RESEARCH PAPER

Front rounded vowels in Azorean Portuguese: A reappraisal

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The first part of this article investigates the distribution and emergence of front rounded vowels (FRV) in the Portuguese dialect spoken on the Azorean island of São Miguel in light of data taken from the Ethnolinguistic Atlas of the Azores (ALEAç). The analysis confirms previous findings about the distribution of FRV. Additionally, the ALEAç shows that this phenomenon spreads beyond the well-known contexts of stressed positions. FRV also occur in unstressed syllables and the mid-front rounded vowel [ø] alternates with its diphthongised counterparts [øj] and [øw]. This alternation calls for a reflection about the historical and articulatory background of [ø] in Portuguese dialects. The extensive use of FRV opens up further research perspectives in terms of the sociolinguistic significance of the phenomenon.

The second part of this article focuses on the sociohistorical background of the emergence of FRV in Portuguese dialects. The concept of the *feature pool* provides a framework for the processes of feature selection in a situation of linguistic contacts such as those preceding the settlement period of the Azores and subsequent contact on the islands. A combination of three different concepts of markedness helps understand why a highly unusual feature like FRV emerged and persists until today.

Keywords: Phonology; front rounded vowels; language contact; dialectology; Azores; São Miguel

1. Introduction: Front rounded vowels in Romance languages

On a global level, front rounded vowels are a rather rare phenomenon. Typologically, we may see them as an unusual feature. Among the 562 languages documented in the *World Atlas of Language Structures*, only 37 have one or more front rounded vowels in their phoneme sets. The vast majority of these languages can be found in the northern parts of Eurasia (Maddieson 2013).

Front rounded vowels such as [œ], [ø] and [y] are often seen as typically Germanic features as they can be found in most languages in this family, e.g. German, Dutch, Frisian, or the Scandinavian languages. They are also present in languages of the Finno-Ugric and Turkic language families, e.g. in Finnish, Estonian and Hungarian or Turkish and Azerbaijani, to name but a few of the most widely known examples. In Romance languages, this phenomenon is much less widespread with French being the only major Romance language that has front rounded vowels in its standard form. However, this does not at all mean that this type of vowel is unknown in other Romance languages. The sound systems of standardised languages easily conceal the fact that such vowels are present in a number of Romance dialects. This is the case for many primary dialects in France, both in the *oïl* group and the *oc* group. Front rounded vowels can also be found in some dialects of Rhaeto-Romance in Switzerland and Italy (Haiman & Benincà 1992: 33–35) and across the dialect continuum between the Gallo-Romance and Gallo-Italian varieties,

i.e. in the dialects of Northeast Italy and Southern Switzerland. One particular dialect group in which front vowels are found is that of Portuguese in the South of continental Portugal and in the archipelago of the Azores, and more precisely in the dialect of São Miguel, the most populated island, which hosts the regional capital, Ponta Delgada. This last dialect probably represents the westernmost point of distribution of front rounded vowels in European languages before the colonial expansion brought French or Dutch to other parts of the world, and new features with them. This geographical and historical background, along with the fact that front rounded vowels are widely unknown in most Romance languages and dialects, standard Portuguese included, makes the dialect of São Miguel a particularly fascinating case to study.

It was established rather early by Francis M. Rogers (1940) that [y] in Portuguese dialects arose as part of a sound chain involving the lowering of front vowels, raising of back vowels, and fronting of [u], with [ø] occurring as a result of monophthongised [ow] or [oj]. Silva (1986, 2005) argues that the sound chain as such should rather be seen as a combination of two separate processes with lowered front vowels and raised back vowels occurring independently of each other. More recently, Blayer (2004) confirms the sound chain hypothesis, adding that front rounded vowels occur sporadically in the dialects of other islands on the Azores,[1] and reconfirms the established view that the phenomenon is due to an internal development in the sound system of dialectal Portuguese rather than to language contact.

The aim of this article is twofold. Firstly, I will review these findings in light of data made available in recent years through the on-line publication of the Ethnolinguistic Atlas of the Azores (*Atlas Linguístico-Etnográfico dos Açores*). The phonetically rich information in this dialect atlas allows for a nuanced comparison with the results presented in previous research. Secondly, I will attempt an explanation of the emergence of front rounded vowels in São Miguel Portuguese with the help of the so-called *feature pool hypothesis*. This concept, developed by Mufwene (2005) as an explanation for the emergence of Creole languages in colonial settings, can be adapted to the Azorean case in order to better understand the interplay of the internal mutations within the sound system with the setting of dialect contact that led to the emergence of São Miguel Portuguese.

