The Variable Elision of Unstressed Vowels in European Portuguese:
A Case Study

David James Silva

1. Introduction*

European varieties of Portuguese exhibit a process whereby unstressed vowels, particularly schwa, optionally undergo elision: an item such as *idade* ‘idea’ can be realized as [ida'd] and *para Maria* ‘for Maria’ may surface as [premeri'nɐ]. While previous research in the study of phonological variation of this sort has typically focused on syntactic, morphological, functional, and segmental factors as the primary linguistic conditions for accurately characterizing variable processes (Guy 1980; Poplack & Walter 1986, among many others), less work has been done investigating the role of prosodic factors in this respect. Yet if one believes (along with Nespor and Vogel 1986, etc.) that prosodic structure — which includes levels of representation such as the phonological word (“mot”), the phonological phrase, and the intonational phrase — plays a significant role in the organization of phonological units, then one may reasonably argue that such structure should provide insight into phonological variation. In this paper, a preliminary analysis of data from European Portuguese is presented with the intention of demonstrating how such a position is not only tenable, but is, in fact, desirable for an accurate and insightful characterization of vowel elision.

The organization of the paper is as follows: Section 2 provides a brief outline of issues in prosodic phonology pertinent to the analysis, focusing on work by Selkirk (1986, 1987) that addresses the contribution of syntax to determining prosodic structure. Section 3 presents background on the vocalic phonology of European Portuguese (EP), paying particular attention to the claim

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1 But see, e.g., Cedergren et al. 1991.
that varieties of EP characteristically weaken unstressed non-low vowels. Section 4 reports on a case study of conversational speech produced by one speaker of EP from the Azorean island of Faial. Statistical analysis of these data reveals that conditions promoting vowel elision include both segmental and prosodic factors, chief among the latter being the notion of “word-edge”.

2. Prosodic phonology

Theories of metrical and prosodic phonology are founded on the notion that the phonological units of a language are rhythmically and/or hierarchically organized (Liberman and Prince 1977; Nespor and Vogel 1986; Selkirk 1984, 1986, 1987). It is assumed that for each level of the hierarchy, at most one daughter of each n-ary branching mother node may receive prominence; thus one branch emanating from each node is labeled strong while all remaining branches are labeled weak. It is furthermore assumed that the levels of the prosodic hierarchy are constrained by the Level Order Hypothesis (see Selkirk 1984) and are thus strictly layered; each level, $p$, is dominated exclusively by units on the next higher level, $p+1$, and dominates exclusively units on level $p-1$. An example of such a hierarchy is given in Figure 1.

![Prosodic hierarchy](image)

Figure 1. The prosodic hierarchy (as assumed herein)

Despite the structural similarities between syntactic phrase structure markers and prosodic constituency markers, research in this area has indicated that the two are not necessarily identical. For example, the constraint on strict leveling in the phonology prohibits the construction of recursive structures characteristic of phrase structure markers. All the same, it has been well documented that syntactic structure does play an important role in determining prosodic constituency. As Selkirk writes, “[the] prosodic hierarchy, while not isomorphic to syntactic structure, is claimed to be defined, at least partially, in relevance to it” (1986:383-4).
Among the theories proposed to account for the relationship between surface syntactic structure and phonological (prosodic) structure, that advanced by Selkirk (1986, 1987) argues in favor of the notion that prosodic structure (such as that in Figure 1) defines the domain of rules such as sandhi and further claims that this structure is derived in part by reference to the syntax of the utterance. She claims that syntax-to-phonology mapping can be accomplished via two parameters (1987:4):

(1) a) Designated Category Parameter: each $p_i$ (prosodic) level has a designated category ($DC_i$) in the syntax with respect to which $p_i$ is defined.

b) End Parameter: only one end of the $DC_i$ is relevant for defining $p_i$.

