

Inferring the phonological representation of Portuguese palatals from their distribution

1]Carlos Silva¹ 2]Luís Trigo² [1]CLUP Centro de Linguística, University of Porto [2]LIACC Laboratório de Inteligência Artificial e Ciência de Computadores, University of Porto

The mainstream literature on Portuguese palatal sonorants, [ɲ] and [ʎ], always assumes that they are rare and restricted in terms of their distribution (Mateus & Andrade, 2000), although it never tells us *how rare* and *how restricted* they are. Unlike /m, n, l/, the palatals [ɲ, ʎ] (i) are disallowed word-initially (nome 'name' vs *ɲome), (ii) do not admit complex rhymes at their left (orla 'edge' vs *orʎa), (iii) nor can they occur in the last syllable of proparoxytones (fenómeno 'phenomenon' vs *fenómeɲo). They are therefore considered either phonological geminates (Wetzels, 2000) or complex segments (Velooso, 2019; Pimenta, 2019). Moreover, palatal sonorants are usually represented in a similar fashion. Nevertheless, [ʎ] is typologically rarer, it is acquired much later in both European and Brazilian Portuguese (Costa, 2010) and it is more unstable in the transfer between Portuguese and its creoles (Author, *for*c).

The present study challenges the current representations of palatal sonorants based on the statistical analysis of their distribution. Our proposal is grounded in an extensive number words based on two lexical corpora: DicioAberto (Simões & Farinha, 2010) and Wikcionário Meyer & Gurevych (2012). This approach enables us not only to evaluate the usage frequency use of these consonants, but also to assess the limits of their variation within the Portuguese lexicon. We measure (i) the context-free frequency of the palatals; (ii) their frequency depending on their position within the words, (iii) the frequency of the vowel quality on their left.

We find that both palatals are relatively rare in Portuguese when compared to consonants such as /p/ and /m/. However, contrary to what we were expecting [ɲ] is less frequent than [ʎ]. Our data also shows that these consonants occupy the word-final onset in around 60% of the items— a position in which they play a role in stress assignment. Word-initial palatals where only found in loanwords. Lastly, we found that these consonants, along with the palatal glide [j], share a scale of preference regarding their left edge, namely |I| > |A| > |U|. Nevertheless, they also display some individual behavior regarding how restrictive they are in relation to this scale ([j] > [ɲ] > [ʎ]).

These results suggest that the palatal sonorants have slightly different phonological representations. On the one hand, the preference for palatal environments and for the last onset of the word, *id est*, the relevant position for stress assignment, corroborates the idea that these consonants have a palatal autosegment in their internal structure (Velooso, 2019). On the

other hand, the greater frequency and flexibility of [ʎ] over [ɲ] can be explained by differences in their internal components. Therefore, we propose that $[ʎ] = |A, U|I|$ (if we accept that $/l/ = |A, U|$ and $/ɲ/ = |L|I|$, following the Element Theory (Backley, 2011)). In other words, [ʎ] is more complex due to element asymmetry within the segment ($|U|$ and $|I|$), which explains its late acquisition, but the presence of these elements makes it less restrictive concerning its left edge and, thus, more frequent in the lexicon.

References

Author. forc, .

Backley, Phillip. 2011. *An introduction to element theory*. Edinburgh University Press.

Costa, Teresa. 2010. *The acquisition of the consonantal system in european portuguese: focus on place and manner features*. Universidade de Lisboa dissertation. <https://repositorio.ul.pt/handle/10451/2010>.

Mateus, Maria Helena & Ernesto Andrade. 2000. *The phonology of portuguese*. Oxford University Press.

Meyer, Christian M & Iryna Gurevych. 2012. *Wiktionary: A new rival for expert-built lexicons? exploring the possibilities of collaborative lexicography*. na.

Pimenta, Heglyn. 2019. *Nasalité et syllabe: Une étude synchronique, diachronique et dialectologique du portugais européen*. Université de Paris VIII dissertation.

Simões, Alberto & Rita Farinha. 2010. Dicionário aberto: um recurso para processamento de linguagem natural. *Viceversa: revista galega de tradución* 16. <https://revistas.webs.uvigo.es/index.php/viceversa/article/view/2569>.

Veloso, João. 2019. Complex segments in portuguese: The unbearable heaviness of being palatal. In Irantzu Epelde Zendoia & Oroitz Jauregi Nazabal (eds.), *Bihotz ahots. m. l. oñederra irakaslearen omenez*, 513–526. The address of the publisher: Euskal Herriko Unibertsitatea.

Wetzels, W. Leo. 2000. Consoantes palatais como geminadas fonológicas no português brasileiro. *Revista de Estudos da Linguagem* 9(2). 5–15. doi:10.17851/2237-2083.9.2.5-15. <http://www.periodicos.letras.ufmg.br/index.php/relin/article/view/2323>.