, C2)

Group 4. L1 BP, L2 intermediate/upper-intermediate AE - 4 (B2, B2, B2, B1);

Group 5. L1 BP, L2 advanced/proficient AE – 4 (C2, C1, C1, C1).

The segmentation was done manually in Praat and saved as TextGrid. To keep the measurements consistent, some rules were introduced concerning the segmentation.

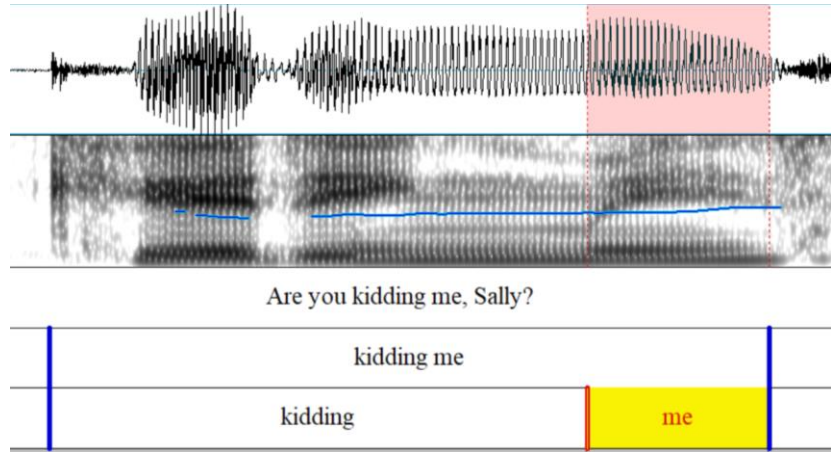
A universal method was applied to define the left boundary of auxiliary verbs beginning with [k], as they may precede or follow the subject. The element's left edge was marked at the point of burst and not at the right edge of a preceding segment as shown on Picture 1:



Picture 1

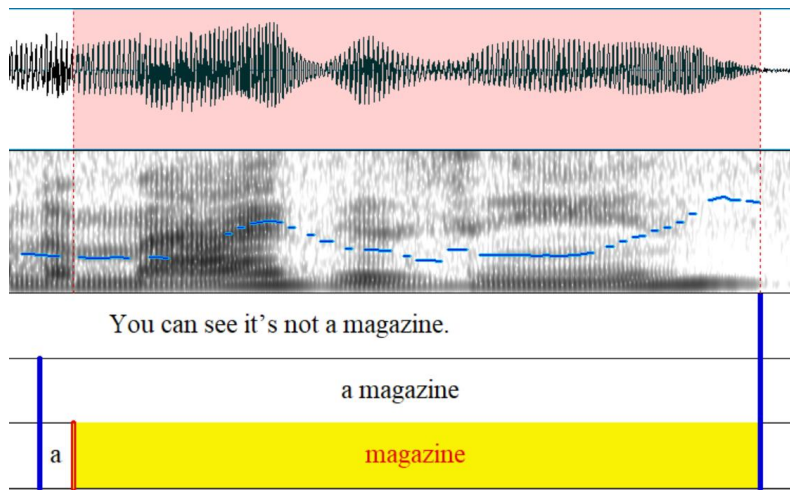
This way we avoid the uncertainty as to whether the empty space on the spectrogram before the burst was a pause or an oral constriction.

To define the left edge of the elements starting with [m] when they are preceded by another nasal, we will consider that [m] begins at the point where a clear curve between F1 and F2 is seen on, as in Picture 2. This method will permit to deal with 1) individual differences in pronunciation 2) difficulties in defining a clear boundary between [n] or [ŋ] and [m].



Picture 2

To define the right edge of phrase-final elements we will use the cessation of F1 indicating fundamental frequency as in Picture 3 and, when possible, the change in the waveform showing lower frequency and intensity of the sound.



Picture 3

For each speaker, we measured the duration of PWs and the duration of the clitics in all the three categories of the PWs. We also measured the duration of the vowel in auxiliary verbs and in object pronouns. The measurements were made in ms.

As the duration may depend on the speed of each individual, we used the obtained data to compute the clitic proportion (CP) for articles, auxiliary verbs and object pronouns. We also computed the vowel proportion (VP) in auxiliary verbs and object pronouns.

The gaps between the clitics and their hosts (as mentioned above concerning the PWs containing auxiliary verbs beginning with [k]; see Picture 1) were excluded from the duration of the PWs and were not considered for the computation of the CP. We also excluded personal pronouns from *does=it=look*, *does=it=have* and *can=you=help*, as they can be reduced and consequently would affect the CP of the auxiliary verbs. One PW (*kidding=me*) was excluded from the data for VP, as due to segmentation (as in Picture 2) the clitic lost most part of its consonant.

The CP and the VP served as dependent variables in the statistical analysis. To do the latter we used SPSS Statistics and additionally analyzed the tendency to omit certain elements by the speakers in different groups.

In our analysis we posed the following questions formulated according to the hypotheses put forth in section 1:

- 1) Are the speakers in Group 2, 3, 4 and 5 different from the speakers in Group 1?
- 2) Do the speakers in Group 3 and Group 5 have more tendency to reduction in comparison with the speakers in Group 2 and Group 4 respectively?
- 3) Are the results demonstrated by Group 3 and 5 for the articles closer to those demonstrated by Group 1 in comparison with the results demonstrated for auxiliary verbs?
- 4) Are the results demonstrated for the object pronouns by Group 3 closer to those demonstrated by Group 1 in comparison with Group 5?

3. Data analysis

In this section we present the analysis of the obtained data. First, we will analyse the differences in CP between the groups for the three categories of clitics: the indefinite article, auxiliary verbs, and object pronouns. Next, we will look at the differences in VP between the groups in auxiliary verbs and object pronouns.

The first step in the statistical analysis was to check if the data is normally or non-normally distributed and consequently subject to parametric or non-parametric tests. For this purpose, we applied Kolmogorov-Smirnov and Shapiro-Wilk normality tests. Both tests showed that the data related to CP is non-normally distributed. As for VP, the data on object

pronouns is normally distributed, but the data on auxiliary verbs and groups is non-normally distributed. The statistical tests were chosen accordingly.

In 3.1 we present data analysis for CP and in 3.2 for VP. Subsection 3.3 is devoted to additional observations on segments' omission. Finally, we give summary in subsection 3.4.

3.1 Clitic proportion

We will begin with the analysis of the differences between the groups in general and then will focus on each category of clitics.

First, we checked if there was a statistically significant difference between the groups in terms of CP irrespective of the clitic's category. We applied two tests: Kruskal-Wallis to make a comparison across the groups and Mann-Whitney U to compare pairs of groups.

Kruskal-Wallis test showed that there is no statistically significant difference across the groups concerning CP: $H(4) = .350$, $p = .986$.

One-tailed results of Mann Whitney U tests for the pairs of groups showed the same. There was no significant difference between the speakers of L1 EP with a lower level of L2 AE (Group 2) or the speakers of L1 EP with a higher level of L2 AE (Group 3) and the native speakers of AE (Group 1): $U = .440$, $p = .330$ and $U = .005$, $p = .498$ respectively. There was also no significant difference between the speakers of L1 EP with different levels of L2 AE ($U = .443$, $p = .328$). Similar to the speakers of L1 EP, the speakers of L1 BP of a lower and higher levels of proficiency in L2 AE (Group 4 and 5) did not differ significantly from each other: $U = .009$, $p = .497$. They also did not demonstrate significant difference from the native speakers of AE: $U = .308$, $p = .379$ and $U = .351$, $p = .363$ respectively. Finally, we compared the speakers of L1 EP and L1 BP with a lower level of L2 AE (Group 2 and 4) and the speakers of L1 EP and L1 BP with a higher level of L2 AE (Group 3 and 5). No significant difference was found between them: $U = .127$, $p = .450$ and $U = .414$, $p = .340$ respectively.

In sum, one-tailed results for Mann-Whitney U between groups did not reveal significant differences between the speakers of L1 Portuguese L2 AE from the native speakers of L1 AE neither depending on the variety of Portuguese that they speak, no on the level of proficiency in L2 AE. There was also no significant difference between the speakers of L1 EP and L1 BP.

Next, we checked if there is a significant difference between the categories of clitics without taking into consideration the speakers' L1. We used a Kruskal-Wallis test to make a comparison across the clitic categories and a Wilcoxon's test to compare pairs of categories.

A Kruskal-Wallis test showed that there is a statistically significant difference between them: $H(2) = 339.948$, $p < .001$. That is, in general, different types of clitics have different CP in PWs.

A Wilcoxon's test showed that there is a significant difference between the articles and the auxiliaries ($Z = 10.937$, $p < .001$), articles and object pronouns ($Z = 10.943$, $p < .001$), and between auxiliaries and object pronouns ($Z = 4.272$, $p < .001$). The CP was the lowest for the articles ($M = 11.32$, $SD = 5.30$) and the highest for the auxiliary verbs ($M = 44.98$, $SD = 13.35$). Pronouns had CP closer to auxiliary verbs ($M = 37.52$, $SD = 13.57$).

Our next step was to apply Mann Whitney U test in order to check the difference between pairs of groups for each category of clitics.

One-tailed results for Mann Whitney U test showed that there is a significant difference in terms of CP in PWs containing articles between the speakers of L1 EP with a lower level of L2 AE (Group 2) and the native speakers of AE (Group 1): $U = 2.455$, $p = .007$. There was no significant difference between these two groups of speakers concerning the CP for auxiliary verbs ($U = .685$, $p = .247$) and pronouns ($U = .913$, $p = .180$). As for the speakers of L1 EP with a higher level of L2 (Group 3), the results showed no significant difference between them and the native speakers of AE concerning CP for the indefinite article ($U = .957$, $p = .169$), auxiliary verbs ($U = .121$, $p = .452$) or object pronouns ($U = .457$, $p = .324$). The comparison of the speakers of L1 EP with different levels of L2 AE showed no significant difference between them in terms of CP for the indefinite article ($U = 1.509$, $p = 0.234$), auxiliary verbs ($U = .953$, $p = 0.170$) or object pronouns ($U = 403$, $p = .343$).

The results of the same test for the speakers of L1 BP were different. The tests did not show any significant difference between the speakers of L1 BP with a lower level of L2 AE (Group 4) and the native speakers of AE (Group 1) for the articles ($U = 1.487$, $p = .068$), auxiliary verbs ($U = .935$, $p = 0.175$) or object pronouns ($U = .658$, $p = 0.255$). However, there was a significant difference between the speakers of L1 BP with a higher level of L2 AE (Group 5) and the native speakers (Group 1) for the category of articles ($U = 1.847$, $p = .032$). There was no significant difference between these two groups of speakers concerning auxiliary verbs

($U = 1.222$, $p = .111$) and pronouns ($U = .725$, $p = .087$). The comparison between the speakers of L1 BP with a lower level of L2 AE (Group 4) and the speakers of L1 BP with a higher level of L2 AE (Group 5) showed that there was no significant difference in CP for the articles ($U = .298$, $p = .382$), auxiliary verbs ($U = .426$, $p = .335$) or object pronouns ($U = .712$, $p = 0.238$).

The comparisons between the speakers of L1 EP and L1 BP of the same levels did not show significant difference for any of the categories. The CP demonstrated by the speakers of L1 EP with a lower level of L2 AE (Group 2) was not significantly different from that demonstrated by the speakers of L1 BP (Group 4) with the same level of L2 AE for the articles ($U = 1.132$, $p = .129$), auxiliary verbs ($U = .220$, $p = .413$) and pronouns ($U = .269$, $p = .394$). Similarly, the speakers of L1 EP and L1 BP with a higher level of L2 AE (Group 3 and 5 respectively) did not have significant differences between themselves in any of the categories. There was no significant difference between them in terms of CP for the articles ($U = 1.059$, $p = .145$), auxiliary verbs ($U = 1.443$, $p = .076$), or pronouns ($U = .537$, $p = .295$).

Summing up, one-tailed results of Mann Whitney U test showed a significant difference in CP only for one category of clitics, the indefinite article. A significant difference was found between the speakers of L1 EP with a lower level of L2 AE and the native speakers of AE. No such difference was observed for the speakers of L1 EP with a higher level of L2 AE. The speakers of L1 BP, on the contrary, did not demonstrate a significant difference from the native speakers at a lower level in L2 AE, but were significantly different from them at a higher level of L2 AE. No significant difference was found between the speakers of L1 Portuguese of different varieties with the same level of L2 AE.