Working on the hypothesis that the head parameter appears to be set to the opposite value of the syntactic head parameter for a given language (see Selkirk 1986), I assumed here that the End Parameter for Portuguese will be set to “right”. For determining phonological words, the designated categories are taken to be lexical heads — nouns, adjectives, adverbs, and verbs. As a consequence, prepositions, determiners, and complementizers (all of which are typically unstressed in Portuguese) are grouped with the lexical item that immediately follows. For determining phonological phrases, NP and VP are used as the designated categories. In both cases, the right edge of the designated category is used for marking the boundaries of prosodic constituents. The utterance $[U [I [φ as mulheres] [ω de Coimbra ]] [φ cantavam] [ω um fado]]$ ‘The women from Coimbra sang a folk song’, would be rendered as in Figure 2 on the following page.

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2 From a somewhat different perspective, Kaisse (1985:186) assumes that syntax plays a direct role in determining the domains over which phonological processes operate and posits two general conditions that must obtain to allow for the operation of external sandhi processes:

C-Command and Edge Conditions
- c-command condition: One of the words must c-command the other.
- edge condition: The sandhi pair must lie on the edge of the constituent that contains them.

Languages are then free to parameterize with regard to these conditions by setting linear orderings, requiring mutual c-command, choosing one edge or the other, etc. Kaisse neither assumes nor proposes a syntax-independent hierarchy of prosodic constituents.

3 This situation may be compared to an end setting of “left” for right-headed languages such as Japanese (Selkirk & Tateishi 1988a, 1988b) or Korean (Silva 1989, 1992).
Evidence in support of such an analysis of the word-level constituents comes from Camara (1972:27-28), who writes that “proclitic” and “enclitic” elements such as pronominal objects, articles and prepositions form a phonological word with the element with which they are associated.

\[
\begin{align*}
\text{[\(\omega\) o menino]} \text{[\(\omega\) se feriu]} & \quad \text{‘the boy hurt himself’} \quad (\text{se as proclitic}) \\
\text{[\(\omega\) o menino]} \text{[\(\omega\) feriu-se]} & \quad \text{‘the boy hurt himself’} \quad (\text{se as enclitic})
\end{align*}
\]

As regards the status of the phonological phrases, Mateus (1982) suggests that Portuguese employs a rule of nuclear accent which “determines the position of the accent in a syntagmatic sequence”. While she does not explicitly posit an independent prosodic constituent that acts as the domain for the nuclear accent rule, her “syntagmatic sequences” can be interpreted as phonological phrases. Such a position becomes all the more viable when one considers that the example in Figure 2 contains two instances of nuclear stress, on Coimbra and fado — the final stressed elements in each phonological phrase. In all, the proposal that phonological words and phrases in Portuguese are formed by referencing the right edges of \(X^{\text{lex}}\) and \(X^{\text{max}}\), respectively, can be (at least indirectly) substantiated in the literature, and is assumed here.

3. The phonology of European Portuguese vowels

European Portuguese (EP) has been traditionally classified as a stress-timed language (Parkinson 1988:141-2). Like American English (which is also stress-
timed), EP is characterized by the following three properties: (1) stress that is clearly marked by an increase in pitch and volume, (2) a significant number of vowel reduction processes, and (3) a tolerance for complex syllable onsets and codas.4

The system of stressed vowels in EP includes both oral and nasal phonemes. An inventory of stressed vowels for the standard language (after Mateus 1982) is given in (3).

\[
\begin{array}{cccc}
\text{oral} & \text{nasal} \\
i & \hat{i} \\
e & o \\
\varepsilon & \vartheta & \varsigma & \tilde{\varepsilon} & \tilde{\varsigma} & \tilde{\delta} & \tilde{\delta}
\end{array}
\]

In posttonic position there is a neutralization of rounded vowels to the high rounded [u], of the non-high front vowels to [a], and of the low vowel [a] to [v]. In pretonic position, the reduction process is almost the same, except the high front vowel [i] appears (and is not reduced to schwa). Schematics are provided in Figure 3 while the inventory of unstressed vowels appears in (4).

\[
\begin{array}{cccc}
\text{oral} & \text{nasal} \\
i^* & \hat{i}^* & \tilde{i}^* & \tilde{o} \\
\varepsilon & \vartheta & \varsigma & \tilde{\varepsilon} & \tilde{\varsigma} & \tilde{\delta} & \tilde{\delta}
\end{array}
\]

(* = Pretonic only)

Stress in Portuguese is assigned in a very straightforward fashion.5 If the final syllable of a word contains an underlying high vowel, an underlying

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4 These characteristics differ significantly from the Portuguese of Brazil, which can be classified as a syllable-timed language.

