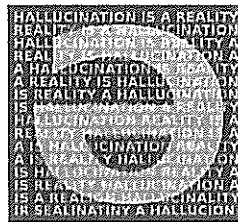


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Schwa in European Portuguese: The Phonological Status of [ɨ]

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ABSTRACT

Based on the categorization of Van Oostendorp (1998), this paper proposes a distinction between three types of schwa in European Portuguese: schwa that results from unstressed vowel reduction; epenthetic schwa; underlying schwa. The proposal of the last schwa category conflicts with current phonological descriptions of this language, which do not accept the existence of schwas in lexical representations. The main argument in favour of our proposal lies on the unavailability, in the Portuguese lexicon, of comparisons in which unstressed final schwa alternates with a full vowel realizing the same morpheme.

1 Preliminary remarks: the descriptive aim of this paper

This paper deals with some basic aspects of the realizations of [ɨ] in European Portuguese (EP), from a predominantly descriptive, taxonomic perspective. That is to say, we will not concentrate on the broader implications of such realizations for the discussion of a “theory of schwa” in this language, nor will we confine our views to a strict, unique theoretical model. Indeed, our main purpose is twofold: by the one hand, we will try to isolate and to identify different phonological conditions under which [ɨ] may occur in EP; by the other hand, based on such review the existence of a phonological /ɨ/ in the vowel inventory of this language will be proposed.

The schwa categorization carried out by Van Oostendorp (1998) constitutes an inspiration for the present study. In a “pretheoretical” approach (as explicitly admitted by the author), such categorization includes the following types of schwa (Van Oostendorp, 1998: 3 ff.): “e-schwa” (epenthetic schwa) – schwa that results from epenthesis; it alternates with zero very often; “r-schwa” (vowel reduction-schwa) – schwa that alternates with a full vowel, often as the result of vowel reduction; “s-schwa” (stable schwa) – schwa present at the underlying representation; this is neither the result of epenthesis nor vowel reduction.

2 General background: the occurrence of [ɨ] in European Portuguese and its phonological interpretation

EP schwa is phonetically realized as a high, central, unrounded vowel ([ɨ]) (see, e.g., A. Andrade, 1996: 303). The current phonological descriptions of EP confine this vowel to the inventory of phonetic vowels only (see, for instance, Mateus & E. D’Andrade, 2000: 18, 33; Mateus et al., 2003: 991-992, 995, 1009). In other words, such descriptions do not accept the existence of a phonemic /ɨ/ in EP. Accordingly (see the following sections of this text), [ɨ] is always interpreted either: (i) as the phonetic counterpart of an unstressed underlying /e/ or /ɛ/, realized as [ɨ] as the result of lexical vowel reduction in EP (as in Table 1), or (ii) as a “purely phonetic segment” which does not correspond to any skeletal position of a word’s lexical representation (see examples in Table 2).

The main arguments supporting this current phonological interpretation are briefly sketched out in 2.1 and 2.2. In section 2.3, we will focus on another issue which is quite relevant to our main subject: the deletion of [ɨ] and other unstressed vowels in EP. Finally, section 3 will discuss the possibility of including /ɨ/ in the phoneme inventory of EP.

2.1 [ɨ] and lexical vowel reduction in European Portuguese

In EP, underlying non-high vowels typically undergo heightening and centralization/backing whenever they become unstressed (see, for a general description of this vowel reduction process, Mateus & E. D'Andrade, 2000: 17 ff., 134-136; Mateus et al., 2003: 1010-1016). This happens quite often and quite regularly as the product of certain morphological operations in which a morphological stem, due to the stress-assignment rules of Portuguese, is transferred from a stressed position to an unstressed one. If the vowel that loses stress is [-back, -high] (in certain specific cases, [+high] /i/ can undergo the same process as well) – i.e., in the cases of /e/ and /ɛ/ –, the surface form that emerges from this derivation is [ɨ], as Table 1 illustrates it.

Such morphological and lexical comparisons offer us convincing evidence that many phonetic realizations of [ɨ] in EP do correspond to the surface forms of a lexical /e/ or /ɛ/. Therefore, it seems possible to consider these realizations as tokens of Van Oostendorp's (1998) r-schwas.