Further we applied Wilcoxon's test to check if there is a significant difference between the categories of clitics within each group and to compare the means between the groups of speakers. The results of the test will allow us firstly to see if the speakers have the same proportions between the clitics in terms of CP as were registered above, and if they are similar for the speakers of L2 AE and the speakers of L1 AE. Secondly, we will see if the differences between the speakers registered for the category of articles were due to lack of reduction from the part of the speakers of L2 AE.

The results showed that the native speakers of AE (Group 1) demonstrated significantly different results for the articles and auxiliary verbs ($Z = 4.937$, $p < .001$), articles and pronouns ($Z = 4.880$, $p < .001$), but not for auxiliary verbs and pronouns ($Z = .972$, $p = .331$). The CP for

the articles ($M = 9.58$, $SD = 4.31$) was significantly lower than for auxiliary verbs ($M = 43.55$, $SD = 13.29$) and object pronouns ($M = 40.32$, $SD = 15.28$). These results are different from those obtained in the previous tests, where the CP for auxiliary verbs was significantly higher. It means that most speakers in other groups are different from the native speakers in terms of proportions between the CP in the three categories of clitics, and the differences were strong enough to affect the results overall.

The speakers of L1 EP with a lower level of L2 AE (Group 2) demonstrated significantly different results for the articles and auxiliary verbs ($Z = 4.937$, $p < .001$), articles and pronouns ($Z = 4.880$, $p < .001$), auxiliaries and pronouns ($Z = 2.206$, $p = .027$). The CP was the lowest for articles ($M = 12.94$, $SD = 6.09$) and the highest for auxiliary verbs ($M = 45.25$, $SD = 12.08$). The CP for object pronouns ($M = 35.90$, $SD = 12.47$) was closer to that for auxiliary verbs. The speakers of L1 EP with a higher level of L2 AE (Group 3) had significantly different results for the articles and auxiliary verbs ($Z = 4.937$, $p < .001$), articles and pronouns ($Z = 4.937$, $p < .001$), but not for auxiliary verbs and pronouns ($Z = 1.147$, $p = .254$). They had the lowest CP for articles ($M = 10.71$, $SD = 5.01$ respectively) and the highest for auxiliary verbs ($M = 43.17$, $SD = 11.75$) and object pronouns ($M = 39.26$, $SD = 16.33$). It means, on the one hand, that although a significant difference was found between the speakers of L1 EP with a lower level of L2 AE and the native speakers of AE concerning CP for the articles, the first had a similar tendency for the CP to be the lowest for this category of clitics. The speakers of L1 EP with a higher level of L2 AE were also similar to native speakers in this respect. On the other hand, although no significant difference was found between the speakers of L1 EP with a lower level of AE and the speakers of L1 AE concerning CP for auxiliary verbs and object pronouns, the first had different proportions between them with CP for auxiliary verbs significantly higher than for pronouns. The speakers of L1 EP with a higher level of L2 AE had the same tendency in terms of proportions between the three categories of clitics as the native speakers of AE.

The speakers of L1 BP with a lower level of L2 AE (Group 4) showed significantly different results for the articles and auxiliary verbs ($Z = 4.860$, $p < .001$), articles and pronouns ($Z = 4.937$, $p < .001$), auxiliaries and pronouns ($Z = 2.342$, $p = .019$). The speakers of L1 BP with a higher level of L2 AE (Group 5) showed significantly different results for the articles and auxiliary verbs ($Z = 4.937$, $p < .001$), articles and pronouns ($Z = 4.937$, $p < .001$), auxiliaries and pronouns ($Z = 2.842$, $p = .004$). Both the speakers of L1 BP with a lower and with a higher

level of L2 AE demonstrated a lower CP for articles ($M = 11.28$, $SD = 4.90$ and $M = 12.05$, $SD = 5.67$ respectively) and a higher CP for auxiliary verbs ($M = 45.59$, $SD = 11.01$ and $M = 47.40$, $SD = 13.84$) and object pronouns ($M = 36.87$, $SD = 12.34$ and $M = 35.27$ and $SD = 10.83$). In other words, similar to the native speakers of L1 AE, for the speakers of L1 BP CP was the lowest for the articles. However, their CP in auxiliary verbs was significantly higher than in object pronouns, while native speakers of AE did not demonstrate a significant difference in CP between these two categories of clitics.

To sum up, Wilcoxon's tests applied between the categories of clitics for each group showed that there is a significant difference in CP between the articles and auxiliary verbs and between the articles and object pronouns within each group of speakers with the lowest CP for the articles. That is, even though the speakers of L1 EP with a lower level of L2 AE and the speakers of L1 BP with a higher level of L2 AE were significantly different from the native speakers of L1 AE in terms of CP for articles, they had a similar tendency for the articles to have the lowest CP in comparison with the other two categories of clitics. At the same time, we can see that the differences in CP for the articles registered in previous tests were due lack of reduction for the speakers of L1 EP with a lower level of L2 AE and for the speakers of L1 BP with a higher level of L2 AE. The CP for articles in these two groups of speakers was significantly higher than in the group of native speakers of AE. The speakers of L1 AE did not demonstrate significant difference in CP between the auxiliary verbs and object pronouns and so didn't the speakers of L1 EP with a higher level of L2 AE. Other speakers of L1 Portuguese demonstrated a significantly higher CP for the auxiliary verbs than for object pronouns, notwithstanding the fact that the tests for each category did not show significant differences in CP between these groups and the native speakers of AE.

As we found significant difference between certain groups of speakers concerning CP in PWs containing an indefinite article, we compared pairs of groups in this respect for each PW. For that purpose we applied Mann-Whitney U test. We will first present the analysis for the PWs that consist of a one-syllable host and an article ($a=book$, $a=glance$, $a=good$ (1), $a=good$ (2), $a=ton$), then for the PWs where the host has more than one syllable ($a=career$ as, $a=magazine$ (1), $a=magazine$ (2), $a=photographer$).

In $a=book$ no significant difference was found between the speakers of L1 EP with a lower level of L2 AE (Group 2) and the native speakers of AE (Group1): $U = .866$, $p = .193$.

The same is true for the speakers of L1 EP with a higher level of L2 AE (Group 3): $U = .866$, $p = .193$. The comparison of the speakers of L1 EP with different levels did not show significant differences for this PW: $U = 577$, $p = .282$. The speakers of L1 BP also were not significantly different from the native speakers neither at lower, nor at a higher level of L2 AE (Group 4 and 5 respectively): $U = 1.452$, $p = .073$ and $U = .577$, $p = .282$. The two groups were also not significantly different from each other: $U = 1.162$, $p = .123$. There was no significant difference between the speakers of L1 EP and L1 BP with a lower level of L2 AE ($U = .581$, $p = .281$) or between the speakers of L1 EP and L1 BP with a higher level of L2 AE ($U = .577$, $p = .282$).

In *a=glance* the speakers of L1 EP with a higher and lower level of L2 AE (Group 2 and Group 3) were not significantly different from the native speakers (Group 1) or from each other: $U = 1.155$, $p = .124$ and $U = .289$, $p = .387$ respectively. The same was true for the speakers of L1 BP. The groups with a lower and with a higher level of L2 AE (Group 4 and 5) were not significantly different from the native speakers or from each other: $U = .866$, $p = .193$, $U = .000$, $p = 1.000$, and $U = .577$, $p = .282$ respectively. The comparison of the speakers of L1 EP and BP with the same levels of L2 AE did not show significant differences between them: $U = 1.155$, $p = .124$ for groups with a lower level of L2 AE and $U = .577$, $p = .282$ for the groups with a higher level of L2 AE.

In *a=good* (1) the speakers of L1 EP and L1 BP with a lower level of L2 AE (Group 2 and 4 respectively) were significantly different from the native speakers (Group 1): $U = 2.309$, $p = .010$ and $U = 1.732$, $p = .041$. Their CP ($M = 23.08$ and $M = 18.49$ respectively) was higher than that demonstrated by the native speakers of AE ($M = 12.03$). The speakers of L1 EP and L1 BP with a higher level of L2 AE (Group 3 and 5) were not significantly different from the native speakers: $U = 1.143$, $p = .075$ in both cases. There was a significant difference between the speakers of L1 EP with different levels of L2 AE: $U = 2.309$, $p = .010$. No such difference was found for the speakers of L1 BP as well: $U = 289$, $p = .386$. There was a significant difference between the speakers of L1 EP and BP with a lower level of L2 AE ($U = 2.309$, $p = .010$), but not between for those with a higher level ($U = .577$, $p = .282$).

In *a=good* (2) in speakers of L1 EP with a lower level of L2 AE (Group 2) and with a higher level of L2 AE (Group 3) were not significantly different from the native speakers (Group 1): $U = .866$, $p = .193$ and $U = .289$, $p = .387$ respectively. The two groups of speakers of L1 EP were not significantly different from each other as well: $U = .866$, $p = .193$. The same

is true for the speakers of L1 BP. Neither the group with a lower level of L2 AE (Group 4), nor the group with a higher level of L2 AE (Group 5) was significantly different from the native speakers: $U = .866$, $p = .193$ in both cases. The groups of L1 EP and L1 BP with the same levels were not significantly different from each other as well: $U = .866$, $p = .193$ for both levels.

There is a significant difference in CP for *a=ton* between the speakers of L1 EP with a lower level of L2 AE (Group 2) and the native speakers (Group1): $U = 1.732$, $p = 0.41$. The mean CP demonstrated by the first ($M = 18.64$) is significantly higher than that demonstrated by the second ($M = 14.54$). No significant difference was found between the speakers of L1 EP with a higher level of L2 AE and the speakers of L1 AE: $U = 1.443$, $p = .075$. There was no significant difference between the speakers of L1 EP with different levels: $U = .866$, $p = .193$. The speakers of L1 BP with a lower level of L2 AE (Group 4) were not significantly different from the native speakers of L1 AE: $U = .577$, $p = .282$. However, the speakers of L1 BP with a higher level of L2 AE (Group 5) showed a significant difference from the speakers of L1 AE ($U = 1.732$, $p = .041$). The difference was due to the fact that the first had a higher CP ($M = 18.13$) than the second ($M = 14.54$). No significant difference was found between the speakers of L1 BP with different levels of L2 AE: $U = .866$, $p = .193$. The speakers of L1 EP and BP with the same levels were not significantly different from each other: $U = .866$, $p = .193$ for the groups with a lower level of L2 AE and $U = .289$, $p = .387$ for the groups with a higher level of L2 AE.

Summing up, the speakers of L1 EP L2 AE showed significant difference in two out of five PWs with a one-syllable host (*a=good* (1) and *a=ton*). In both cases, the difference was registered only for the speakers with a lower level of L2 AE and was due to lack of reduction. The speakers of L1 BP demonstrated a significant difference from the native speakers in the same PWs, but in the first case (*a=good* (1)) it was registered for the speakers with a lower level of L2 AE and in the second (*a=ton*) for the speakers with a higher level of L2 AE. Again, the differences were due to lack of reduction on the part of the speakers of L1 BP.

Next, we will look at the PWs containing an indefinite article and a host with more than one syllable.

In *a=career as*, the speakers of L1 EP with a lower and a higher level of L2 AE (Group 2 and 3) were not significantly different from the speakers of L1 AE (Group1): $U = .866$, $p = .193$ and $U = .000$, $p = 1.000$ respectively. No significant difference was found between the

speakers of L1 EP with different levels of L2 AE: $U = .000$, $p = 1.000$. The same is true for the speakers of L1 BP. There was no significant difference between the speakers of L1 BP with a lower and a higher level of L2 AE (Group 4 and 5) and the native speakers of AE: $U = .289$, $p = .386$ and $U = .577$, $p = .282$ respectively. The two groups of speakers with L1 BP did not demonstrate significant difference from each other: $U = .145$, $p = .443$. No significant difference was found between the speakers of L1 EP and L1 BP with a lower or a higher level of L2 AE: $U = .000$, $p = 1.000$ and $U = .289$, $p = .387$ respectively.