2. Front rounded vowels in data from the *Atlas Linguístico-Etnográfico dos Açores*

The data under scrutiny here was retrieved from the phonetic transcriptions in the *Atlas Linguístico-Etnográfico dos Açores* (ALEAç) compiled by the Centre for Linguistics at Lisbon University in collaboration with the Regional Directorate for Culture within the government of the Autonomous Region of the Azores. The ALEAç is the archipelago's contribution to the large-scale project of the *Atlas Linguístico-Etnográfico de Portugal e da Galiza* (ALEPG). The objective of the present paper is to make use of these data for further insights into the characteristics of the São Miguel Portuguese vowel system until more recent acoustic data is available.[2]

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[1] Rogers (1949: 67, 69) documents a few rare instances of [y] and [ø] in Flores and Corvo. Boléo (1987: 613) mentions that he encountered realisations of [y] on the island of Pico without, however, providing documentation or further research into the matter. Such sporadical attestations call for more thorough investigation in order to find out whether these features were e.g. realised by speakers who had frequent contact with São Miguel or if there are other explanations for their presence.

[2] Brissos (2014a, 2014b), Brissos & Saramago (2014) and Álvarez Pérez (2014) present phonological studies about the vowel systems of dialects in continental Portugal based on the ALEPG. Their work is enriched by acoustic data, not available for the Azores at this point, and it allows for a more extensive quantitative analysis as the Atlas provides more data collection points in mainland Portugal than in the Azores.

Table 1: Composition of the data set.

	Types	Tokens in São Miguel	Tokens in Terceira	Tokens in other islands	Sum tokens
[y]	77	222	5	0	227
[ø]	54	254	10	2	266

The ALEAç is available as an online resource[3] with roughly 1,100 maps presenting one cultural or lexical concept each. Data were collected in three phases in 1979, 1981 and after a long break in 1995/96. Informants were chosen in rural places in an age group above 40 with more than half of the participants being 60 years old or above at the time of the interview.

Out of this data set (see **Table 1**), a total number of 157 maps were selected because they presented at least one token with a front rounded vowel. These maps yielded 55 types with the mid-front rounded vowel [ø] for which 266 tokens could be extracted. A search for the high-front rounded vowel [y] brought about 77 types with 227 tokens.

The data were annotated for location and etymon in standard Portuguese spelling, syllable structure (existence or absence of onset and coda), monophthongisation or diphthongisation of the front rounded vowel(s) and its standard Portuguese counterpart, and stress of the syllable in which the front rounded vowel is found.

Sometimes, the same type (i.e. etymon) was found in several maps documenting different ethnographic concepts, which explains the slight difference in the total number of types as compared to the number of maps. As a result, the type-token ratio is not suitable for an in-depth quantitative analysis that would help us determine, e.g., the frequency of a specific type being uttered in tokens with or without a front rounded vowel. This is unsurprising given the fact that such forms are only attested in a handful of locations and with the help of a rather low number of informants. However, the data allows for an analysis of the tokens that actually do have front rounded vowels. The main goal of this paper, therefore, is not to gain insight by comparing rounded and unrounded vowels, but rather to have a closer look at the internal structure of those forms that do have front rounded vowels.

The vast majority of such tokens can be found in São Miguel as it is a typical feature of the island's dialect. Only 12 tokens with the mid-front rounded vowel [ø] are attested on other islands, while tokens with [y] are almost exclusive to São Miguel. Blayer (2004: 47) sees the realisation of [y] as "less prominent" but existent on the other islands. In the ALEAç, only five tokens with [y] are attested outside São Miguel (i.e., in Terceira), leaving the question open for debate whether or not this is a feature shared by a specific speaker group which was not under investigation in the atlas.