5 See Camara (1972: 24) for an alternative characterization of the “regularity” of Portuguese stress.
nasal vowel or a “vowel+sonorant” coda (e.g., /er/, /al/, /ãw/, /ãy/), then the final syllable receives stress. Otherwise, the penultimate receives stress. Exceptions are marked as such in the lexicon. Item (5) below summarizes these three categories.\(^6\)

\[
\begin{array}{ccc}
\text{Final stress} & \text{Penultimate stress} & \text{Exceptions} \\
[\text{'si}] & [\text{'bolu}] & \text{['mavǝl]} \quad \text{‘friendly’} \\
[\text{'pel}] & [\text{'sabo}] & \text{['orfǝ]} \quad \text{‘orphan’} \\
[\text{'ki}] & [\text{'padǝ}] & \text{‘slap’ (n)}
\end{array}
\]

As has been noted both anecdotally and in the literature (Mateus 1982: 200-1; Teyssier 1980:73), EP weakens unstressed vowels, particularly schwa. Historically, the transition from Latin to Portuguese included a number of such elisions. As Coutinho (1958:159) demonstrates, unstressed medial and final vowels were often deleted, thereby feeding a rule of voicing assimilation in consonant clusters:

\[
\begin{array}{ccc}
\text{Latin} & \text{Portuguese} \\
\text{lépore} & \text{lêbre} & \text{‘hare’} \\
\text{mánica} & \text{mânga} & \text{‘sleeve’} \\
\text{ópera} & \text{óbra} & \text{‘work’} \\
\text{amáre} & \text{amár} & \text{‘to love’}
\end{array}
\]

One can find similar processes at work in later stages of the language’s history. Of particular interest is the elision of vowels in V-V sequences. This process (sinalefa in Portuguese) has given rise to forms such as planalto < plano-alto ‘plain’, outrora < outra-hora ‘formerly’ and aguardente < água-ardente ‘grain alcohol’ (see Coutinho 1958:141). One can also see the effects of such a process in a number of prepositional collocations in the modern language. For example, the sequence em (lê/) ‘in’ plus a ‘the (fem. sing.)’ is obligatorily rendered as na; de ‘of’ + os ‘the (masc. plu.) becomes dos; a ‘to’ + a ‘the (fem. sing.) is à, pronounced simply as [u].

Superficial examination of synchronic conversational data indicates that vowel elision continues to play an active role in the grammar. Data from the corpus under investigation include forms such as [temp] ‘time’ (cf. [tempu]), [tev] ‘he has’ (cf. [tevǝ]), and [itorese] ‘(they) interest’ (cf. [itorese]). In attempting to determine the factors that contribute to the operation of the elision rule, one needs to consider each of the potentially relevant aspects of the phonology of the target segment: its inherent properties, its position in the prosodic hierarchy, its position relative to other stressed elements, and its

\[\text{See S. Walters (this volume) for a more complete discussion of stress assignment in Portuguese.}\]

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influence on the formation of viable syllables post-elision. Each of these factors is considered in the present analysis.

4. The case study

4.1 Data

The data are taken from a sample of speech produced by a 42 year old female speaker of EP from the Azorean island of Faial. The variety spoken on Faial is very near to standard EP and has been considered to be the Azorean dialect most like the standard language (Rogers 1949:61). The speech is conversational. It was recorded with the aid of a lapel microphone and transcribed impressionistically (twice, with a three month interval separating the two transcriptions). All instances of weakening were noted; in all but one case, weakening was clearly manifest as deletion, the odd case being a devoicing.

