RHYTHMIC TRANSFER IN GALICIAN LEARNERS OF ENGLISH

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ABSTRACT

Languages around the world have been classified according to their rhythm as stressed timed, syllable timed, and mora timed. Conforming to this classification, a limited number of studies have sought to find out whether prosodic transfer may occur between languages belonging in different rhythmic classes. The aim of this study is to verify the existence of rhythmic transfer from L1 to L2 in a foreign language learning context, where a group of native Galician (L1) speakers utter a text in English (L2). Bearing in mind the above-mentioned classification of languages, the rhythmic productions of six speakers of Central Galician, Central Peninsular Spanish, and Southern British English, and four speakers of English L2 are analysed and labelled using *Praat*. Subsequently, five rhythm metrics (V%, ΔC, ΔV, CrPVI and VnPVI) are calculated for each language by means of *Correlatore*. The resulting data show that there is rhythmic transfer between Galician L1 and English L2.

Keywords: English L2, rhythm, acquisition, rhythmic transfer

1. INTRODUCTION

1.1. Rhythmic typologies

Linguistic rhythm has been traditionally defined as isochrony of speech intervals (Abercrombie, 1967: 97-98). The classification of languages regarding their rhythmic makeup relies on the speech intervals (stress feet, syllables, morae) that are considered to be isochronous. From the initial twofold classification into stress- and syllable-timed languages established by Pike (1945) and Abercrombie (1967) to the stress-based continuum subsequently proposed by Dauer (1983) and Bertinetto (1989), a considerable amount of phonological research has delved into the rhythmic characterisation of languages as (predominantly) stress-timed, where stressed syllables are perceived to fall at roughly isochronous intervals, syllable-timed languages, where all syllables are perceived to be isochronous, and mora-timed languages, where morae are taken to be isochronous. The most quoted examples of each one of these types of language are English, Spanish and Japanese, respectively.

In recent years, phonologists have come to accept the view that linguistic rhythm is a percept; in other words, isochrony is perceptually imposed on a largely non-isochronous speech signal (Ordin & Polyanskaya, 2015: 535). Consequently, efforts have been made to find objectively quantifiable measures to prove the phonetic reality of the aforementioned classification. With this purpose in mind, data-driven studies by Ramus, Nespor & Mehler (1999), Grabe & Low (2002) and Dellwo (2006), among others, have made use of a number of metrics to confirm the existence of objective, acoustically measurable differences between stress-timed and syllable-timed languages. Such differences are arguably linked to contrasts regarding syllable structure, and the presence (or not) of vowel reduction, accent-related lengthening, and final lengthening. In spite of the problems observed when interpreting some metric scores to try and classify languages rhythmically (see Arvanity, 2009; Arvanity & Ross, 2010; Arvanity, 2012), no other reliable classification method has been put to the test.

1.2. Rhythmic transfer

As much as the research on the rhythmic differences between languages has evolved, the production of L2 in contrast to L1 rhythmic patterns has been paid little attention in the literature on L2 acquisition and linguistic transfer (see Ordin & Polyanskaya, 2015). Linguistic transfer may be defined as the phenomenon that occurs when the learners of an L2 use one or several features that characterise their L1 when they speak the L2. As Roseano et al. (2015) indicate, linguistic transfer affects not only the lexical and syntactic levels of a language, but also its