The ALEAç gives data from four locations in São Miguel, namely Mosteiros (northwest), Rabo de Peixe (north), Ponta Garça (south), and Nordeste (northeast), all situated on the coast as the island's interior is much more sparsely populated. At these locations, 30 persons were consulted as informants (six in Nordeste, eight each in the other municipalities). These informants provided data in their area of expertise, i.e. fishermen were asked about maritime terms, artisans about tools and techniques, farmers about plants and animals, etc. The lexical fields that the atlas covers are mostly those linked to a reality of traditional rural life on the islands. As the authors of the ALEAç chose informants from

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[3] See http://www.culturacores.azores.gov.pt/alea. All meta-data presented in this paragraph (methodology, data collection, authorship etc.) can be found on the Atlas website.

a homogeneous group with a similar (rather low) degree of education, in a similar age group and all from non-urban areas, it is difficult to attribute any specific sociolinguistic significance to the attested forms since they cannot be compared to equivalent data from other speaker groups.

The atlas only provides directly elicited data and controlled information but no spontaneous speech. The forms analysed here are what the informants perceived as 'typical' or 'ideal' dialectal forms of a single lexical or semantic entity given by the researchers. Consequently, the types available for analysis are mostly nouns and very rarely more complex phrases.

The vast majority of the data found in the ALEAç confirms the results of previous research. The mid-front rounded vowel [ø] is found regularly in cases where Standard European Portuguese (SEP) has the diphthongs [oj] or [ow], as in the following examples:

(1)   [bøʃ][4]   SEP *bois* [bojʃ]   'bulls'   map 140
(2)   [føs, ˈføsɐ/u]   SEP *foice* [fojs]   'sickle'   map 291
(3)   [siˈnørɐ]   SEP *cenoura* [sinowrɐ] 'carrot'   map 566
(4)   [køv, ˈkøvi]   SEP *couve* [kowvə]   'cabbage'   map 539

The ALEAç data thus give a very clear picture of the monophthong that replaces the Standard Portuguese [oj] and [ow]. Similarly, the realisation of [y] in positions where Standard European Portuguese has [u] is well-documented in the atlas. The fronting of [u] as part of a larger vowel shift (Silva 2005) can be found in the following examples, among many others:

(5)   [byʃ, ˈbyʃu]   SEP *bucho* [buʃu]   'stomach'   map 115
(6)   [fyz, ˈfyzu]   SEP *fuso* [fuzu]   'spindle'   map 180
(7)   [fryt, ˈfrytɐ]   SEP *fruta* [frutɐ]   'fruit'   map 487
(8)   [lylɐ]   SEP *lula* [lulɐ]   'squid'   map 1132

Examples (2), (4) and (5) through (7) also show the deletion of final unstressed vowels (Silva 1997). As a matter of fact, the ALEAç provides an abundance of examples where different informants, often from the same location, produce variants with and without final vowels. In many cases, this has an effect on the structure of the stressed syllable with the vowels under scrutiny, leading to the fact that front rounded vowels come to be realised in both open and closed syllables, e.g. in (4) [køv, ˈkø.vi]. As a minor observation, we can infer that syllable structure probably does not have an immediate effect on the production of front rounded vowels.[5] Brissos (2014b: 81) observes that, in continental Portugal, "after a bilabial consonant, *u* loses most of its fronted/palatalised nature, which in the other contexts is robust and constant." Quite a number of instances in the Azores show, however, that [y] is also realised as a full FRV after bilabials, as can be seen from (5) [byʃ, ˈbyʃu] or from examples such as [byˈrak] (map 942), [byˈɣyrɐ] (map 1056), [ˈpylgɐ] (map 978) and [kɐˈpyʃ] (map 1167). All of these instances were transcribed with the symbol [ü] (in current IPA [y]) in the ALEAç. Seeing that no acoustic data is

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[4] Data from the ALEAç is rendered here in an updated and more phonologised IPA transcription. The maps of the atlas use some of the older IPA characters, e.g. [ø] and [y] are transcribed as [ö] and [ü]. The phonetically rich and detailed transcriptions from the atlas have been simplified here to a certain extent since the main interest of this paper is the examination of the phonological systematicity of front rounded vowels so that the notation of a number of segments in other positions of the tokens is dispensable for the sake of readability. The aim is to be as faithful as possible to the original data while avoiding distraction from the most important characteristics through overly detailed transcriptions.