4.2 Analysis

Of the 884 potential sites for the deletion rule to operate, 178, or 20%, applications were noted. The breakdown by vowel appears in Table 1. As can be seen, nasal vowels experience the lowest rate of deletion; grouping the nasals together yields 2 out of 67 applications, or a 3% deletion rate. The next lowest rates are for the low vowel [ə] and the high front vowel [i]. In terms of raw percentages, [ɔ] and [u] are deleted the most.

<table>
<thead>
<tr>
<th>Vowel</th>
<th>Total Occurrences</th>
<th>Total Deletions</th>
<th>Deletion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>ə</td>
<td>168</td>
<td>73</td>
<td>43%</td>
</tr>
<tr>
<td>u</td>
<td>195</td>
<td>77</td>
<td>39%</td>
</tr>
<tr>
<td>i</td>
<td>76</td>
<td>5</td>
<td>7%</td>
</tr>
<tr>
<td>ɛ</td>
<td>378</td>
<td>21</td>
<td>6%</td>
</tr>
<tr>
<td>Nasal</td>
<td>67</td>
<td>2</td>
<td>3%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>884</td>
<td>178</td>
<td>20%</td>
</tr>
</tbody>
</table>

Turning to a variable rule analysis of the data (using GoldVarb 1.6), we begin by positing a simple rule which deletes any unstressed vowel:

\[
V \text{[-stress]} \rightarrow \emptyset
\]

Given the rule in (7), the factor groups discussed below were taken into consideration for the analysis. The examples cited in the discussion below refer to Figure 4, a sample taken from the corpus.
Figure 4. Determining prosodic structure (example from the corpus)

4.2.1 Realization

Each unstressed vowel was coded as “1” if was deleted, indicating an application of the deletion rule; unstressed vowels that did not undergo deletion were coded as “0” (non-application). In Figure 4, the [u] and [v] of the word *uma* were coded as “0” whereas the [u] of *mulher* and the [e] of *gente* were coded as “1”.

4.2.2 Vowel quality

Each unstressed oral vowel (i, a, e, u) was coded separately as a factor while the nasal vowels were grouped together as a single factor.

4.2.3 Previous/following syllable stress

The syllables adjacent to each token (and within the same utterance) were coded as being either strong, weak, or null. In Figure 4, the [u] of *uma* was coded as having null previous stress and weak following stress. The [u] of *mulher* was coded as having weak previous stress and strong following stress.
4.2.4 Number of unstressed syllables adjacent to target

This group was employed to test the possible effects of rhythmic alternation, the strategy whereby languages tend to maximize the number of strong-weak (SW) and strong-weak-weak (SWW) patterns as idealized in poetic meter and consequently avoid strings of 3 or more weak syllables. It was hypothesized that Portuguese elides unstressed vowels as a strategy for promoting rhythmic alternation. In Figure 4, the [u] of mulher was coded as having 2 preceding unstressed vowels and 0 unstressed following vowels.

4.2.5 Domain edge

Taking a cue from the accounts of elision mentioned in the literature, I coded each token with respect to its position within a phonological word: either at the left edge of the word, the right edge of the word, or word-internal. In Figure 4, the [u] of the phonological word uma casa was coded as being at the left edge of a phonological word; the [a] of gente was coded as a right edge element; the [a] of de was coded as a word-medial element. Later analyses indicated that these three positions could be collapsed into two — right edge of word vs. elsewhere in word — without any harm done to the integrity of the statistical model (i.e., the difference between 3-way and a 2-way distinction was not statistically significant).

4.2.6 Syllable structure

This factor group was used to evaluate potential effects between vowel elision and syllable structure by considering whether or not the deletion of the target vowel created permissible syllables in the language. In Figure 4, the [v] of the verb era was coded as “permissible”, as the resulting structure [... er_umn ...] does not violate any syllable structure constraint of Portuguese. On the other hand, the [v] of bater was coded as “impermissible”; the resulting cluster [... rb_tew ...] cannot be syllabified. The hypothesis here was that elision would be disfavored if the results proved to violate the syllable template of the language.