prosodic level, i.e. intonation and rhythm. Only a scarce number of studies have analysed phenomena related to prosodic transfer in contexts of language contact connected to migrations—examples of which are the studies on the production of American English by Latin American Spanish speakers in North Carolina (Carter, 2005); *Porteño* and Castilian Spanish by Italian speakers in Buenos Aires (Gabriel & Kireva, 2014); Argentinian Spanish by Afrikaans speakers in Patagonia (Coetzee et al., 2015)—and in contexts of foreign language learning—the production of English by Chinese (Ding & Xu, 2016), Chinese and German (Li & Post, 2014), Japanese (Grenon & White, 2008) and French (Tortel & Hirst, 2008) learners. A relevant percentage of those studies note that the speakers' rhythmic productions in L2 show certain rhythmic features that characterise the prosody of their L1. The existing literature on prosodic acquisition proves that "the acquisition of second language speech rhythm is demonstrably a challenge for language learners" (Kinoshita & Sheppard, 2011: 1086). Moreover, the transfer of certain prosodic features from L1 to L2 is implicitly or explicitly supported by the view that "the phonic elements making up the […] phonetic subsystems" of the languages in question "exist in a common phonological space, and so will necessarily influence one another" (Flege, Schirru, & MacKay, 2003: 469). As a natural consequence of such view, "it is not surprising that […] L1 transfer is an important factor in L2 prosody learning." (Rasier & Hiligsmann, 2007: 44). Although some scholars have pointed to the possibility that certain rhythm acquisition processes might be universal, i.e. they always appear in the process of L2 language prosody learning regardless of the characteristics of the learner's L1 (see Rasier & Hiligsmann, 2007; Li & Post 2014; Ordin & Polyanslaya, 2015), this does by no means entail that the rhythm of L2 will not get affected by the rhythmic properties of L1, particularly when the two have very different rhythmic structures (see Tortel & Hirst, 2008). In Wenk's (1985: 157) view, when advanced leaners of a given L2 produce sentences or texts in that L2, "[… they] pass through a transitional stage characterised by the production of rhythmic groups which, while displaying features of both the L1 and L2 systems, are unique to the learner's 'interlanguage'". Whether or not one endorses the existence of the interlanguage, the analysis of the potential influence of the rhythm of L1 on L2 must be carefully explored so as to come to a sound conclusion regarding prosodic transfer.

1.3. Objectives

The present study analyses the production of speech rhythm in a foreign language (ENG_L2) by bilingual leaners who speak Spanish, which is rhythmically contrastive to the target language, and Galician, a Romance language that has not yet been classified with regards to its rhythm. The aim of the study is to verify whether the production of ENG_L2 is affected by rhythmic transfer from Galician to English.

2. METHODS

In order to conduct this investigation, speakers of four different varieties were recorded:

- 6 speakers of Central Galician (henceforth GAL), the native language of the group of students recorded for this experiment;
- 6 speakers of Central Peninsular Spanish (henceforth CPS), a prototypical syllable-timed language included in our dataset as a rhythm reference point;
- 6 speakers of Southern British English (henceforth SBE), a prototypical stress-timed language and the students' target language;
- 4 university students, native speakers of Central Galician and Peninsular Spanish currently studying English (ENG_L2) at the University of Vigo who, at the moment of recording, certified a B2/C1 level of English and had never lived abroad.

Regarding the production task, speakers read the tale *The North Wind and the Sun* in their respective language. This is a text commonly employed in phonetics studies, which has been used in research works about rhythm (see Grabe & Low, 2002). The resulting corpus contained 22 recordings. The acoustic analysis was carried out with *Praat* (Boersma & Weenink, 2019). For each recording, the vocalic and consonantal intervals were annotated in a textgrid. The statistical analysis was carried out by means of *Correlatore 2.3.4* (Mairano & Romano, 2010), a software used to calculate the global metrics V%, ΔC and ΔV (Ramus, Nespor, & Mehler, 1999), and the local metrics CrPVI and VnPVI (Grabe & Low, 2002), all of which have been put to the test in previous studies about linguistic rhythm. As is well known, ΔC and CrPVI relate to the variability of consonantal intervals, while ΔV and VnPVI have to do with the variability of vocalic intervals. Syllable-timed languages like CPS have been reported to show low values for all of these metrics (i.e. they have simple consonant clusters and do not show vowel reduction). Stress-timed languages like SBE,

on the other hand, have been observed to display high values for the same metrics (i.e. they have complex consonant clusters and show vowel reduction). Similarly, the metric V% reflects both vocalic and consonantal characteristics of languages. Syllable-timed languages such as CPS have been proven to deploy a high value of V%, while stress-timed languages such as SBE have been noted to show a low value of V%.

3. RESULTS

3.1. V%, ΔC and ΔV (Ramus et al., 1999)

Following Ramus et al. (1999), two combinations of metrics, namely ΔC and ΔV (Figure 1), and ΔC and V% (Figure 2) were used. In both cases, ENG_L2 emerges in an intermediate position between GAL (which turns out to be, like most Romance languages, syllable-timed) and SBE on both axes, which means that the variety of English used by the students shows features that appear between the source (GAL) and target (SBE) languages regarding consonantal and vocalic features.