In *a=magazine* (1) the CP demonstrated by the speakers of L1 EP with a lower and higher level of L2 AE (Group 2 and Group 3) was significantly different from that demonstrated by the native speakers (Group 1): $U = 2.309$, $p = .010$ in both cases. The two groups had a higher CP ($M = 8.32$ and $M = 8.23$ respectively) than the native speakers ($M = 6.22$). No significant difference was found between the two groups of speakers of L1 EP: $U = 1.155$, $p = .124$. The speakers of L1 BP with a higher and lower level of L2 AE (Group 4 and 5) were not significantly different from the speakers of L1 AE: $U = .577$, $p = .282$ and $U = .289$, $p = .386$ respectively. The two groups of speakers with L1 BP were not significantly different from each other: $U = .289$, $p = .386$. The difference between the speakers of L1 EP and L1 BP with the same levels was not significant: $U = 1.155$, $p = .124$ for both levels.

In *a=magazine* (2) there was no significant difference between the speakers of L1 EP with a lower level of L2 (Group 2) and the native speakers (Group 1): $U = .866$, $p = .193$. The speakers of L1 EP with a higher level of L2 AE (Group 3) were significantly different from the native speakers: $U = 2.309$, $p = .010$. The CP demonstrated by the first ($M = 5.17$) was lower than the one demonstrated by the latter ($M = 7.09$), which means that in this case the difference was not due to lack of reduction. The difference between the two groups of speakers of L1 EP L2 AE was not significant ($U = 1.155$, $p = .124$). The speakers of L1 BP with a lower level of L2 AE (Group 4) was not significantly different from the speakers of L1 AE ($U = 0.000$, $p = 1.000$). The speakers of L1 BP with a higher level of L2 AE (Group 5) were significantly different from the native speakers ($U = 2.309$, $p = .010$) and had a higher CP ($M = 9.07$). The two groups of L1 BP L2 AE were significantly different from each other ($U = 2.021$, $p = .021$). No significant difference was found between the speakers of L1 EP and L1 BP with a lower level of L2 AE ($U = 1.155$, $p = .124$), but the speakers of a higher level were significantly different from each other ($U = 2.309$, $p = .010$).

In *a=photographer* the speakers of L1 EP with a lower and a higher level of L2 AE (Group 2 and 3) were significantly different from the speakers of L1 AE (Group 1): $U = 2.323$, $p = .010$ in both cases. There was no significant difference between the two groups of speakers of L1 EP L2 AE ($U = .289$, $p = .387$). The speakers of L1 BP with a higher and a lower level were significantly different from the native speakers of AE ($U = 2.323$, $p = .010$). The CP demonstrated by the speakers of L1 BP with a lower and a higher level of L2 AE ($M = 6.20$ and $M = 6.0$ respectively) was higher than the one demonstrated by the speakers of L1 AE ($M = 4.14$). The two groups of speakers with L1 BP were not significantly different from each other: $U = .577$, $p = .282$. No significant differences were found between the speakers of L1 EP and L1 BP with higher level of L2 AE ($U = .289$, $p = .387$) or with a higher level of L2 AE ($U = .866$, $p = .193$).

Summing up, the speakers of L1 EP L2 AE were significantly different from the speakers of L1 AE in three out of four PWs containing a host with more than one syllable (*a=magazine* (1), *a=magazine* (2), *a=photographer*). In all the three PWs the difference was registered for these speakers regardless of their level of L2 AE. However, in one of the cases (*a=magazine* (2)), the speakers of L1 EP L2 AE with a higher level had a lower CP than the native speakers of AE. As for the speakers of L1 BP, the group with a lower level of L2 AE was significantly different from the native speakers in one case (*a=photographer*). The group with a higher level of L2 AE was significantly different from the speakers of L1 AE in two PWs (*a=magazine* (2) and *a=photographer*). In all the three cases the difference was due to the fact that the speakers of L1 BP had a higher CP than the speakers of L1 AE.

Significant differences between the speakers of L1 Portuguese L2 AE and the speakers of L1 AE occurred both in the PWs where the host had one syllable and in PWs where it had more than one syllable. However, for the speakers of L1 EP with a higher level of L2 AE such differences were registered only in the second category of PWs. Consequently, we can suppose that multisyllable hosts make reduction of the indefinite article more difficult for this group of speakers. The speakers of L1 BP with a lower level of L2 AE showed a significant difference in one PW with a one-syllable host and in one PW with a multi-syllable host. The speakers of L1 BP with a higher level of L2 AE were significantly different from the native speakers in one PW with a one-syllable host and in two PWs with a multi-syllable host. Consequently, we

conclude that PWs with multi-syllable hosts present more difficulty in terms of reduction of the indefinite article for the speakers of L1 BP L2 AE.

3.2 Vowel proportion

To compare the groups in terms of VP in auxiliary verbs and object pronouns, we followed the same steps as for analysing the CP.

First, we checked if there was a statistically significant difference across and between the groups in terms of VP regardless of the clitic's category. We applied two tests: Kruskal-Wallis to make a comparison across the groups and one-tailed Mann-Whitney U to compare pairs of groups.

Kruskal-Wallis test showed that there is a statistically significant difference across the groups: $H(4) = 21.840$, $p < .001$.

One-tailed results of Mann Whitney U tests for the pairs of groups showed that the speakers of L1 EP both with a lower level of L2 AE (Group 2) and with a higher level of L2 AE (Group 3) were not significantly different from the speakers of L1 AE (Group 1): $U = 1.819$, $p = .034$ and $U = 1.169$, $p = .121$ respectively.

One-tailed results of Mann Whitney U tests for the pairs of groups showed that the speakers of L1 EP with a lower level of L2 AE (Group 2) were significantly different from the speakers of L1 AE (Group 1), but the speakers of L1 EP with a higher level were not significantly different from the native speakers: $U = 1.819$, $p = .034$ and $U = 1.169$, $p = .121$ respectively. There was no significant difference between the speakers of L1 EP with a higher and lower level of L2 AE ($U = .648$, $p = .258$). As for the speakers of L1 BP, at a lower level of proficiency in L2 AE (Group 4) they were not significantly different neither from the native speakers, nor from the speakers of L1 EP with the same level of L2 ($U = .646$, $p = .259$ and $U = 1.095$, $p = .137$ respectively). The speakers of L1 BP with a higher level of L2 AE (Group 5) were significantly different from the native speakers of AE ($U = 4.026$, $p < .001$). Their results were also significantly different from those demonstrated by the speakers of L1 BP with a lower level of L2 AE ($U = 3.117$, $p = .001$), and the speakers of L1 EP with the same level of L2 AE ($U = 3.542$, $p < .001$).

Based on that, we can conclude that the significant differences across the groups shown by Kruskal-Wallis test were mainly related to the speakers of L1 BP with a higher level of L2 AE and the speakers of L1 EP with a lower level of L2 AE, while the other speakers of L1 Portuguese did not present significant differences from the native speakers of AE.

Next, we checked if there is a significant difference between the categories for the speakers on the whole without taking into consideration their L1. A Kruskal-Wallis test showed that there is a statistically significant difference between them: $H(2) = 83.540$, $p < .001$. That is, in general, auxiliary verbs and pronouns have different VP in PWs.

A Wilcoxon's test showed the same: a significant difference between the auxiliary verbs and pronouns ($Z = 8.788$, $p < .001$). VP is generally lower in auxiliaries ($M = 34.99$ ms, $SD = 12.8$ ms) than in pronouns ($M = 48.98$ ms, $SD = 10.47$ ms).

The next step was to apply Mann Whitney U test to check the difference between pairs of groups in terms of VP in auxiliary verbs and pronouns.

One-tailed results for Mann Whitney U showed a significant difference in VP between the speakers of L1 EP with a lower level of L2 AE (Group 2) and the native speakers of AE (Group 1) for the auxiliary verbs ($U = 3.599$, $p < .001$), but not for the pronouns ($U = .754$, $p = .255$). The results for the speakers of L1 EP with a higher level of L2 AE (Group 3) were similar. They demonstrated a significant difference from the native speakers of AE concerning VP in auxiliary verbs ($U = 3.108$, $p = .001$), but not in pronouns ($U = 1.295$, $p = .098$). We also compared the speakers of L1 EP with different levels of L2 AE and found no significant difference between them neither for the auxiliary verbs ($U = .261$, $p = .397$), nor for the pronouns ($U = .721$, $p = .236$). In other words, the speakers of L1 EP were significantly different from the native speakers of AE in terms of VP in auxiliary verbs independent of their level of L2 AE, but not from each other. No significant difference was found concerning VP in pronouns for these groups of speakers.

As for the speakers of L1 BP, they were also different from the speakers of L1 AE in terms of VP in auxiliary verbs. The speakers of L1 BP and L2 AE with a lower level of L2 AE (Group 4) were significantly different from the native speakers of AE (Group 1) in terms of VP in auxiliary verbs ($U = 2.225$, $p = .012$), but not in pronouns ($U = .492$, $p = .312$). The speakers of L1 BP with a higher level of L2 AE (Group 5) were significantly different from the native speakers (Group 1) in terms of VP both in auxiliary verbs ($U = 4.485$, $p < .001$) and pronouns

($U = 2.524$, $p = .006$). There was also a significant difference between the speakers of L1 BP of the two levels concerning the VP in auxiliaries ($U = 2.488$, $p = .007$) and in pronouns ($U = 2.319$, $p = .010$). It means that the speakers of L1 BP were significantly different from the native speakers of AE in terms of VP in auxiliary verbs independent of their level of L2 AE and from each other. Their VP in pronouns was not significantly different from that of native speakers of L1 AE at a lower level of proficiency in L2 AE. However the speakers of L1 BP of a higher level of L2 AE were significantly different in this respect both from the native speakers and from the speakers of L1 BP with a lower level of L2 AE.

The speakers of L1 EP and L1 BP with a lower level of proficiency were not significantly different from each other in terms of VP in auxiliary verbs ($U = .969$, $p = .166$) or pronouns ($U = .164$, $p = .435$). The results for the speakers of L1 EP and L1 BP with a higher level of proficiency were significantly different both for the auxiliary verbs ($U = 1.787$, $p = .037$) and the pronouns ($U = 3.769$, $p < .001$).

Summing up, the results of Mann Whitney U showed a significant difference between the speakers of L1 Portuguese of both varieties regardless of their level of proficiency in L2 AE and the native speakers of L1 AE in terms of VP in auxiliary verbs. There was no significant difference between the speakers of L1 EP with a lower and a higher level of L2 AE concerning VP in auxiliary verbs, but such difference was found for the speakers of L1 BP. No significant difference was found between the speakers of L1 EP independent of their level of L2 AE and the native speakers in terms of VP in object pronouns. The same is true for the speakers of L1 BP with a lower level of L2 AE, but not for the speakers of L1 BP with a higher level of L2 AE. The speakers of L1 EP and L1 BP were significantly different from each other at a higher level of L2 AE, but not at a lower level of L2 AE concerning VP in both categories of clitics.

Further we applied Wilcoxon's test to check if there is a significant difference between the categories of clitics within each group.

Native speakers of AE (Group 1) demonstrated significantly different results for the auxiliary verbs and pronouns ($Z = 4.623$, $p < .001$). They had a lower VP in auxiliary verbs ($M = 26.33$, $SD = 12.73$) than in pronouns ($M = 50.18$, $SD = 12.42$), which is in line with the results of the previous tests obtained for the speakers in general.

The same was true for the speakers of L1 EP with a lower level of L2 AE (Group 2: $Z = 2.983$, $p = .003$). Again, VP was lower in auxiliaries ($M = 37.27$, $SD = 11.64$) than in pronouns

($M = 46.96$, $SD = 9.29$). Similarly, there was a significant difference in VP between auxiliary verbs and pronouns for the speakers of L1 EP with a higher level of L2 AE (Group 3: $Z = 3.291$, $p < .001$), with lower values for the first ($M = 35.94$, $SD = 11.30$) and higher for the second ($M = 44.80$, $SD = 9.41$). As it was mentioned above, both the speakers of L1 EP with a lower and a higher level of L2 AE were significantly different from the native speakers in terms of VP in auxiliary verbs. As we can see, their VP was higher than that demonstrated by the speakers of L1 AE.

The speakers of L1 BP with a lower level of L2 AE demonstrated a significant difference in VP between the auxiliaries and the pronouns (Group 4: $Z = 3.436$, $p < .001$). They had a lower VP in the first ($M = 33.32$, $SD = 12.38$) and higher in the second ($M = 48.02$, $SD = 10.72$). The same was true for the speakers of L1 BP with a higher level of L2 AE (Group 5: $Z = 3.598$, $p < .001$), who also had a lower VP in auxiliaries ($M = 42.06$, $SD = 11.04$) and a higher VP in pronouns ($M = 54.92$, $SD = 7.71$). As it was mentioned-above, the speakers of L1 BP with a higher and a lower level of L2 AE were significantly different from the native speakers of AE in terms of VP in auxiliary verbs. Both groups had a higher VP in this category of clitics. The speakers of L1 BP with a higher level of L2 AE were also significantly different from the native speakers of AE in terms of VP in object pronouns. The VP demonstrated by the first was higher.