4.2.7 Grammatical function

The information in this final group tests whether or not function plays a role in the elision process by encoding whether or not the target vowel carried grammatical information regarding tense, person, gender, or number. In Figure 4, the [v] of era carries number and person information while the [v] of bateu is grammatically empty.
4.3 The cases of ele and para

Before examining the results of the VARBRUL analysis, let us digress for a moment to consider the third person singular pronoun ele and the preposition para ‘for’. The pronoun ele ‘he’ and eles ‘they (masc)’ presented a special problem in the analysis. In keeping with the assumptions put forth above, all occurrences of ele were coded as potential sites for deletion under the belief that ele corresponded to the reduction /ele/ → [el]. Early passes through VARBRUL showed unusually high log likelihood figures, indicating that there were probably interactions among the factors. Closer examination of the data revealed that ele(s) occurs 26 times, and in no case was the unstressed vowel ever realized. In speaking further with the consultant, it was revealed that in careful speech, ele(s) is likewise pronounced as a monosyllable: [il(j)] or [el(j)]. Thus it was concluded that the pronoun was not, in fact, a disyllabic word, but an underlying monosyllable. Interestingly enough, this poses no problems for the phonotactics of the language, which allows syllables closed by [l]. Thus it is perfectly likely that the underlying representation of ele for this particular speaker is /el/. Accordingly, all cases of ele(s) were removed from the corpus under the assumption that they did not provide potential sites for deletion.

In a similar fashion, preliminary analyses of the data indicated that a higher than expected number of unstressed low vowels had been deleted in cases where the target was word-internal. Subsequent review of the raw data revealed that every instance of the preposition para had been reduced to [pra], also a viable syllable shape in the language. As in the case above, it is highly likely that the preposition has become relexicalized as /pra/.7

4.4 Results

Results of the variable rule analysis for the factors are summarized in Tables 2 and 3. The only groups found to be significant at the level p ≤ 0.05 were Position in Phonological Word, Stress of Following Syllable, and Vowel Quality.

7 It is worth noting that a relexicalization of para to /pra/ could have important consequences in the phonemic analysis of the vowel system, for it has been claimed that the only viable minimal pair demonstrating the phonemic status of [r] is /pera/ ‘for’ and /para/ ‘stop’. With the first member of the pair gone, [r] potentially slips into allophonic obscurity.
Table 2. Results of the variable rule analysis — percent application per cell

<table>
<thead>
<tr>
<th>Following Syllable:</th>
<th>Stressed</th>
<th>Unstressed</th>
<th>Null</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Position:</td>
<td>R Edge</td>
<td>Other</td>
<td>R Edge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>œ</td>
<td>63%</td>
<td>27%</td>
<td>77%</td>
</tr>
<tr>
<td>12/19</td>
<td>23/86</td>
<td>20/26</td>
<td>13/32</td>
</tr>
<tr>
<td>u</td>
<td>66%</td>
<td>11%</td>
<td>71%</td>
</tr>
<tr>
<td>23/35</td>
<td>7/65</td>
<td>25/35</td>
<td>9/47</td>
</tr>
<tr>
<td>i</td>
<td>0%</td>
<td>8%</td>
<td>—</td>
</tr>
<tr>
<td>0/10</td>
<td>5/65</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>e</td>
<td>1%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>1/75</td>
<td>3/147</td>
<td>1/58</td>
<td>2/51</td>
</tr>
<tr>
<td>nasal</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>0/5</td>
<td>0/43</td>
<td>0/3</td>
<td>1/12</td>
</tr>
<tr>
<td>TOTALS</td>
<td>25%</td>
<td>9%</td>
<td>38%</td>
</tr>
<tr>
<td>36/144</td>
<td>38/406</td>
<td>46/122</td>
<td>25/142</td>
</tr>
</tbody>
</table>

Table 3. Results of the variable rule analysis — weighted probabilities

The category “order of selection” refers to the order in which each factor group was selected by the step-up procedure.