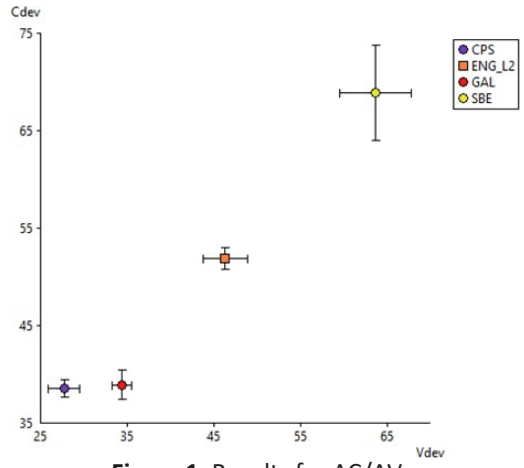

Figure 1: Results for ΔC/ΔV.

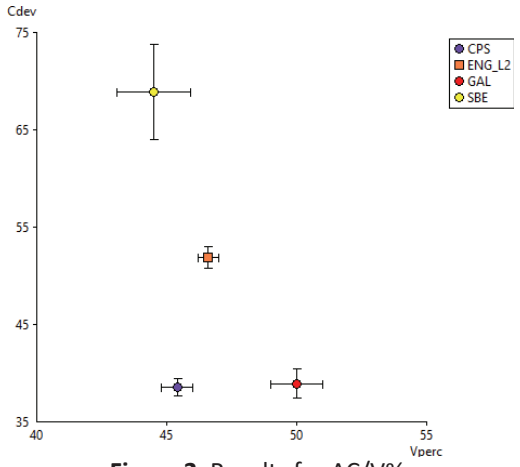

Figure 2: Results for ΔC/V%.

3.2. CrPVI and VnPVI (Grabe & Low, 2002)

Following Grabe & Low (2002), we analysed CrPVI and VnPVI (Figure 3). Again, ENG_L2 stands in an intermediate position between GAL and SBE on both axes, which indicates that it shows intermediate characteristics between the source and the target languages as far as consonantal and vocalic features are concerned.

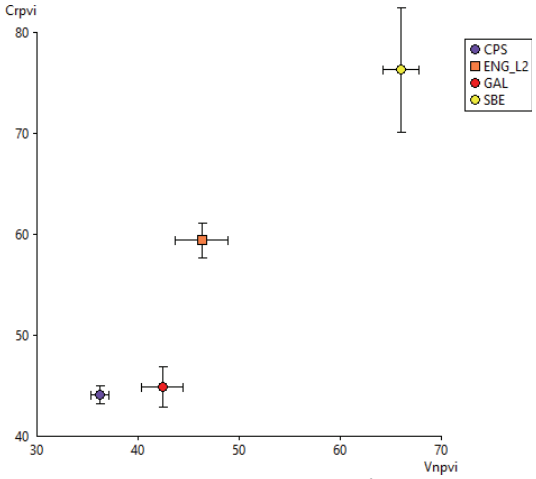

Figure 3: Results for CrPVI/VnPVI.

4. DISCUSSION

The graphic representations provided in the analysis support the view that the acoustic parameters best suited to grasp the rhythmic differences between SBE, CPS GAL, and ENG_L2 are, on the one hand, the parameters that measure the consonant material—Ramus et al.'s (1999) ΔC and Grabe and Low's (2002) CrPVI—and, on the other hand, the parameters that measure the vowel material—Grabe and Low's (2002) VnPVI and Ramus et al.'s (1999) ΔV. The graphics clearly reveal that SBE and CPS stand at opposite poles of the representation axes, which enables us to locate two benchmarks that frame the rhythmic area occupied by English spoken by Galician learners. The rhythmic area where ENG_L2 stands is situated in the space between GAL and SBE, and slightly closer to GAL. This points to the existence of a certain degree of transfer from Galician to English, as ENGL_L2 is characterised by the production of vowel, consonants and rhythmic groups which are different from those of SBE and, therefore, unique to the Galician learners' language.

5. CONCLUSIONS

The purpose of this work was to verify whether the production of English by Galician speakers would be affected by rhythmic transfer from Galician to English. The results prove that there is rhythmic transfer from L1 (in this case, Galician) to L2 (in this case, English spoken by Galician speakers) in both the consonant and the vowel intervals. In light of this, language transfer may be considered as an inescapable learning stage to make it possible for foreign language learners to eventually acquire L2 speech rhythm.

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