To sum up, Wilcoxon's test applied between the two categories of clitics for each group showed that there is a significant difference in VP between them within each group of speakers. In all groups, the speakers had a lower VP in the PWs containing auxiliary verbs than in those containing object pronouns, which means that notwithstanding some significant differences found for particular groups, the tendency was similar to that demonstrated by the native speakers. The significant differences seen from the results of previous tests between the speakers of L1 Portuguese of both varieties with a higher and lower level of L2 AE and the native speakers of AE concerning the auxiliary verbs were due to the fact that the first had a higher VP. Similarly, the significant difference between the speakers of L1 BP with a higher level of L2 AE and the speakers of L1 AE concerning object pronouns, was due to a higher VP demonstrated by the first.

Next, we compared the results demonstrated by the groups for each PW containing an auxiliary verb. For this purpose, we applied Mann Whitney U test. We will first present the

analysis for the PWs containing auxiliary verbs that are enclitics and then the PWs containing auxiliary verbs that are proclitics.

There were three PWs with auxiliary verbs that behave as enclitics in our study: *Ana=could* (1), *Ana=could* (2), and *you=can*.

In *Ana=could* (1) VP demonstrated by the speakers of L1 EP with a lower level of L2 AE (Group 2) was significantly different from that demonstrated by the native speakers of AE (Group1): $U = 1.732$, $p = .041$. Their VP ($M = 34.66$ and $M = 26.18$) was higher than the native speakers' ($M = 23.18$). There was no significant difference between the speakers of L1 AE and the speakers of L1 EP with a higher level of L2 AE (Group 3): $U = 1.414$, $p = .079$. No significant difference was found between the speakers of L1 EP depending on their level of L2 AE ($U = .354$, $p = .362$). For the speakers of L1 BP the results were the opposite. The speakers of L1 BP and a lower level of L2 AE (Group 4) were not significantly different from the speakers of L1 AE ($U = .000$, $p = .500$). The speakers of L1 BP and a higher level of L2 AE (Group 5) were significantly different from the native speakers of AE ($U = 1.732$, $p = .041$), their VP was higher ($M = 37.86$). Similar to the speakers of L1 EP, the speakers of L1 BP did not differ significantly between the levels ($U = 1.555$, $p = .124$). The comparison of the speakers of L1 EP and L1 BP with the same level of L2 AE showed no significant difference neither between the speakers with a lower level of L2 AE ($U = .866$, $p = .193$), nor between the speakers with a higher level of L2 AE ($U = 354$, $p = .362$).

In *Ana=could* (2) the speakers of L1 EP with a lower (Group 2) and a higher level of L2 AE (Group 3) were not significantly different from the native speakers ($U = .289$, $p = .387$ in both cases) or from each other ($U = .577$, $p = .282$). The same is true for the speakers of L1 BP. There was no significant difference between the speakers of L1 BP with a lower (Group 4) or higher level of L2 AE (Group 5) from the native speakers ($U = 1.155$, $p = .124$ and $U = 1.143$, $p = .075$ respectively). They also did not differ significantly from each other ($U = 1.143$, $p = .075$). There were no differences between the speakers of L1 EP and L1 BP with the same level of L2 AE as well ($U = .866$, $p = .193$ for both levels).

In *you=can* the speakers of L1 EP with a lower (Group 2) and a higher level of L2 AE (Group 3) were not significantly different from the native speakers ($U = 1.143$, $p = .075$ and $U = .866$, $p = .193$ respectively) or from each other ($U = .577$, $p = .282$). The speakers of L1 BP with a lower (Group 4) and a higher level of L2 AE (Group 5) were significantly different from

the native speakers ($U = 2.309$, $p = .010$ and $U = 1.732$, $p = .041$ respectively), but not from each other ($U = .866$, $p = .193$). The VP demonstrated by the speakers of L1 BP with a lower ($M = 44.05$) and a higher level of L2 AE ($M = 32.77$) was higher than that demonstrated by the native speakers ($M = 23.64$). There was no significant difference between the speakers of L1 EP and L1 BP with the same level of L1 AE as well ($U = .866$, $p = .193$ for both levels).

To sum up, the speakers of L1 EP were significantly different from the native speakers of L1 AE in terms of VP in one out of three PWs containing auxiliary verbs that behave as enclitics (*Ana=could* (1)). The difference was due to a higher VP. It was registered only at a lower level of L2 AE, which leads us to a conclusion that the direction of cliticization in the three cases was not an obstacle for these speakers. As for the speakers of L1 BP, their VP was significantly different from that demonstrated by the native speakers in two out of three cases. In the first (*Ana=could* (1)) the difference was registered for the speakers with a higher level of L2 AE and in the second (*you=can*) for the speakers with both lower and higher level of L2 AE. In all the three cases the VP demonstrated by the speakers of L1 BP was higher than the one demonstrated by the native speakers of AE. As both L1 EP and L1 BP favour proclitics, at this point we cannot say that the differences between the speakers of L1 BP L2 AE and L1 AE were related to the direction of cliticization in the analysed PWs. However, we should see if the speakers of L1 Portuguese were closer to the native speakers of AE in PWs containing proclitics.

In our study, there were five PWs with auxiliary verbs that behave as proclitics: *am=I*, *does=it=look*, *does=it=have*, *could=I*, and *can=you=help*.

In *am=I*, neither the speakers of L1 EP with a lower (Group 2), nor with a higher level of L2 AE (Group 3) were significantly different from the native speakers of AE ($U = 866$, $p = .193$ and $U = .577$, $p = .282$ respectively) or from each other ($U = .577$, $p = .282$). The same is true for the speakers of L1 BP. There was no significant difference between the speakers of L1 BP with a lower (Group 4) or higher level of L2 AE (Group 5) from the native speakers ($U = .354$, $p = .362$ and $U = 1.155$, $p = .124$ respectively). They also did not differ significantly from each other ($U = 1.061$, $p = .145$). There was a significant difference between the speakers of L1 EP and L1 BP with a lower level of L2 AE ($U = 1.768$, $p = .039$), but not between the speakers of L1 EP and L1 BP with a higher level of L2 AE ($U = .577$, $p = .282$).

In *does=it=look* no significant difference was found between the speakers of L1 AE (Group 1) and the speakers of L1 EP with a lower (Group 2) or a higher level of L2 AE (Group 3): $U = 1.452, p = .073$ and $U = .581, p = .280$ respectively. The speakers of L1 EP did not differ significantly from each other depending on their level ($U = .866, p = .193$). The speakers of L1 BP with a lower (Group 4) and a higher level of L2 AE (Group 5) were significantly different from the native speakers ($U = 1.742, p = .040$ in both cases), but not from each other ($U = .866, p = .193$). Their VP ($M = 41.06$ and $M = 45.02$ respectively) was higher than that demonstrated by the native speakers ($M = 21.00$). There was no significant difference neither between the speakers of L1 EP and L1 BP with a lower level of L2 AE ($U = 0.000, p = .500$), nor between the speakers with a higher level of L2 AE ($U = 1.143, p = .075$).

In *does=it=have* no significant differences were found between the speakers of L1 AE (Group 1) and the speakers of L1 EP with a lower (Group 2) or higher level of L2 (Group 3): $U = 1.143, p = .075$ and $U = .577, p = .282$ respectively. The groups of speakers of L1 EP did not differ significantly from each other ($U = 1.43, p = .075$). The speakers of L1 BP with a lower (Group 4) and a higher level of L2 AE (Group 5) were significantly different from the native speakers ($U = 2.309, p = .010$ and $U = 1.732, p = .041$), but not from each other ($U = .866, p = .193$). Their VP ($M = 44.19$ and $M = 52.83$ respectively) was higher than the native speakers' ($M = 28.62$). There was no significant difference neither between the speakers of L1 EP and L1 BP with a lower level of L2 AE ($U = .577, p = .282$), nor between the speakers with a higher level of L2 AE ($U = 1.443, p = .075$).

In *could=I* the speakers of L1 EP with a lower level of L2 AE (Group 2) was not significantly different from the native speakers of AE (Group1), but the speakers of a higher level of L2 AE were significantly different from the latter ($U = 1.307, p = .096$ and $U = 2.309, p = .010$). The VP demonstrated by the speakers of L1 EP with a higher level of L2 AE ($M = 42.13$) was higher than the one demonstrated by the speakers of L1 AE ($M = 11.97$). No significant differences were found between the speakers of L1 EP of the two levels ($U = 1.155, p = .124$). As for the speakers of L1 BP, they didn't demonstrate significant differences from the native speakers neither at a lower level of L2 AE (Group 4), nor at a higher (Group 5): $U = .866, p = .193$ and $U = 1.155, p = .124$ respectively. The speakers of L1 BP of the two levels did not differ from each other significantly ($U = .577, p = .282$). No significant difference was

found between the speakers of L1 EP and L1 BP with the same levels of L2 AE ($U = .577$, $p = .282$ for both levels).

In *can=you=help*, the speakers of L1 EP with a lower (Group 2) and a higher level of L2 AE (Group 3) were significantly different from the native speakers of AE ($U = 1.732$, $p = .041$ and $U = 2.221$, $p = .041$ respectively) but not from each other ($U = .866$, $p = .193$). Their VP ($M = 66.22$ and $M = 38.02$) is higher than the one demonstrated by the speakers of L1 AE ($M = 24.32$). The speakers of L1 BP with a lower level of L2 AE (Group 4) were not significantly different from the speakers of L1 AE ($U = .289$, $p = .387$). The speakers of L1 BP and a higher level of L2 AE (Group 5) demonstrated a significant difference from the native speakers of AE and from the speakers of L1 BP with a lower level of L2 AE ($U = 2.309$, $p = .010$ in both cases). The VP demonstrated by the speakers of L1 BP with a lower level of L2 AE ($M = 25.83$) and with a higher level of L2 AE ($M = 44.95$) was higher than the one demonstrated by the native speakers. No significant difference was found between the speakers of L1 EP and L1 BP with the same levels of L2 AE ($U = 1.143$, $p = .075$ and $U = 1.155$, $p = .124$ respectively).

Summing up, the speakers of L1 EP L2 AE were significantly different from the speakers of L1 AE in two cases (*could=I* and *can=you=help*). In the first case the difference was registered for the group with a higher level of L2 AE and in the second for both levels. In all the cases it was due to a higher VP than the one demonstrated by the native speakers. Consequently, we cannot say that auxiliary verbs behaving as proclitics presented any facility for the speakers of L1 EP. We conclude the same about the speakers of L1 BP, who were significantly different from the native speakers in three cases (*does=it=look*, *does=it=have*, and *can=you=help*). In the last case the difference was registered for the group with a higher level of L2 AE and in the first two for both levels. Again, the difference was related to a higher VP demonstrated by the speakers of L1 BP.

In general, although both speakers of L1 EP and L1 BP demonstrated significant differences from the native speakers of AE even in the groups with a higher level of L2 AE, there were less cases with significant difference for the first than for the second.

As it was mentioned above, only the speakers of L1 BP with a higher level of L2 AE were significantly different from the native speakers of L1 AE in terms of VP in object

pronouns. For this reason, we will analyse the differences in each PW only for these two groups of speakers. As the data on pronouns has normal distribution, we applied a paired-sample t-test.

We will first look at the results for the PWs containing the object pronoun *us* (*told=us* (1), *told=us* (2), *he advised=us*, *want=us*) and then at the PWs containing *me* (*let=me* (1), *let=me* (2), *help=me*).

One-tailed results of paired-sample t-test showed no significant difference in VP between the speakers of L1 BP with a higher level of L2 AE (Group 5) and the speakers of L1 AE (Group 1) in *told=us* (1): $p = .797$ in paired samples correlations and $p = .070$ in paired samples test.

In *told=us* (2) the test showed a significant difference between the speakers of L1 BP with a higher level of BP and the native speakers of AE: $p = .272$ in paired samples correlations and $p = .026$ in paired samples test. The first had a higher VP ($M = 57.64$, $SD = 4.97$) than the latter ($M = 43.85$, $SD = 4.52$).