Table 1 – [ɨ] as the counterpart of unstressed /e/, /ɛ/

Word/Gloss	Phonetic realization (Standard)	Underlying representation	vs.	Word/Gloss	Phonetic realization (Standard)	Underlying representation
"cesto", 'basket'	[ˈsɛftu]	/seSt+O/		"cestinho", little basket'	[sɨfˈtɨnu]	/seSt+ɨp+O/
"cego", 'blind'	[ˈsɛgu]	/sɛg+O/		"cegueira", 'blindness'	[sɨˈgɐjrɐ]	/sɛg+ajr+a/

2.2 [ɨ] as a "purely phonetic segment" in European Portuguese

In many phonetic realizations of EP, [ɨ] is found as an (optional) *epenthetic* vowel that does not correspond to any skeletal position of the words' underlying representations. These realizations are assumed to be inserted into the phonetic level as the result of a post-lexical process, contrarily to the cases mentioned in 2.1, in which [ɨ] is always the phonetic counterpart of a lexical vowel. For this reason, it seems possible to identify these realizations as instances of Van Oostendorp's (1998) e-schwas.

Words ending with a consonant offer a well-known context into which this post-lexical schwa is very often inserted, after the final consonant of the word, so that an open syllable (the unmarked syllabic format of EP, according, for instance, to Freitas, 1996: 80 ff.) could be found in this position, as it is shown by Table 2.

Another specific context where this non-lexical schwa (an e-schwa, according to Van Oostendorp, 1998) is phonetically realized very often is found in the empty nuclei postulated by Mateus & E. D'Andrade (2000: 44) to explain the prosodic status of consonant sequences that violate the Sonority Principle and/or the Dissimilarity Condition (mainly, Obstruent+Obstruent and Obstruent+Nasal sequences). Examples in Table 3 illustrate how such epenthetic [ɨ] occurs as a phonetic filler of these nuclei.

Table 2 – [i] as a post-lexical segment inserted into word-endings

Word/Gloss	Phonetic realization (Optional)	Underlying representation
“saber”, 'know'	[səˈberɨ]	/sab+e+r/
“papel”, 'paper'	[pɐˈpɛɨ]	/pəpɛl/

Table 3 – [i] and empty nuclei

Word/Gloss	Phonetic realization (Optional)	Base syllabification (Mateus & E. D'Andrade, 2000: 44)
“facto”, 'fact'	[ˈfakɨtu]	/fa.kø.tO/
“ritmo”, 'rhythm'	[ˈRitɨmu]	/Ri.tø.mO/

2.3 [i] and optional unstressed vowel deletion in European Portuguese

It is worth mentioning now that [i], regardless of whether it corresponds to the cases referred to in sections 2.1 or 2.2, is very often subjected to phonetic deletion. Unstressed vowel deletion is a very common phonetic phenomenon in EP which concerns all unstressed vowels (with the exception of unstressed [ə], apparently immune to this deletion) (A. Andrade, 1996: 303; Mateus, 1997b: 195; Mateus, & E. D'Andrade, 2000: 134; Veloso, 2003: 262-263, 264; 2005: 624-625). Therefore, any unstressed [u] or [i] is a strong candidate for vowel phonetic deletion, regardless of any contextual or phonological variables.

What is more, [i] – no matter it is either the phonetic counterpart of a lexical /e/ or /ɛ/ (see 2.1 above) or an epenthetic schwa (see 2.2 above) – is not, under any circumstance, subjected to any rule that systematically renders either its realization or deletion obligatory. That is to say, [i]-deletion and [i]-realization are both truly optional in EP (A. Andrade, 1996: 303; Mateus, 1997b: 195; Mateus & E. D'Andrade, 2000: 134; Veloso, 2003: 262-263, 264; 2005: 624-625)¹. As a result of this, the alternation [i]~∅ (no matter which [i]) is then very effective and quite unpredictable in this language. Indeed, no variable is regularly related to it, contrarily to languages like French in which, according to Dell (1985: 196 ff., 219 ff.), it is possible to determine the contexts in which realizations and deletions are completely obligatory or prohibited, at least for some dialects of the language.