<table>
<thead>
<tr>
<th>Order of Selection</th>
<th>Factor Group</th>
<th>Factor</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Position in Phonological Word</td>
<td>Right Edge</td>
<td>0.764</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
<td>0.355</td>
</tr>
<tr>
<td>2</td>
<td>Following Syllable</td>
<td>Null</td>
<td>0.839</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unstressed</td>
<td>0.554</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stressed</td>
<td>0.438</td>
</tr>
<tr>
<td>3</td>
<td>Vowel</td>
<td>œ</td>
<td>0.915</td>
</tr>
<tr>
<td></td>
<td></td>
<td>u</td>
<td>0.857</td>
</tr>
<tr>
<td></td>
<td></td>
<td>i</td>
<td>0.653</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nasal</td>
<td>0.199</td>
</tr>
<tr>
<td></td>
<td></td>
<td>e</td>
<td>0.120</td>
</tr>
</tbody>
</table>

Input Probability = 0.075
Total $\chi^2 = 34.2480; \chi^2/cell = 1.3699$; log likelihood = $-265.052$
5. Discussion

The group that was consistently chosen first in the step-up procedure of VARBRUL was that which coded the target’s position within the phonological word. As the statistics indicate, the elision rule is a process that is favored at the right edge of phonological words (weighted probability = 0.763) and inhibited elsewhere in the word (prob = 0.355). The fact that this factor group is of the highest significance in the analysis suggests that the elision rule is, in fact, a word-edge process (see Nespor and Vogel 1986), as suggested by the more anecdotal claims in the literature. One possible account for this observation may lie in an appeal to extrametricality: if one assumes that underlying open final syllables in Portuguese are extrametrical, one can posit a variable rule whereby the extrametrical syllable is desyllabified and the former nucleus stray-erased. The onset material of the ill-fated syllable is subsequently incorporated into the coda of the preceding syllable, which in the vast number of cases, bears stress. (Recall that Portuguese stress more often than not falls on the penultimate.) In this context it is worth noting that elision does not appear to be structure preserving with respect to phonetic syllables: as initial VARBRUL analyses indicated, the process is equally likely to create syllables that conform to the language’s syllable template (prob = 0.51) and syllables that do not (prob = 0.49). The fact that the factor group encoding “syllabic permissibility” was never selected as a significant contributor to the analysis further indicates that vowel elision is free to create surface strings that are not licensed in the lexical phonology.

In addition to being sensitive to position in a word, deletion is most favored when there is no following syllable, i.e., at the right edge of an utterance. This suggests, then, that it is not only word-final vowels, but utterance-final vowels that are most often the victims of elision. In those cases when there was a syllable to the right of the target, elision was slightly favored when the following syllable was weak and somewhat disfavored when the following syllable was stressed. Of related interest to this situation is the fact that the other stress-related factor groups — stress of preceding syllable and number of adjacent unstressed syllables — did not contribute to the final analysis. In all, these findings indicate that while rhythmic alternation may play some small role in governing the application of the elision rule (i.e., by promoting elision in cases of two successive weak vowels), the potential effects of rhythmic alternation are strictly local. Moreover it appears that scanning for potential sites of elision occurs from left to right, suggesting that the notion of directionality plays an important role in characterizing the process.

As for the effects of vowel quality, we find that [u] and [a] most highly favor deletion, while [i] somewhat disfavors it and nasal vowels and [æ] very strongly disfavor the process. These findings are similar to the results of a study of Montréal French by Cedergren and Simoneau (1985) in which [–low] (or [+high]) vowels are the most likely to syncopate. Moreover, the evidence that low vowels and nasal vowels behave quite similarly parallels a claim by
Krakow et al. (1988) which documents how the phonetic properties common to both low and nasal vowels — a rich formant structure at the bottom of the acoustic spectrum — provide an acoustic basis for their patterning together.