In *he advised=us* the speakers of L1 BP with a higher level of L2 AE were significantly different from the speakers of L1 AE: $p = .803$ in paired samples correlations and $p = .021$ in paired samples test. Their VP ($M = 58.97$, $SD = 8.63$) was higher than the native speakers' ($M = 41.01$, $SD = 8.15$).

In *want=us* there was a significant difference between the speakers of L1 BP with a higher level of L2 AE and the native speakers of AE: $p = .873$ in paired samples correlations and $p = .026$ in paired samples test. The first had a higher VP ($M = 50.11$, $SD = 3.57$) than the latter ($M = 43.14$, $SD = 3.09$).

Summing up, the speakers of L1 BP with a higher level of L2 AE were significantly different from the speakers of L1 AE in three out of the four cases for *us*. In all the three, the difference was due to the fact that their VP was higher than that demonstrated by the native speakers.

No significant difference was found between the speakers of L1 BP with a higher level of L2 AE and the speakers of L1 AE in the PWs containing *me*. One-tailed results for these PWs were the following: $p = .937$ in paired samples correlations and $p = .446$ in paired samples test for *let=me* (1), $p = .709$ $p = .066$ in paired samples correlations and in paired samples test for *let=me* (2), and $p = .405$ in paired samples correlations and $p = .376$ in paired samples test for *help=me*.

3.3. Segments' omission

Additionally, we observed some segments' omissions in all groups of speakers and will compare them in this respect. The omissions occurred not in the clitics themselves, but in the adjacent words, in some cases on the right and in others on the left of the clitic.

The speakers of L1 AE (Group 1) had a tendency to omit [t] in *does=it*. It was registered for three out of four speakers in *does=it=look* and for two speakers in *does=it=have*. For the speakers of L1 Portuguese this tendency was not as strong and only one speaker in each group did the same (in both PWs).

In the category of object pronouns, the speakers of L1 AE had omissions of [t] in *let=me*. Three out of four speakers in that group omitted this segment in *let=me* (1). Two out four speakers of L1 EP L2 AE did the same (independent of their level of L2), the speakers of L1 BP had no omissions in this PW. One speaker of L1 AE omitted [t] in *let=me* (2). The same was true for the speakers of L1 EP independent of their level of L2 and for the speakers of L1 BP with a lower level of L2 AE. All the speakers of L1 AE omitted [t] in *want=us*. The same was true for the speakers of L1 BP with a higher level of L2 AE. Only two out of four speakers of L1 BP with a lower level of L2 AE had similar omissions. Three out of four speakers of L1 EP with a higher level of L2 AE omitted [t] in this PW and none of the speakers of L1 EP with a lower level of L2 AE.

In general, the speakers of L1 Portuguese L2 AE had less tendency to omit segments in the words adjacent to the clitic than the speakers of L1 AE.

3.4. Summary

Having analysed the data on CP, we found no significant difference across or between the speakers overall. There was no significant difference between the speakers of L1 Portuguese L2 AE from the native speakers of L1 AE neither depending on the variety of Portuguese that they speak, nor on the level of proficiency in L2 AE. There was also no significant difference between the speakers of L1 EP and L1 BP. Based on that, we can say that in general CP was

similar for the speakers of L1 Portuguese L2 AE and the speakers of L1 AE. That is, even if some differences exist between them for a particular category of clitics.

A significant difference in CP was found only for one category of clitics, the indefinite article. The CP demonstrated by the speakers of L1 EP with a lower level of L2 AE was significantly higher than that demonstrated by the native speakers of AE. No such difference was observed for the speakers of L1 EP with a higher level of L2 AE. The speakers of L1 BP, on the contrary, did not demonstrate any significant difference from the native speakers at a lower level in L2 AE, but at higher level of L2 AE their CP was significantly higher. No significant difference was found between the speakers of L1 Portuguese of different varieties with the same level of L2 AE.

However, all the speakers demonstrated a significantly lower CP for the articles than for the other two categories of clitics. At the same time, native speakers did not have a significant difference in CP between auxiliary verbs and object pronouns and so didn't the speakers of L1 EP with a higher level of L2 AE. Other speakers of L1 Portuguese demonstrated a significantly higher CP for the auxiliary verbs than for object pronouns, notwithstanding the fact that the tests for each category did not show significant differences in CP between these groups and the native speakers of AE.

The comparison of pairs of groups for each PW showed that the differences occurred both in PWs with one-syllable hosts and in PWs where the host had more than one syllable. However, for the speakers of L1 EP with a higher level of L2 AE such differences were registered only in the second category of PWs. For the speakers of L1 BP with a lower level of L2 AE they were registered in one PW with a one-syllable-host and in one PW with a multi-syllable host. The speakers of L1 BP with a higher level of L2 AE were significantly different from the native speakers in one PW with a one-syllable host and in two PWs with a multi-syllable host. Consequently, we conclude that PWs with multi-syllable hosts present more difficulty in terms of reduction of the indefinite article for the speakers of L1 Portuguese of both varieties.

As for VP in auxiliary verbs and pronouns, overall, there was a significant difference across the groups. The comparison of pairs of groups showed that the speakers of L1 BP with a higher level of L2 AE were significantly different from the native speakers of AE. They were

also significantly different from the speakers of L1 BP with a lower level and the speakers of L1 EP with a higher level.

In all the five groups of speakers VP was lower in auxiliary verbs and higher in object pronouns.

However, the speakers of L1 Portuguese of both varieties, regardless of their level of L2 AE, had a significantly higher VP in auxiliary verbs than the speakers of L1 AE. There was no significant difference between the speakers of L1 EP with a lower and a higher level of L2 AE concerning VP in auxiliary verbs, but such difference was found for the speakers of L1 BP.

The comparison of pairs of groups for each PW containing an auxiliary verb showed that English auxiliary verbs that behave as proclitics do not present any facility for the speakers of L1 EP or L1 BP in comparison with those that behave as enclitics. In general, although both speakers of L1 EP and L1 BP demonstrated a significant difference from the native speakers of AE even in the groups with a higher level of L2 AE, there were less cases with significant difference for the first than for the second.

No significant difference was found between the speakers of L1 EP independent of their level of L2 AE and the native speakers of AE in terms of VP in object pronouns. The same is true for the speakers of L1 BP with a lower level of L2 AE, but not for the speakers of L1 BP with a higher level of L2 AE. The latter had a significantly higher VP in object pronouns than the speakers of L1 AE. The speakers of L1 EP and L1 BP were significantly different from each other at a higher level of L2 AE.

The comparison between the speakers of L1 BP with a higher level of L2 AE and the native speakers of AE for each PW containing an object pronoun showed that the first had a significantly higher VP in most cases when the clitic was the pronoun *us*. No significant differences were found for the PWs containing *me*.

Additionally, we observed the speakers in all the five groups had segments' omissions in the words adjacent to the clitic in some PWs containing auxiliary verbs and pronouns. For example, omission of [t] in *does=it*, *let=me* and *want=us*. The tendency was stronger for the speakers of L1 AE and weaker for the speakers of L1 Portuguese L2 AE.

4. Conclusion and further discussion

This work aimed to answer the question of whether there are any differences in the acquisition of the weak forms of function words in L2 English by the speakers of L1 EP and L1 BP, considering that the three are different in terms of rhythm patterns and unstressed vowel system.

In section 1 we presented a theoretical framework on the topic.

In subsection 1.1 we mentioned that rhythm contributes to L2 acquisition and to successful communication in L2. We also saw that rhythm in L1 has a certain impact on the acquisition of a stress-timed L2. We took the approach suggested by Ramus et al. (1999), within which the main acoustic correlates of rhythm are the proportion of %V and ΔC . Firstly, this approach permitted us to see the relation between rhythm and the weak forms of function words as an aspect of reduction, which in its turn is an aspect of rhythm. Secondly, the research concluded by Frota & Vigário (2001) done within this approach classify EP as stress-timed in relation to ΔC and syllable-timed in relation to %V and BP as syllable-timed regarding ΔC and as mora-timed regarding %V. It confirmed that our initial question was relevant.

In subsection 1.2 we presented the theoretical knowledge on the weak forms of function words that in this work are seen as clitics, which was fundamental to be able to interpret the descriptions of the system of weak forms of function words in English, EP and BP and to set a common standard for that.

In subsections 1.3, 1.4, and 1.5 we described stress and vowel reduction at the word level and reduction, weak and strong forms of function words in English, EP, and BP respectively. This order was chosen to reflect the differences in rhythm and reduction in the three and helped us to gradually formulate the hypotheses. We saw that the tendency to reduction reduces in this direction with EP showing less of it than English, and BP – less than the previous two. We also observed that EP and BP, differently from English, do not have weak forms of auxiliary verbs. The direction of cliticization in the first two is also different.

In subsection 1.7 we summarized the main theoretical points and formulated the hypotheses.

The next step was to present the method of study, which was done in section 2, and to collect the data. In our study, we analysed three categories of clitics: the indefinite article,

auxiliary verbs, and object pronouns. These categories were chosen based on the fact that 1) articles have weak forms both in English, in EP and in BP and have the same direction in the three 2) there are no weak forms of auxiliary verbs in EP or BP, 3) the direction of object pronouns in BP is different from that in English and EP.

We analysed the CP for all three categories and VP for the auxiliary verbs and object pronouns. The analysis is presented in subsection 3.

Answering the main question of our research, we can say that there are certain differences between the speakers of L1 EP and L1 BP concerning the weak forms of function words in L2 English. We present them below together with the initial hypotheses.

Our first hypothesis was that the speakers of L1 EP would not necessarily show the results that can be expected from speakers of a stress-timed L1 in terms of reduction in weak forms of function words. The results of the study showed that the speakers of L1 EP with a higher level were not significantly different from the native speakers of AE in terms of CP for any of the categories. However, we came to a conclusion that PWs containing an article and a multi-syllable host still presented a difficulty for them at that level. As for VP, the speakers of L1 EP demonstrated a significantly higher VP in auxiliary verbs regardless of their level of L2 AE. Based on that we conclude that our hypothesis was partially confirmed.

The second hypothesis was that the speakers of L1 EP L2 AE would be closer to the speakers of L1 AE in terms of reduction of weak forms in comparison with the speakers of L1 BP L2 AE.

The study showed that the speakers of L1 EP were closer to the native speakers of AE both in CP and VP. The speakers of L1 BP with a lower level of L2 AE were not significantly different from the native speakers of AE in terms of CP for the indefinite article, but the speakers of L1 BP with a higher level of L2 AE demonstrated a significantly higher CP for this category. It means that the speakers of L1 BP had a lack of reduction in indefinite articles even at a higher level of L2 AE.

The speakers of L1 EP with a lower level of L2 AE had a significantly higher CP in PWs containing an indefinite article in comparison with the native speakers of AE, but the speakers of L1 EP with a higher level of L2 AE were not significantly different from the latter. Additionally, the speakers of L1 EP with a higher level of L2 AE were the only group that, similar to the native speakers of AE had no significant differences in CP between the auxiliary

verbs and object pronouns. The other speakers of L1 Portuguese had a significantly higher CP in auxiliary verbs than in object pronouns. In other words, the speakers of L1 EP demonstrated a successful acquisition of durational characteristics of the English indefinite article at a higher level of L2 AE and of the proportions between the three types of clitics. The same is not true for the speakers of L1 BP L2 AE.

The speakers of L1 EP were also closer to the native speakers of AE in terms of VP in object pronouns. They were not significantly different from the latter independent of their level of L2 AE. The speakers of L1 BP with a higher level of L2 AE had a significantly higher VP in object pronouns than that demonstrated by the native speakers of L1 AE and the speakers of L1 EP with the same level. Therefore, we conclude that the second hypothesis was confirmed to a large extent.

Based on the above, we also conclude that our third hypothesis was confirmed. The speakers of L1 EP had more tendency to reduction in the weak forms of function words at a higher level of L2 and the speakers of L1 BP did not show the same tendency.

Considering the above, we can say that our research seems to support the idea that the proportion of vocalic material involves transfer from L1 and affects the acquisition of weak forms. However, we face the question why in the case with the speakers of L1 EP we observed more reduction in articles at a higher level of L2 and in L1 BP the tendency was the opposite. One of the possible explanations could be that the speakers of L1 BP with a lower level of L2 AE, in general, were older than the speakers of L1 EP with the same level and consequently had more contact with English with a larger amount of input and output. As for the fact that these speakers were closer to the native speakers of AE in comparison with the speakers of L1 BP with a higher level of L2 AE, we may suppose that the latter might have been less focused on accuracy. In any case, we should take into consideration the fact that our data is limited.