¹ Following the theoretical framework of Government Phonology (Kaye, Lowenstamm & Vergnaud, 1985; 1987), Miguel (1990) adopts a different view, which is not shared with the majority of the phonological studies of EP. Miguel's (1990) view is that some phonological conditions related to the mutual government of empty nuclei in the underlying forms of words render [i] phonetically obligatory in certain contexts.

3 Underlying /i/ in European Portuguese

We shall enter now the discussion of the central issue of this paper. More exactly, it is our purpose to discuss the current view that does not acknowledge the existence of a phonemic /i/ in the vowel inventory of EP.

So far, we have seen that a distinction can be drawn between the realizations of [ĩ] that correspond to a lexical vowel (“r-schwa”, see 2.1) and those which do not seem to correspond to a lexical vowel (“e-schwa”, see 2.2). As for the former, the most important piece of evidence is found in pairs that compare words whose stem, depending on whether it occurs either in a stressed or unstressed position, surfaces both vowels ([e] or [ɛ], stressed, vs. [ĩ], unstressed; see Table 1). Since [ĩ] is assumed by the literature as an obligatorily unstressed vowel², and on the basis of the fact that unstressed [ĩ]-realizations derive very often from /e/ or /ɛ/ as a result of the neutralization of vowel contrasts in unstressed position, it is assumed that the height of this vowel at the phonetic level is intrinsically related to its inherent unstressed status and to the just mentioned neutralization. More precisely, it is assumed that, in *all* cases where [ĩ] corresponds to the phonetic realization of a lexical vowel, it is *always* the phonetic counterpart of a non-high phonological vowel like /e/ or /ɛ/ (Mateus, 1997b: 195, 197; 1998: 203; Delgado-Martins, 1994: 313).

This interpretation differs importantly, in our opinion, from the one which is found when EP [u] is concerned. In fact, unstressed [u] may be, quite often, the product of the heightening and backing of a [-high, +back, +rounded] vowel, as a result of the same vowel reduction rules that dictate the realization of unstressed /e/ or /ɛ/ as [ĩ] (Mateus & E. D’Andrade, 2000: 17 ff., 134-136; Mateus et al., 2003: 1010-1016). Lexical pairs like “*corpo*” [ˈkɔɾpu] ‘body’ (underlying representation: /kɔɾp+O/) vs. “*corpinho*” [kɔɾˈpiɲu] ‘little body’ (underlying representation: /kɔɾp+iɲ+O/) illustrate this correspondence.

Nevertheless, and contrarily to what is found in the literature in relation to [ĩ], [u] is admitted both as the phonetic result of the reduction of unstressed /o/ and /ɔ/, in word pairs like the just mentioned one, and of an underlying vowel /u/ too, in all cases where such comparisons are not admitted (for example: in pairs like “*furo*” [ˈfuɾu] ‘hole’ vs. “*furinho*” [fuˈɾiɲu] ‘little hole’, where no effect of vowel reduction due to stress-assignment is apparent) (Mateus, 1975: 72; 1997b: 196; 1998: 206; Mateus & D’Andrade, 2000: 30; Mateus et al., 2003: 1001).

In our opinion, there is not any strong reason to deny that many [ĩ]-realizations are comparable to the just mentioned cases where [u] is the phonetic counterpart of an underlying /u/, allowing then [ĩ] as the realization of an underlying /i/ too. Besides, such proposal would assure, as it happens with [u]=/u/, a faithfulness relation between the underlying representation and the phonetic form. A different type of schwa in EP should thus be assumed: the schwa which, by the one hand, is not epenthetic and, by the other hand, cannot be found in word pairs like those referred to in Table 1 (“r-schwa” cases).

This category of EP schwa is present, according to our proposal, at the EP unstressed monosyllables and clitics – mainly, some prepositions and conjunctions and the unstressed forms of the personal pronoun – and at names with [ĩ]-endings, i.e., forms like “*de*” [dɨ] ‘of’, “*me*” [mɨ] ‘me’ and “*parte*” [ˈpartɨ] ‘part’, for instance.

² Certain northern dialects of EP may, however, admit a very few words with [ĩ] in stressed position (see Veloso, 2003: 261; 2005: 626).