These findings are certainly not inconsistent with the literature, which characterizes schwa as the vowel most likely to elide. What the current study indicates, however, is that the high vowel [u] is also a viable candidate for elision. This fact is relevant to the extent that word-final [u] is often used to mark masculine gender for nouns and adjectives as well as first person singular in the present tense. Could it be that European Portuguese is moving in the direction of Catalán, whereby masculine forms are -Ø marked and feminine forms are marked by the suffix [-u]? Perhaps so. Recall that grammatical function was not a significant factor group in the analysis; moreover, a one-level analysis of the data that includes this factor group revealed that the weighted probabilities were virtually identical: when the target carries grammatical information, prob = 0.52; when it does not carry grammatical information, prob = 0.48. In the end, it is perhaps reasonable to speculate that the language may be in the process of grammatical change to a system in which the masculine suffix /-o/ is moving towards zero.

6. Conclusions

In the characterization of vowel elision in EP, the notion of the “right edge” appears to play an important role, both at the word level and at the utterance level: unstressed vowels situated at the rightmost end of a phonological word are prone to deletion, a situation that is further enhanced when there is no following syllable. Given the discussion of edge rules in the literature on Romance languages (e.g., French liaison), this is a welcome finding. Factors concerned with the role of rhythmic alternation seem to have only minor bearing on vowel deletion: any eurhythmmy effects are strictly local and limited to a consideration of the stress of the immediately following syllable. Moreover, it has been found that vowel quality plays a role in the analysis: low vowels and nasals are highly unlikely to undergo deletion, while high vowels and schwa are more prone to elision. The possible phonetic basis for the observed patterning

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8 A separate analysis of those forms containing only /a/ and /o/ revealed that grammatical function did not play a significant role in characterizing the deletion process; in fact, this factor group was the first one thrown out by the step-down procedure. A one-level run of the /a-o/ subset of the corpus yielded the exact same probability values for the grammatical information factors as indicated above.

9 The speculative nature of such an idea is amplified when one remembers that the analysis herein is based on the data of a single speaker. Interestingly enough, however, data from multiple speakers (Silva 1986) indicate that even in formal styles, word-final /-o/ is often deleted: vestido > [vísti] ‘dress’ (n); queijo > [kéji] ‘cheese’; marreco > [marʃeʃ] ‘duck’. There is clearly a need for further research.
aside, it is worth noting that the data indicate an extension of the schwa deletion rule found in the literature: both [ə] and [u] are prime candidates for elision. In further considering the case of unstressed [u], which often marks gender or first person present, one needs to consider the possible ramifications on the morphological structure of the language. Finally, this study (despite its methodological limitations) underscores the fact that the attempt to characterize a subtle and low-frequency variable process such as vowel elision in the context of a particular framework — here prosodic phonology — is greatly enhanced by the use of quantitative methods.

David J. Silva is Assistant Professor of Linguistics at the University of Texas at Arlington.

References

Camara, J. M.  

Cedergren, H.J. and L. Simoneau  

Cedergren, H.J., L. Levac, H. Perreault, and J.M. Sosa  

Clements, G.N. and S.J. Keyser  

Coutinho, I. de L.  

Guy, G.R.  

Hayes, B.  

Kaisse, E.  

Kelly, M. H., and I. Kathryn Bock  
n.d. “Stress in time.” Department of Psychology, University of Pennsylvania, ms.

Kiparsky, P.  


Liberman, M. and A. Prince  

Mateus, M.H.M.  

Nespor, M. and I. Vogel

Parkinson, S.

Poplack, S. and D. Walker
1986 “Going through (L) in Canadian French.” In D. Sankoff (ed.), *Diversity and Diachrony.* Amsterdam: John Benjamins.

Rogers, F.M.
1949 “Insular Portuguese pronunciation: Central and Western Azores.” *Hispanic Review* XVII.1.

Selkirk, E.O.

Selkirk, E.O. and K. Tateishi

Silva, D.J.

Teyssier, P.