Our fourth hypothesis was that the speakers of L1 Portuguese and L2 AE would be more similar to the speakers of L1 AE in terms of reduction in the weak forms of articles than in auxiliary verbs.

The study showed that the speakers of L1 EP with a lower level of L2 AE had a lack of reduction both in the indefinite article and in the auxiliary verbs. The speakers of L1 EP with a higher level of L2 AE demonstrated a lack of reduction in the second but not in the first. As for the speakers of L1 BP, they had a lack of reduction in both categories of clitics at a higher level

of L2. However, they did not demonstrate it for the indefinite article at a lower level of L2. Based on that, we conclude that the fourth hypothesis was confirmed. As we did not find any effect of the clitics' direction in PWs containing auxiliary verbs for any of the groups with L1 Portuguese, we come to a conclusion that this category presented a difficulty for them due to the fact that in none of the varieties of Portuguese auxiliary verbs behave as clitics. Consequently, our study leads to a conclusion that the absence of weak forms of certain function words in L1 makes their acquisition in L2 more difficult.

The fifth hypothesis was that the speakers of L1 EP L2 AE would be more similar to the speakers of L1 AE than the speakers of L1 BP L2 AE in terms of reduction of the weak forms of object pronouns. This hypothesis was confirmed. The speakers of L1 EP did not present any significant difference from the speakers of L1 AE in object pronouns independent of their level of L2 AE. The speakers of L1 BP had a significantly higher VP in object pronouns at a higher level of L2 AE. However, it occurred only in PWs containing object pronoun *us* and not in PWs containing pronoun *me*, which means we cannot draw the conclusion that the difference was due to clitics' direction. It may have been due to reduction patterns in the speakers' L1.

Due to the fact that our data was limited, we can be confident only concerning the results obtained for the auxiliary verbs, as all speakers of L1 Portuguese had a higher VP for this category than that demonstrated by the native speakers. Consequently, we can say that the absence of weak forms of certain categories in L1 makes their acquisition in L2 more difficult. We also suppose that further research with a larger number of speakers could confirm that the direction of cliticization in L1 does not have an impact on the acquisition of the weak forms in L2.

Although we found certain differences between the speakers of L1 EP and L1 BP in terms of reduction in the weak forms of function words in L2 AE, it would be necessary to study more cases with less difference in age between the groups to be able to make conclusions concerning the impact of the rhythm in their L1 in this respect. At this point, we can say that we could see some indication in that direction.

References

- Andrade, E., & Viana, M. C. (1989). Ainda sobre o ritmo e o acento em português. *Actas do IV Encontro Nacional da Associação Portuguesa de Linguística* (pp. 3-15). Lisboa: Edições Colibri
- Bisol L. (2000). O clítico e seu estatus prosódico *REVISTA DE ESTUDOS DA LINGUAGEM*, [S.l.], v. 9, n. 1, p. 5-30, June 2000. ISSN 2237-2083
- Bisol L. (ed.) (2005). *Introdução a estudos de fonologia do português brasileiro*. Porto Alegre: EDIPUCRS
- Bisol L., de Magalhães J.S. (2004) A redução vocálica no Português Brasileiro: avaliação via restrições *Revista da Abralin*, v. 3, n. 1-2, jul./dez. 2004.
- Bisol L., Veloso J. (2016). Phonological processes affecting vowels. Neutralization, harmony and nasalization, in: Wetzels L., Menuzzi S., Costa J. (edd.), *THE HANDBOOK OF PORTUGUESE LINGUISTICS*, MA, Willey-Blackwell, 69–85
- Busà M.G. (2012). The role of prosody in pronunciation teaching: a growing appreciation, *Methodological Perspectives on Second Language Prosody Papers from ML2P 2012*
- Câmara J.M. Jr. (1977). *Para o estudo da fonêmica portuguesa*. Rio de Janeiro: Padrão - Livraria Editora LTDA.
- Câmara J.M. Jr. (1976). *História e estrutura da língua portuguesa*. Rio de Janeiro: Padrão.
- Câmara J.M. Jr. (1972). *The portuguese language*. Chicago: University of Chicago Press.
- Cambridge Essential American English Dictionary. (n.d.) In: *dictionary.cambridge.org* retrieved 16.01.2021 from <https://dictionary.cambridge.org/dictionary/essential-american-english/>
- Campfield D., Murphy V. (2013). The influence of prosodic input in the second language classroom: Does it stimulate child acquisition of word order and function words? *The Language Journal* v. 41. 2013
- Campfield D., Murphy V. (2014). Elicited Imitation: In search of the influence of linguistic rhythm on child L2 acquisition. *System*. 42. 207-219. 10.1016/j.system.2013.12.002.
- Carley P., Mees I. (2019). *American English phonetics and practice*. Boston: Routledge/Taylor&Francis Group

- Carr Ph. (2013). *English Phonetics and Phonology. An Introduction*. 2nd edition. Chichester: Wiley-Blackwell.
- Council of Europe. (2001). *Common European Framework of Reference for Languages: Learning, teaching, assessment*. Cambridge: Cambridge University Press
- Correia S. (2009). *The acquisition of primary word stress in European Portuguese*. PHD dissertation, Universidade de Lisboa, Faculdade de Letras.
- Correia, S., J. Butler, M. Vigário & S. Frota (2015) A stress “deafness” effect in European Portuguese. *Language and Speech* 58: 48-67 (Special Issue on *Experimental approaches to the production and perception of prosody*, edited by J. Butler, M. Cruz & M. Vigário).
- Cruttenden A. (2014). *Gimson’s pronunciation of English*. 8th edition. London: Routledge
- Dixon R.M.W. (2007) Clitics in English, *English studies*, 88:5, doi: 10.1080/00138380701566102
- Derwing T., Munro J.M. (2014: 44-45). Myth 1. Once you have been speaking a language for years, it’s too late to change your pronunciation. In: *PRONUNCIATION MYTHS. APPLYING SECOND LANGUAGE RESEARCH TO CLASSROOM TEACHING*. Ann Arbor: University of Michigan
- Ellis R. (2015). *Understanding second language acquisition*. 2nd edition. Oxford: Oxford University Press.
- Frota S., Vigário M. (2001). On the correlates of rhythmic distinctions: The European/Brazilian Portuguese case, *Probus* 13.2, 2001, pp. 247-275
- Gervain J, Mehler J. Speech perception and language acquisition in the first year of life. *Annu Rev Psychol*. 2010;61:191-218. doi:10.1146/annurev.psych.093008.100408
- Giegerich H. J. (1992). *English phonology. An introduction*. Cambridge: Cambridge University Press
- Grant L. (2014). *PRONUNCIATION MYTHS. APPLYING SECOND LANGUAGE RESEARCH TO CLASSROOM TEACHING*. Ann Arbor: University of Michigan
- Hancock M. (2003). *English pronunciation in use. Intermediate*. Cambridge: Cambridge University Press
- Hewings M. (2007). *English pronunciation in use. Advanced*. Cambridge: Cambridge University Press
- Jurafsky D., Bell A., Gregory M., Raymond W.D. (2001). Probabilistic Relations between Words: Evidence from Reduction in Lexical Production. In: Bybee J., Hopper

P. (eds.), *FREQUENCY AND THE EMERGENCE OF LINGUISTIC STRUCTURE*, 229–254. Amsterdam: John Benjamins

- Jurafsky D., Bell A., Girand C. (2002). The role of lemma in form variation. In: Carlos Gussenhoven and Natasha Warner (eds.), *Laboratory Phonology 7*, 3–34. Berlin: Mouton de Gruyter.
- Ladefoged P., Johnson K. (2011). *A course in phonetics*. 6th edition. Boston: Wadsworth
- Lahiri A., Plank F. (2011) Phonological phrasing in Germanic: the judgement of history, confirmed through experiment - <https://doi.org/10.1111/j.1467-968X.2010.01246.x>
- Lengeris A. (2012). Prosody and second language teaching: Lessons from L2 speech perception and production research In: Romero Trillo, J., ed. *Pragmatics and Prosody in English Language Teaching. Educational Linguistics*, 15. Springer, Netherlands, pp. 25-40.
- Li A. & Post B. (2014). L2 acquisition of prosodic properties of speech rhythm: Evidence from L1 Mandarin and German Learners of English. In: *Studies in Second Language Acquisition*, 36 (2), 223-255. doi: 10.1017/S0272263113000752
- Low E.L. (2015). *Pronunciation for English as an International Language. From research to practice*. London, New York: Routledge.
- Marks J (2007). *English pronunciation in use elementary*. Cambridge: Cambridge University Press.
- Mateus M.H. (1982). *Aspectos da fonologia portuguesa*. Lisboa: Instituto Nacional de Investigação Científica, Centro de Linguística da Universidade de Lisboa.
- Mateus M.H., d’Andrade E. (2000). *The phonology of Portuguese*. Oxford: Oxford University Press
- McCully C. (2009). *The sound structure of English. An introduction*. Cambridge: Cambridge University Press
- Mendes Cantoni M. (2009). O acento no português brasileiro segundo uma abordagem baseada no uso. *Estudos Linguísticos*, São Paulo, 38 (1): 93-102, jan.-abr. 2009
- Merriam Webster Dictionary. (n.d.) In *merriam-webster.com* retrieved from <https://www.merriam-webster.com/> 10.11.2020.
- Munro M., Derwing T. (2011). The foundations of accent and intelligibility in pronunciation research. *Language Teaching*, 44(3), 316-327.

- Nazzi T, Bertoncini J, Mehler J. Language discrimination by newborns: toward an understanding of the role of rhythm. *J Exp Psychol Hum Percept Perform*. 1998; 24(3):756-766. doi:10.1037//0096-1523.24.3.756
- Ordin M., Polyanskaya L. (2014). Development of timing patterns in first and second languages. *System*. 42. 244–257. 10.1016/j.system.2013.12.004.
- Ordin M., Polyanskaya L. (2015). Acquisition of speech rhythm in a second language by learners with rhythmically different native languages. *The Journal of the Acoustical Society of America*. 138. 533-544. 10.1121/1.4923359.
- Ordin M., Polyanskaya L., Ulbrich Ch. (2011): Acquisition of timing patterns in second language, in *INTERSPEECH-2011*, Florence, 1129-1132.
- Plag I., Kunter G., Schramm M. (2011). Acoustic correlates of primary and secondary stress in North American English. *Journal of Phonetics*. 39. 362-364. (2011)
- Post B., Payne E. (2017). Speech rhythm in development: What is the child acquiring?. 10.1075/tilar.23.07pos.
- Ramus F., Houser M.D, Miller C., Morris D., Mehler J. (2000) Language discrimination by human newborns and by cotton-top tamarin monkeys. *Science*. 2000; 288 95464): 349-351. doi:10.1126/science.288.5464.349
- Ramus, F., Nespor M., Mehler J. (1999). Correlates of Linguistic Rhythm in the Speech Signal. *Cognition*. 73. 265-292. 10.1016/S0010-0277(00)00101-3.
- Roach P. (2009). *English phonetics and phonology. A practical course*. 4th edition. Cambridge: Cambridge University Press
- Santos R., Vigário M. (2016). Phonology-syntax interface. In: Leo Wetzels, Sérgio Menuzzi & João Costa (eds.). *THE HANDBOOK OF PORTUGUESE LINGUISTICS*. Malden: Willey-Blackwell, 125-140. DOI: 10.1002/9781118791844.ch8.
- Selkirk E. (1996). The prosodic structure of function words. In: Morgan J.L. and Demuth K. (eds.), *SIGNAL TO SYNTAX: BOOTSTRAPPING FROM SPEECH TO GRAMMAR IN EARLY ACQUISITION*, 187–213. Mahwah, NJ: Lawrence Erlbaum Associates.
- Simonet M. (2011). Technology in Phonetic Science: Setting up a Basic Phonetics Laboratory. *Studies in Hispanic and Lusophone Linguistics* 4: 557-576.
- Spencer A., Luís A. (2012). *Clitics. An introduction*. Cambridge: Cambridge University Press
- Szigetvári P. (2018) Stressed schwa in English. *The Even Yearbook* 13: 81–95
- Toneli P.M. (2014). *A Palavra prosódica no Português Brasileiro*. PHD dissertation, Universidade de Campinas

- Turk A., Satsuki N., Sugahara M. (2006) Acoustic segment durations in prosodic research: a practical guide in *METHODS IN EMPIRICAL PROSODY RESEARCH*. Berlin, New York: Mouton de Gruyter
- Veloso J. (2007). Schwa in European Portuguese: The phonological status of [ɨ]. *5-èmes Journées d'Etudes Linguistiques* (2007), Nantes: Université de Nantes.
- Veloso J. (2012). Unidades acentuais proparoxítonas e grupos clíticos em Português, in: Armanda Costa / Inês Duarte (edd.), *NADA NA LINGUAGEM LHE É ESTRANHO. ESTUDOS EM HOMENAGEM A ISABEL HUB FARIA*, Porto, Edições Afrontamento, 471–483
- Vigário M. (2003). *The prosodic word in European Portuguese*. Berlin/New York: Mouton de Gruyter
- Walters S.G. (1994). Primary Stress Assignment in Brazilian Portuguese. *UTA Working Papers in Linguistics 1* (1994), Susan C. Herring & John C. Paolillo, eds.
- Wetzels L. (1992). Mid Vowel Neutralization in Brazilian Portuguese. *Cadernos de Estudos Lingüísticos 23*
- Wetzels, L. (2007). Primary Word Stress in Brazilian Portuguese and the Weight Parameter. *Journal of Portuguese Linguistics*, 6(1), 9–58.
doi: <http://doi.org/10.5334/jpl.144>
- Yuan J. (2010). Linguistic Rhythm in Foreign Accent. *INTERSPEECH 2010*.
- Zwicky A.M. (1977). *On Clitics*. Bloomington: Indiana University Press.