[5] Brissos (2014a, 2014b) and Brissos & Saramago (2014) focus exclusively on CV structures, leaving the question open as to which rules might govern the realisation of vowels in syllables with a different structure.

available yet, we can only assume, based on the transcription, that these vowels were indeed articulated with full FRVs.

2.1. *Front rounded vowels in unstressed positions*

While all of the examples cited above are in line with previous research, there is a considerable amount of data which goes beyond the generally accepted findings. The corpus extracted from the ALEAç comprises a relatively large number of tokens with front rounded vowels in unstressed positions. So far, the literature has exclusively concentrated on the shift in stressed vowels, leaving unstressed front rounded vowels out of the discussion.[6] Earlier works even state that [y] was absent altogether in unstressed positions of dialectal Portuguese both in the Azores and the Algarve (Damasio 1972 [1962]). Rogers (1948) makes no mention of front rounded vowels in unstressed positions. Even though the number of unstressed front rounded vowels in the atlas is limited, it certainly isn't coincidental. **Table 2** shows the distribution of stressed vs. unstressed front rounded vowels in the corpus.

The following examples illustrate such cases in which front rounded vowels are realised in unstressed positions:

(9) [øˈris] SEP *ouriço* [owˈriso] 'hedgehog' map 528
(10) [køˈvĩɐ] SEP *couvinha* [kowˈvĩɐ] 'cabbage (seedling)' map 540

(11) [fyrɐˈdor] SEP *furador* [furaˈdor] 'awl' map 898
(12) [byˈrak] SEP *buraco* [buˈrako] 'lair of a rabbit' map 942

These forms are certainly less frequent when compared to stressed front rounded vowels, but unstressed [ø] accounts for almost one fourth of all instances of this vowel in the corpus, and more than one [y] in ten is in an unstressed position. This calls for further investigation as to the conditions and rules that govern the realisation of front rounded vowels in the dialect of São Miguel outside the well-known pattern in stressed positions.

The high front rounded vowel [y], for example, appears in several unexpected cases where the regular vowel shift would not necessarily trigger it since the corresponding etymological forms do not have [u] in this position:

(13) [yˈræɣu] SEP *orégão* [oˈregão] 'oregano' map 549
(14) [byˈɣyrɐ] SEP *bogueirão* [bogejˈrão] 'Macroramphosus scolopax' map 1056
(15) [tɐmyˈer] SEP *tamoeiro* [tamoˈejro] 'strap at the yoke of a bullock cart' map 688

These cases suggest that the speakers continued the vowel shift one step further than predicted, skipping the stage where [o] would turn into [u] and proceeding further to the front rounded form [y] (Blayer 2004: 48). Maia (1975: 22) reports a similar case in the dialect of Algarve, stating that "também em sílaba átona a vogal é pronunciada com um

Table 2: Front rounded vowels (FRV) in stressed and unstressed syllables.

	types with stressed FRV	tokens with stressed FRV (%)	types with unstressed FRV	tokens with unstressed FRV (%)
[ø]	40	205 (77,07%)	15	61 (22,93%)
[y]	61	201 (88,55%)	16	26 (11,45%)

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[6] The same is true for the extensive studies by Brissos (2014a, 2014b) and Brissos & Saramago (2014) which concentrate exclusively on stressed vowels in the respective dialects of central-southern Portugal.

timbre bastante anterior" ["also in unstressed syllables, the vowel is pronounced with a relatively fronted timbre"]. As an example, Maia gives the phrase [yʒ grãwʃ] *os grãos*, 'the grains', with the article *os* remaining unstressed before the stressed noun. Interestingly, Silva (2005: 12) reports that the shift from [o] to [u] appears the least frequently among the different steps of the vowel shift while the realisation of [y] instead of [u] is virtually omnipresent. Examples (13)–(15) could be interpreted as a hint that the [u] > [y] process is so influential and prominent that it overrides the less important [o] > [u] process in a few instances. This may be the case especially in instances where spelling does not interfere with pronunciation and thereby fixes the realisation of [o] due to the grapheme <o>. Some of the informants consulted for the ALEAç were indeed illiterate. In these cases, the normative character of written language is much less likely to shape the pronunciation according to what speakers consider 'correct' language use based on standardised forms. Unfortunately, it is impossible to deduce from the dataset whether the examples in (13), (14) and (15) were given by individuals who could not read or write or whether spelling does indeed in any way reduce the likelihood of the [o] > [y] process.