In such words, [ɨ] may be accepted as the phonetic realization of a lexical vowel of the underlying representations for the following reasons (among others, eventually):

- first, it is demanded by the well-formedness conditions of the syllables in which it occurs. Its suppression from underlying forms of monosyllabic words (like “*de*”, for example) would include, albeit in the theoretical inventory of underlying structures, illegal phonotactic formats (since no vowelless syllables are admitted underlyingly in Portuguese);

- secondly, it can assure lexical distinctions. As a matter of fact, [ɨ] is a distinctive vowel in minimal pairs such as “*partē*” [ˈpartɨ] ‘part’ vs. “*parto*” [ˈpartu] ‘[I] break’ or “*de*” [dɨ] ‘of’ vs. “*da*” [dɐ] ‘of+definite article, singular, feminine’;

- thirdly, it may have a function in some grammatical oppositions. Namely, it can be responsible for gender oppositions of certain names (e.g., “*infante*” [ɨˈfɛntɨ] ‘prince’ vs. “*infanta*” [ɨˈfɛntɐ] ‘princess’). This role of schwa in EP is explicitly recognized by Mateus (1975: 89);

- finally, it can correspond to a single morpheme of the word. This is the case of nouns and adjectives ending with [ɨ], in which such vowel corresponds, at the morphological level, to a single morpheme (a “gender marker”, agreeing with Mateus (1975: 89), a “thematic vowel”, according to Câmara (1970: 87, 89), or a “class marker”, following Mateus (1997a: 695, 702) and Mateus & E. D’Andrade, 2000: 66).

The explanation that is proposed here for this schwa realizations dwells on accepting, for these words, that [ɨ] corresponds to the phonetic counterpart of a lexical, underlying /ɨ/, as it is shown in Table 4.

Table 4 – *Underlying schwa in European Portuguese: Nouns/adjectives and unstressed monosyllables ending with [ɨ]*

Word/Gloss	Phonetic realization (Standard)	Lexical representation (proposal)
“ <i>quente</i> ”, ‘hot’	[ˈkɛntɨ]	/keNt+ɨ/
“ <i>de</i> ”, ‘of’	[dɨ]	/dɨ/

As it was said above, phonological studies of EP refuse the existence of an underlying schwa in this language. Our proposal, therefore, conflicts with the current phonological descriptions of the language regarding this particular aspect. Nevertheless, phonological studies dealing with other languages explicitly accept that an underlying schwa, even if phonetically coincident with epenthetic vowels and very unique as far as stress and syllable structure in which it occurs are concerned, is possible and even necessary for a thorough description of the language phonological organization. It is the case, for example, of French, for which a “schwa sous-jacent” is assumed by Dell (1985: 197, 220, *passim*) and Angoujard (2006: 80).

This underlying schwa – **whose existence is proposed here for EP too** – corresponds to the third category of schwa-types proposed by Van Oostendorp (1998): s-schwa, defined as the “[...] *stable schwa*, which is a rest category from a descriptive point of view: if there is no reason to call a schwa e-schwa or r-schwa, I call it s-schwa. S-schwa is usually already present in the underlying structure [...]” (Van Oostendorp 1998: 3).

These criteria – in addition to the aforementioned comparison with the phonological status of [u]-realizations of underlying /u/, preserving (in both cases) a faithfulness relation between underlying and surface forms – seem to apply to the EP cases discussed in the present section of this study.

4 Concluding remarks

In this paper, a categorization of the occurrences of EP schwa was attempted. To sum up, we thought it possible to identify in EP the three types of schwa proposed by Van Oostendorp (1998) (r-schwa – see section 2.1; e-schwa – see section 2.2; s-schwa – see section 3). From these, the last one (the “underlying schwa”) may be conflicting with current approaches of phonological studies of this language, which generally do not accept the existence of an underlying /ɨ/ in the phoneme vowel inventory of EP. The arguments in favour of our explanation were developed in the previous sections of this text. In brief, they have to do with aspects related to the impossibility of comparing the s-schwa realizations with (non-existent) words where such schwa would alternate with a vowel different from [ɨ] (contrarily to what happens with r-schwa realizations and in the same way as it happens with many [u]-realizations that are explained as realizations of an underlying /u/). Naturally, more research is still needed so that a more definite understanding of these issues could be reached. Among the aspects that should be reviewed by such future studies, topics like the optionality of [ɨ]-realizations and the surface alternations in which it is involved in EP should not be neglected.

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