Appendices

Appendix 1. Informed consent and Declaration of informed consent

CONSENTIMENTO INFORMADO

Estudo sobre a produção oral em Inglês por falantes nativos de Português

Objectivo do estudo: Contribuir para conhecimento sobre a aprendizagem de uma segunda língua.

Os resultados expectáveis poderão contribuir para aumentar o conhecimento sobre a aprendizagem de uma segunda língua e seu ensino.

Descrição e métodos: A participação neste estudo implica gravações de fala em inglês.

Riscos previsíveis: não há.

Possíveis benefícios para os participantes: Não se garante que este estudo proporcione benefícios diretos para o participante. A informação obtida vai contribuir para aumentar o conhecimento científico sobre aquisição de uma segunda língua. O participante não terá benefícios financeiros decorrentes deste estudo.

Participação voluntária: O participante terá toda a liberdade para recusar a participação no estudo ou retirar o seu consentimento, suspendendo a participação em qualquer momento. A participação é voluntária e a recusa em participar não acarreta qualquer penalização ou perda de benefícios.

Confidencialidade: Os dados obtidos serão utilizados exclusivamente para investigação. A informação recolhida de cada participante será usada em uma análise estatística de dados. Todos os dados de identificação de cada participante serão mantidos em confidencialidade. Para o estudo, a cada participante será atribuído um número codificado. A identidade dos participantes nunca será revelada em qualquer relatório ou publicação decorrente do estudo. Os dados serão guardados num disco externo, protegido por senha, apenas do conhecimento do investigador e não-acessível a terceiros.

Questões relacionadas com este estudo devem ser colocados a: Natalia Parush Aguiar

DECLARAÇÃO DE CONSENTIMENTO INFORMADO

Estudo sobre a produção oral em Inglês por falantes nativos de Português

Declaro ter tomado conhecimento e aceitar participar, voluntariamente, num estudo que tem por objetivo contribuir para o conhecimento sobre aprendizagem de uma segunda língua. Para esse efeito, aceito que sejam feitas gravações de produções minhas em inglês conforme acima mencionado.

Autorizo que os dados obtidos sejam armazenados pela investigadora num disco externo protegido por senha e não acessível a terceiros de acordo com legislação em vigor, podendo apenas ser utilizados para o estudo acima. Poderei, no entanto, revogar a autorização para utilização dos meus dados em qualquer momento.

Declaro ainda que os resultados dos estudos realizados com os meus dados poderão ser usados em comunicações e publicações científicas de forma anónima.

O estudo proposto foi-me claramente explicado e tive oportunidade de colocar as questões que desejei. Recebi uma cópia desta declaração devidamente assinada e datada.

Data, Nome e assinatura do participante/seu representante legal

Discuti este estudo com o participante, utilizando uma linguagem compreensível e apropriada. Informei adequadamente o participante sobre a natureza deste estudo e sobre os seus possíveis benefícios e riscos. Considero que o participante compreendeu a minha explicação.

Data, Nome e assinatura do Professor/Investigador responsável

Autorização de realização de estudo

A “Faculdade de Letras da Universidade de Lisboa” autoriza a realização nas suas instalações do estudo intitulado *Estudo sobre a produção oral em Inglês por falantes nativos de Português* que tem como Investigador responsável Natalia Parush Aguiar. O estudo tem por objectivo fazer uma contribuição para o conhecimento sobre aprendizagem de uma segunda língua que consiste em recolha de dados com gravação da fala e sua análise. Os dados obtidos serão tratados de acordo com a lei em vigor e utilizados exclusivamente com fins de investigação científica.

Data, Nome e assinatura de representante legal da Instituição

INFORMED CONSENT

Study on oral production in English by native speakers of Portuguese

Goals: contribute to the knowledge on a second language learning

The expected results may contribute to the knowledge on a second language learning and its teaching.

Description and methodology: Participation in this study involves recordings of speech in English.

Foreseeable risks: None.

Potential benefits for the participants: Direct benefits for the participants are not guaranteed. The results of the study will contribute to increase scientific knowledge on second language. No financial benefits will derive from the participation in the study.

Voluntary participation: Participants will be free to refuse their participation in the study or to withdraw their consent, hence suspending their participation at all times. Participation is voluntary and refusal to participate leads to no penalty or loss of benefits.

Confidentiality: The collected data will be used exclusively for research purposes. The collected information from each participant will be used in a statistical analysis. Complete confidentiality relative to all the personal identifying data from each participant will be observed. Each participant will be assigned an encoded number and the identity of the participants will never be revealed in any report or publication resulting from the study. The data will be stored on an external disc protected by a password that is known only to the researcher and not accessible for any third party.

Questions related to this study should be addressed to: Natalia Parush Aguiar

DECLARATION OF INFORMED CONSENT

Study on oral production in English by native speakers of Portuguese

I hereby declare I became aware of a study that aims at contributing to the knowledge on a second language learning and voluntarily accepted to participate in it. To this end, I accept that recordings of my oral productions in English are made as mentioned above.

I consent to the following: the collected data will be stored by the researcher on an external disc protected by a password and not accessible to third parties, according to the applicable law, and will be used exclusively for research purposes. However, I feel free to revoke the permission to use my data at all times.

I further declare the results of the studies obtained with my data can be used anonymously in scientific presentations and publications.

I was given a clear account of the proposed study and could ask questions about it. I received a duly signed and dated copy of this declaration.

Date, name and signature of the participant/ his legal representative

I discussed this study with the participant, using clear and appropriate language. I properly informed the participant about the nature of the study and its foreseeable benefits and risks. I consider that the participant fully understood my explanation.

Date, name and signature of the professor/researcher in charge

Institution's authorization for study conducting in its premises

Faculdade de Letras da Universidade de Lisboa allows the study entitled *Study on oral production in English by native speakers of Portuguese* and with Natalia Parush Aguiar as researcher in charge, to be conducted in its premises. This study has the following goal: contribute to knowledge about a second language learning, and consists in data collection that involves oral production recordings and their analysis. The resulting data will be processed according to the applicable law and will be used exclusively for research purposes.

Date, name and signature of the legal representative of the institution

Appendix 2. Questionaries

Questionnaire 1.1

Faculdade de Letras da Universidade de Lisboa Inquérito 1 para tese de Mestrado em Linguística

Estudante: Natalia Parush Aguiar

Orientador: Prof.^a Doutora Marina Cláudia Pereira Verga e Afonso Vigário

Informante Nº _____

Por favor, preencha os campos abaixo. Não preencha o campo de número de informante acima.

Faculdade: _____ Curso: _____

E-mail: _____

Telefone: _____

Idade: _____ Género: _____

País e cidade de nascimento: _____

Língua(s) materna(s): _____

Outras línguas que fala: _____

Começou a estudar inglês aos _____ anos

Fez um curso especializado em pronúncia de inglês? Se a resposta for positiva, quando fez esse curso e quanto tempo ele durou? _____

Teve uma ou mais experiências de morar num país falante inglês? Se a resposta for positiva, em qual(is) país(es), quando e durante quanto tempo? _____

Para responder as seguintes perguntas, escolha a opção que te descreve da melhor forma e sublinhe-a.

1. A variedade de português que falo é:

- a) português europeu

- b) português brasileiro
 - c) não sei
2. A variedade da língua inglesa que domino/estou a aprender é:
- a) inglês britânico
 - b) inglês americano
 - c) não sei
3. A variedade da língua inglesa que estudei durante o ensino pré-universitário foi:
- a) inglês britânico
 - b) inglês americano
 - c) não sei
 - d) não estudei inglês na escola
4. Em outros cursos de inglês que fiz anteriormente (numa escola de línguas, na universidade, com um professor particular ou de outra forma) estudei:
- a) inglês britânico
 - b) inglês americano
 - c) não sei
 - d) não fiz nenhum curso de inglês depois do ensino pré-universitário fora o que estou a fazer agora
5. A variedade de inglês que estou a estudar no momento é:
- a) inglês britânico
 - b) inglês americano
 - c) não sei
 - d) não estou a estudar inglês no momento
6. O meu professor de inglês fala:
- a) inglês britânico
 - b) inglês americano
 - c) não sei
 - d) não se aplica
7. Eu tenho mais contacto com a forma oral (conversas, palestras, vídeos, filmes, música, programas de rádio, etc.) de:
- a) inglês britânico
 - b) inglês americano
 - c) não sei
 - d) não se aplica

Questionnaire 1.2

Faculdade de Letras da Universidade de Lisboa

Student: Natalia Parush Aguiar

Advisor: Prof. Dr. Marina Cláudia Pereira Verga e Afonso Vigário

Informant № _____

E-mail: _____

Tel. _____

Age: _____ Gender: _____

Place of birth (country, city/town/village): _____

Mother tongue(s): _____

Other languages: _____

What accent of English do you speak? _____

Appendix 3. English level test

PLEASE, START WITH PART 1

PART1

1. Answer questions 1.1 – 1.4 below.

1.1 How well can you understand English speech? Circle A, B, C, D, or E.

A	I can understand phrases and the highest frequency vocabulary related to areas of most immediate personal relevance (e.g. very basic personal and family information, shopping, local geography, employment). I can catch the main point in short, clear, simple messages and announcements.
B	I can understand the main points of clear standard language on familiar matters regularly encountered in work, school, leisure, etc. I can understand the main point of many radio or TV programmes on current affairs or topics of personal or professional interest when the delivery is relatively slow and clear
C	I can understand extended talk and lectures and follow even complex lines of argument provided the topic is reasonably familiar. I can understand most TV news and current affairs programmes. I can understand the majority of films in standard language.
D	I can understand extended talk and lectures and follow even complex lines of argument provided the topic is reasonably familiar. I can understand most TV news and current affairs programmes. I can understand the majority of films in standard language.
E	I can understand extended talk and lectures and follow even complex lines of argument provided the topic is reasonably familiar. I can understand most TV news and current affairs programmes. I can understand the majority of films in standard language.

1.1. How well can you understand English texts? Circle A, B, C, D, or E.

A	I can read very short, simple texts. I can find specific, predictable information in simple everyday material, such as advertisements, prospectuses, menus and timetables, and I can understand short simple personal letters.
B	I can understand texts that consist mainly of high frequency everyday or job related language. I can understand the description of events, feelings and wishes in personal letters.
C	I can read articles and reports concerned with contemporary problems in which the writers adopt particular stances or viewpoints. I can understand contemporary literary prose.
D	I can understand long and complex factual and literary texts, appreciating distinctions of style. I can understand specialised articles and longer technical instructions, even when they do not relate to my field.
E	I can read with ease virtually all forms of the written/signed language, including abstract, structurally or linguistically complex texts, such as manuals, specialised articles and literary works.