Similarly irregular cases can be noted for the mid-front rounded vowel [ø] in unstressed positions:

(16)   [ørˈdũm]   SEP *urdume* [urˈdumə]   'warp thread'   map 247
(17)   [øˈveʎɐ]   SEP *ovelha* [oˈveʎɐ]   'sheep'   map 584
(18)   [kɐrøˈʃĩŋɐ]   SEP *carochinha* [kɐrɔˈʃĩŋɐ] 'ladybird'   map 981

Neither of these forms has any of the diphthongs like [ow] or [oj] in its standard Portuguese counterpart. Example (16) is especially peculiar because it reopens a vowel that could have been expected to be a closed front rounded vowel [y] as in (11) or (12). Instead, the adjacent stressed vowel [ũ] remains unrounded and is nasalised whereas the unstressed vowel is lowered and fronted, thus differing in two features of the vowel at once while only the feature [+round] is kept. The other two forms, (17) and (18), are less spectacular as they preserve the half-open configuration, yet they change into fronted and rounded vowels contrary to the rules of the vowel shift that would predict [u] or [o] (depending on the degree of openness) instead of [ø].

The number of examples of this kind in the corpus is not sufficient to come to a conclusive result about the nature of this phenomenon. It seems, however, as though the realisation of front rounded vowels is not at all limited to stressed positions and that the sound shift provides an opportunity for these vowels to spread in the system and enhance the range of their positions. Unsurprisingly, this spread only concerns pretonic or prepretonic vowels since posttonic vowels are very often in a word-final position and hence prone to being deleted.

Whether or not these observations are indeed a sign of a spreading phenomenon would have to be examined separately by means of a diachronic study and specific data that are gathered with particular attention to unstressed front rounded vowels and their distribution. At this point, it is difficult to tell if the realisation of front rounded vowels without stress and without their regular etymological background is only an effect of rare overgeneralisation or articulatory exceptions – yet the share of almost 24% of all tokens with mid-front rounded vowels does not hint in this direction. What is more, these variants were found in all four of the São Miguel locations referenced in the ALEAç so that an individual or locally limited effect can be eliminated.

As a general rule, it seems plausible to deduce that whenever etymological [ow], [oj] or [u] are stressed, rounding is highly likely to occur in São Miguel Portuguese. Reversely, stress is not a *conditio sine qua non* for rounding as it *can* occur in unstressed syllables as well.

2.2. Rediphthongised front rounded vowels?

The realisation of [ø] instead of standard Portuguese [ow] or [oj] is usually described as *monophthongisation*. Yet, a considerable number of forms in the corpus present mid-front rounded vowels as parts of diphthongs, as the following examples show:

(19)	[pikɐðøwru]	SEP *picadouro* [pikɐðowru]	'chopping block'	map 465
(20)	[føjs]	SEP *foice* [fojsə]	'sickle'	map 659
(21)	[tizøwrɐ, tizøjrɐ]	SEP *tesoura* [tezowra]	'scissors'	map 991

This phenomenon concerns 31 out of 55 types in which [ø] can be observed (81 tokens out of 266). This means that more than half of the etyma with mid-front rounded vowels have them as the first segment of a diphthong, usually alongside alternative variants with a monophthong [ø]. As Álvarez Pérez (2014: 45) observes for continental dialect data in the ALEPG, "it is normal for different choices to exist simultaneously, not only at the same location, but even for the same informant." This can be seen from example (20) as compared to (2) [føs] as its counterpart of the same etymon is without a diphthong. Example (21) illustrates the fact that the same etymon can have a mid-front rounded vowel [ø] as part of both sorts of diphthongs, i.e. [øw] and [øj], just as much as [ow] and [oj] are often interchangeable in other varieties of Portuguese, including standard forms such as *oiço* and *ouço* 'I hear'.

