Neoclassical elements (NCEs), such as words in agnosticism and psycho in psychology, have been assigned different morphological classifications: from affixes, to stems, to combining forms (see [1, 2]). Assuming that NCEs belong to any of these categories implies that they present a consistent behaviour throughout the language. However, NCEs combine with distinct types of structures, e.g., other NCEs, such as in psycho-, or independent words, such as in psycho-linguistics. In addition, NCEs also exhibit different phonological aspects according to the element to which they attach. In this preliminary study, we argue that differences in vowel reduction (VR) in the NCE-final /o/ indicate that NCEs in Brazilian Portuguese (BP) are prosodized in two ways: as regular prosodic words (PWds) when combined with another NCE, and as compounds (recursive PWds) when combined with an independent PWd.

1 Introduction

Neoclassical elements (NCEs) (Greek or Latin radicals) are found in several European languages, having been highly productive in the 17th/18th centuries. In general, speakers seem to be sensitive to the distinction between NCEs and native elements ([3]). In Portuguese, these elements may be stressed and may combine with other neoclassical elements (‘psico-linguistics’, ‘agro-nomia’ agroscopy).

Crosslinguistically, NCEs have been morphologically classified as:

- Affixes (how about words such as ‘psychic?’)
- Stems/radicals (but ‘Elas deveriam cuidar das suas biens’ They should take care of their biens).
- Combining forms (closed category, [1]).

In Brazilian Portuguese (BP), NCEs seem to have distinct phonological behaviours, depending on the form(s) with which they combine. Assuming a prosodic domain should present consistency in rule application, this may indicate NCEs have different types of prosodization. The phenomenon we examine here is vowel reduction. First, we divide forms with NCEs into two groups: (A) NCE + dependent form, and (B) NCE + independent form. The independent form corresponds to a PWd, whereas the dependent form may correspond to either an NCE or an element that cannot be instantiated independently in the language.

Vowel reduction

In BP, [l] → [a], especially in final position. Reduction is a gradient phenomenon by definition, and is a result of less articulatory effort. Reduced vowels are more centralized and/or raised than their non-reduced counterparts. Phonetically, both F1 and F2 are affected, but F2 seems to be the main correlate ([4, 5]).

- Target: NCE-final [l] (Greek elements only), which can potentially reduce to [u] in both (A) and (B).
- Predictions: (B) ‘psic[ul]linguista’ should be more natural/frequent than (A) ‘psic[ul]logia’.

2 Methods

Production task

BP speakers (n=5) produced NCE forms (from both (A) and (B)) in carrier sentences (n=64 sentences/speaker + fillers), with and without focus (cf): What did Maria say in class? Maria said X[p] in class (n=32).

Did Maria say it after class? No, Maria said X[p] in class, not after class (n=32).

Dependent variable/response: F1 and F2.

Independent variables/predictors: group (A or B), focus (YN), distance from stressed syllable.

Statistical method: linear mixed-model regression + by-speaker and by-item random effects (lmer() in R). 

Judgement task

BP speakers (n=10) rated NCE forms (from both (A) and (B)) produced with and without reduction (n=30 + fillers). All items were randomized and judged twice by each speaker. The task was developed on Praat, and included a 10-point scale.

Dependent variable/response: judgement (1-10).

Independent variables/predictors: group (A or B), distance from stressed syllable and response time.

Statistical method: ordinal regression + by-speaker and by-item random effects (clm() in R).

3 Results

Production task

- F1 was not significantly different between the NCE constructions examined (Fig. 1). F2, however, did show a significant difference (Fig. 2).

The NCE-final [l] in NCE+PWd constructions (indep, group (B)) had a higher F2 value, which indicates more centralization.

- Higher F2 values (see Table 1) as a consequence of reduction are consistent with other languages [4].

- The patterns in Figs. 1 and 2 are consistent across all speakers. Fig. 3 shows the distribution of F1-F2 values in both groups.

Judgement task

- As expected, all non-reduced forms (controls) were rated at ceiling.

- Reduced forms, however, showed a significant difference between groups (A) and (B). Given an NCE construction with [l] reduction, the odds of a higher score go up by a factor of 3.26 (see Table 2) if the second member of the construction is independent (i.e., group (B)).

4 Discussion

- In constructions of group A, the NCE-final [l] behaves as a pretonic vowel, which is not usually reduced, thus, the NCE seems to be part of the radical. Constructions of group A are equivalent to simple PWds.

- In constructions of group B, the NCE-[l] behaves more like a final vowel in BP, thus the NCE seems to be equivalent to a preffix. In compounds formed by a stressed prefix and a PWd (‘vice-presidente’ vice-president) or by two PWds (‘satellite city’ satellite city) vowel reduction is attested (often categorical) at the right edge of both elements. Each element in these compounds is considered an independent PWd; in the case of NCEs, however, reduction is not categorical. Thus, NCEs in group B do not seem to have full PWd status (additionally, they cannot be instantiated independently in the language). If we consider that all elements in a prosodic representation are assigned a prosodic label, then NCEs in group B should be equivalent to Feet. Structures in group B, then, should be ultimately prosodized as recursive PWds.

- Our study suggests that NCEs may not have a prosodic status priori-unlike, e.g., lexical words (PWds) and pronominal clitics (e.g) in BP. Rather, their behaviour (and prosodic mapping) depends on the element to which it attaches.

References


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