1.2. How well can you speak English?

A	I can use a series of phrases and sentences to describe in simple terms my family and other people, living conditions, my educational background and my present or most recent job.
B	I can connect phrases in a simple way in order to describe experiences and events, my dreams, hopes and ambitions. I can briefly give reasons and explanations for opinions and plans. I can narrate a story or relate the plot of a book or film and describe my reactions.
C	I can present clear, detailed descriptions on a wide range of subjects related to my field of interest. I can explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.
D	I can present clear, detailed descriptions of complex subjects integrating sub themes, developing particular points and rounding off with an appropriate conclusion.
E	I can present a clear, smoothly flowing description or argument in a style appropriate to the context and with an effective logical structure that helps the recipient notice and remember significant points

1.3. How well can you write in English?

A	I can produce a series of simple phrases and sentences linked with simple connectors like “and”, “but” and “because”.
B	I can produce straightforward connected text on topics that are familiar or of personal interest.
C	I can produce clear, detailed text on a wide range of subjects related to my interests. I can produce an essay or report, passing on information or giving reasons in support of or against a particular point of view.
D	I can express myself in clear, well-structured text, expressing points of view at some length. I can produce detailed expositions of complex subjects in an essay or a report, underlining what I consider to be the salient issues. I can produce different kinds of texts in a style appropriate to the reader I have in mind.
E	I can produce clear, smoothly flowing text in an appropriate style. I can produce complex letters, reports or articles that present a case with an effective logical structure that helps the recipient notice and remember significant points. I can produce summaries and reviews of professional or literary works.

2. Follow these instructions:

<ul style="list-style-type: none"> • If most of your answers are A, • If most of your answers are B, • If most of your answers are C, • If you have a mixture of A and B, • If you have a mixture of B and C, 	go to Part 2 Version A on page 5
<ul style="list-style-type: none"> • If most of your answers are D, • If most of your answers are E, • If you have a mixture of C and D, • If you have a mixture of D and E, 	go to Part 2 Version B on page 10

PART 2 - VERSION A

Task 1

For questions 1 – 8, read the text below and decide which answer (A, B, C or D) best fits each gap. There is an example at the beginning (0).

Example:

0 A band

B set

C branch

D series

What is genealogy?

Genealogy is a (0) of history. It concerns family history, (1) than the national or world history studied at school. It doesn't merely involve drawing a family tree, however – tracing your family history can also (2) in learning about your roots and your identity. The internet enables millions of people worldwide to (3) information about their family history, without great (4)

People who research their family history often (5) that it's a fascinating hobby which (6) a lot about where they come from and whether they have famous ancestors. According to a survey involving 900 people who had researched their family history, the chances of discovering a celebrity in your past are one in ten. The survey also concluded that the (7) back you follow your family line, the more likely you are to find a relation who was much wealthier than you are. However, the vast majority of people who (8) in the survey discovered they were better off than their ancestors.

1 A instead

B rather

C except

D sooner

2 A cause

B mean

C result

D lead

3 A accomplish

B access

C approach

D admit

4 A fee

B price

C charge

D expense

5 A describe

B define

C remark

D regard

6 A reveals

B opens

C begins

D arises

7 A older

B greater

C higher

D further

8 A attended

B participated

C included

D associated

Task 2

For questions 9 – 16, read the text below and think of the word which best fits each gap. Use only one word in each gap. There is an example at the beginning (0).

Write your answers IN CAPITAL LETTERS below the text.

Example: (0) – AS

Motorbike stunt rider

I work (0) a motorbike stunt rider – that is, I do tricks on my motorbike at shows. The Le Mans race track in France was (9) I first saw some guys doing motorbike stunts. I'd never seen anyone riding a motorbike using just the back wheel before and I was (10) impressed I went straight home and taught (11) to do the same. It wasn't very long before I began to earn my living at shows performing my own motorbike stunts.

I have a degree (12) mechanical engineering; this helps me to look at the physics (13) lies behind each stunt. In addition to being responsible for design changes to the motorbike, I have to work (14) every stunt I do. People often think that my work is very dangerous, but, apart (15) some minor mechanical problem happening occasionally during a stunt, nothing ever goes wrong. I never feel in (16) kind of danger because I'm very experienced.

(9) – _____

(10) – _____

(11) – _____

(12) – _____

(13) – _____

(14) – _____

(15) – _____

(16) - _____

Task 3

For questions 17 – 24, read the text below. Use the word given in capitals at the end of some of the lines to form a word that fits in the gap in the same line. There is an example at the beginning (0).

Write your answers **IN CAPITAL LETTERS** below the text.

Example: (0) – COMMONLY

An incredible vegetable

Garlic, a member of the Liliaceae family which also includes onions, is (0) used in cooking all around the world. China is currently the largest (17) of garlic, which is particularly associated with the dishes of northern Africa and southern Europe. It is native to central Asia and has long had a history as a health-giving food, used both to prevent and cure (18) In Ancient Egypt, workers building the pyramids were given garlic to keep them strong, while Olympic athletes in Greece ate it to increase their resistance to infection.

COMMON

PRODUCT

ILL

The forefather of antibiotic medicine, Louis Pasteur, claimed garlic was as (19) as penicillin in treating infections. Modern-day (20) have proved that garlic can indeed kill bacteria and even some viruses, so it can be very useful for people who have coughs and colds. In (21) , some doctors believe that garlic can reduce blood (22)

EFFECT

SCIENCE

ADD

PRESS

The only (23) to this truly amazing food is that the strong and rather (24) smell of garlic is not the most pleasant!

ADVANTAGE

SPICE

(17) - _____

(18) - _____

(19) - _____

(20) - _____

(21) - _____

(22) - _____

(23) - _____

(24) - _____

Task 4

For questions 25-30, complete the second sentence so that it has a similar meaning to the first sentence, using the word given. Do not change the word given. You must use between two and five words, including the word given. Here is an example (0).

Example:

0 A very friendly taxi driver drove us into town.

DRIVEN

We _____ a very friendly taxi driver.

The gap can be filled by the words “were driven into town by”, so you write: WERE DRIVEN INTO TOWN BY

25 Joan was in favour of visiting the museum.

IDEA

Joan thought it would be _____ to the museum.

26 Arthur has the talent to become a concert pianist.

THAT

Arthur is so _____ could become a concert pianist.

27 “Do you know when the match starts, Sally?” asked Mary.

IF

Mary asked Sally _____ time the match started.

28 I knocked for ages at Ruth’s door but I got no reply

LONG

I _____ knocking at Ruth’s door but I got no reply.

29 Everyone says that the band is planning to go on a world tour next year.

SAID

The band _____ planning to go on a world tour next year.

30 I’d prefer no to cancel the meeting.

CALL

I’d rather _____ the meeting.

PART 2 - VERSION B

Task 1

For questions 1 – 8, read the text below and decide which answer (A, B, C or D) best fits each gap. Circle your answer.

Example:

0 A straight B common C everyday **D** conventional

Studying black bears

After years studying North America's black bears in the (0) way, wildlife biologist Luke Robertson felt no closer to understanding the creatures. He realised that he had to (1) their trust. Abandoning scientific detachment, he took the daring step of forming relationships with the animals, bringing them food to gain their acceptance.

The (2) this has given him into their behaviour has allowed him to dispel certain myths about bears. (3) to popular belief, he contends that bears do not (4) as much for fruit as previously supposed. He also (5) claims that they are ferocious. He says that people should not be (6) by behaviour such as swatting paws on the ground, as this is a defensive, rather than an aggressive, act.

However, Robertson is no sentimentalist. After devoting years of his life to the bears, he is under no (7) about their feelings for him. It is clear that their interest in him does not (8) beyond the food he brings.

- | | | | | |
|---|--------------|-------------|---------------|-----------------|
| 1 | A catch | B win | C achieve | D receive |
| 2 | A perception | B awareness | C insight | D vision |
| 3 | A Opposite | B Opposed | C Contrary | D Contradictory |
| 4 | A care | B bother | C desire | D hope |
| 5 | A concludes | B disputes | C reasons | D argues |
| 6 | A misguided | B misled | C misdirected | D misinformed |
| 7 | A error | B doubt | C illusion | D impression |
| 8 | A expand | B spread | C widen | D extend |

Task 2

For questions 9 – 16, read the text below and think of the word which best fits each gap. Use only one word in each gap. There is an example at the beginning (0). Write your answers IN CAPITAL LETTERS below the text.

Example: (0) – IS

The origin of language

The truth (0) nobody really knows how language first began. Did we all start talking at around the same time (9) of the manner in which our brains had begun to develop?

Although there is a lack of clear evidence, people have come up with various theories about the origins of language. One recent theory is that human beings have evolved in (10) a way that we are programmed for language from the moment of birth. In (11) words, language came about as a result of an evolutionary change in our brains at some stage.

Language (12) well be programmed into the brain but, (13) this, people still need stimulus from others around them. From studies, we know that (14) children are isolated from human contact and have not learnt to construct sentences before they are ten, it is doubtful they will ever do so. This research shows, if (15) else, that language is a social activity, not something invented (16) isolation.

(9) – _____

(10) – _____

(11) – _____

(12) – _____

(13) – _____

(14) – _____

(15) – _____

(16) - _____

Task 3

For questions 17 – 24, read the text below. Use the word given in capitals at the end of some of the lines to form a word that fits in the gap in the same line. There is an example at the beginning (0). Write your answers IN CAPITAL LETTERS below the text.

Example: (0) – PROFESSIONAL

Training sports champions

What are the abilities that a (0) sports person needs? To guarantee that opponents can be (17) , speed, stamina and agility are essential, not to mention outstanding natural talent. Both a rigorous and comprehensive (18) regime and a highly nutritious diet are vital for top-level performance. It is carbohydrates, rather than proteins and fat, that provide athletes with the (19) they need to compete. This means that pasta is more (20) than eggs or meat. Such a diet enables them to move very energetically when required. Failure to follow a sensible diet can result in the (21) to maintain stamina.

PROFESSION

COME

FIT

ENDURE

BENEFIT

ABLE

Regular training to increase muscular (22) is also a vital part of a professional's regime, and this is (23) done by exercising with weights. Sports people are prone to injury but a quality training regime can ensure that the (24) of these can be minimised.

STRONG

TYPE

SEVERE

(17) - _____

(18) - _____

(19) - _____

(20) - _____

(21) - _____

(22) - _____

(23) - _____

(24) - _____

Task 4

For questions 25-30, complete the second sentence so that it has a similar meaning to the first sentence, using the word given. Do not change the word given. You must use between two and five words, including the word given. Here is an example (0).

Example:

0 James would only speak to the head of department alone.

ON

James _____ to the head of department alone.

The gap can be filled by the words “insisted on speaking”, so you write: INSISTED ON SPEAKING

25 My brother now earns far less than he did when he was younger

NEARLY

My brother _____ much now as he did when he was younger.

26 They are demolishing the old bus station and replacing it with a new one.

PULLED

The old bus station is _____ with a new one.

27 The number of students now at university has reached an all-time high, apparently.

THE

The number of students at university is _____ been, apparently.

28 I'm disappointed with Fishers' new album when I compare it to their previous one.

COMPARISON

I think the Fishers' new album is _____ their previous one.

29 Ana got the job even though she didn't have much experience in public relations.

SPITE

Ana got the job _____ of experience in public relations.

30 “I must warn you how dangerous it is to cycle at night without any lights,” said the police officer to Max.

DANGERS

Max received a _____ at night without any lights from the police officer.

Appendix 4. Materials for voice recording

Please, read before recording

You will be asked to read aloud three conversations. Each conversation will be recorded separately. Before you start, please, read these instructions:

- 1) First, read the conversation to yourself.
- 2) Read the conversation aloud. You can read it aloud twice before the recording.
- 3) When you're ready, read the conversation for the recording.

Conversation 1

A: Does Ana already know what she's going to do after college?

B: Mr McKenzie told us Ana could make a career as a photographer.

A: To do photography she'll need a ton of skills!

B: Well, Mr McKenzie told us Ana could win the Observer competition. Yes! He advised us to buy a new camera for her.

Conversation 2

A: What are you doing?

B: What am I doing? I'm reading. What does it look like I'm doing?

A: Is it a magazine?

B: It's a book, silly. You can see it's not a magazine.

A: Could I take a glance at it. Is it a good book?

B: Yes, it's a good book.

A: Does it have pictures? Let me see ...

B: OK, but then go away and let me finish reading.

Conversation 3

A: Can you help me carry this bag?

B: What's in it?

A: Twenty bananas.

B: Are you kidding me, Sally?

A: The doctor recommended us eating more fruit. I want us to be healthy!