This calls for the question of whether the development [ow/oj] > [ew] > [ø] as known from the history of French phonology (Englebert 2015: 188–189) is the only possible explanation for the emergence of front rounded vowels in Romance languages. In this case, forms with [øw] or [øj] would indeed count as rediphthongisations. They could be accounted for as compromise forms between the typically Azorean front rounded vowel and the more continental form with the standard Portuguese diphthong. However, the parallels between Portuguese and French are limited since the latter does not exhibit the same level of alternation between [oj] and [ow] as Portuguese does. Much to the contrary, historical [oj] in French developed in a completely different direction yielding an opening diphthong [wa] as in *voix* 'voice' (Englebert 2015: 189–190), unknown to Portuguese.

If we compare the two forms [ow] and [oj] another explanation for the emergence of [ø] seems possible. In continental Portugal, both diphthongs are present and often used interchangeably, but not necessarily in equal distribution. As Coutinho (1984: 109) points out, "[n]o português moderno, *ou* alterna com *oi*, o que era estranho à língua antiga." ["In modern Portuguese, *ou* alternates with *oi*, which was unusual in earlier stages of the language."] This alternation, however, is probably a phenomenon that can be observed in a period prior to the settlement of the Azores: "Eventualmente a variação [entre oj e ow], em desacordo com a etimologia, ocorre desde o século XIII." ["Maybe the variation [between oj and ow], contrary to etymology, occurs from the 13th century on."] (R. Silva 1991: 66.) According to Cintra (1983: 43), it is difficult to tell apart clear-cut dialectal areas in mainland Portugal for alternations between [ow] and [oj]. At any rate, the distribution between the two variants is not at all even:

"Creio que não há nenhum falar português em que o ditongo [o̯i̯] não exista, a par de [o̯u̯] ou do [o̯] proveniente da sua monotongação, pelo menos em algumas das palavras em que o *i* é etimológico (atraído da sílaba seguinte, como em *coiro*, ou proveniente da vocalização da consoante *c* no grupo *ct* como en *noite*); o que há é falares em que [o̯i̯] não só se manteve nos casos em que era etimológico, mas aparece em grau maior ou menor nos casos em que se esperia [o̯u̯] ou [o̯], outros em que se observa a situação inversa."

["I believe that there is no Portuguese variety in which the diphthong [oi] doesn't exist, just like [o̯u̯] or [o̯] resulting from its monophthongisation, at least in some words where the *i* is etymological (by assimilation with the following syllable like in *coiro*, or by vocalisation of the consonant *c* in the cluster *ct* as in *noite*); what we do find are varieties in which [oi] doesn't only persist in cases where it was etymological, but where it also appears more or less frequently in cases where we would expect [o̯u̯] or [o̯], and others where we observe the opposite situation."] (Cintra 1983: 44).

A slight tendency that Cintra observes, though, could be a hint that [oj] is a compromise form between a monophthong and the older diphthong [ow]:

"A grande expansão da variante [o̯i̯] parece-me característica dos falares populares regionais de uma zona de fronteira entre a região em que se produz a monotongação e aquela em que se conserva o ditongo (nas suas variantes [o̯u̯] e [a̯u̯])."
    ["It seems to me that the great expansion of the variant [o̯i̯] is typical for the regional popular varieties of a border zone between the region where there is monophthongisation and the region where the diphthong is preserved (in its variants [o̯u̯] and [a̯u̯])."] (Cintra 1983 : 45).

Taken together, these observations can be interpreted as a sign that [oj] is the more 'intrusive' variant that is supplanting [ow]. In other words, in light of diachronic and dialectological information about continental Portuguese, [ow] turning into [oj] seems more likely than [oj] becoming [ow]. From this point on, a further development from [oj] to [ø] could be seen as the following step due to the segmental structure of the diphthongs. A combination like [oj] is rather complex given that it brings together two vowels with an absolute difference in its three features while the combination [ow] presents an opposition in only one feature:

(22)   /o/   /i/   /o/   /u/
        [+back]   [−back]   **[+back]**   **[+back]**
        [−high]   [+high]   [−high]   [+high]
        [+round]   [−round]   **[+round]**   **[+round]**

None of the three features of [oj] are identical, which means that a complete shift in articulatory configuration is necessary within the diphthong. The front rounded vowel reduces this complexity by harmonising the feature [−back] for both vowels, though at the price of introducing a typologically as well as physically marked sound:

(23)   /ø/   /i/
        [−back]   **[−back]**
        [−high]   [+high]
        [+round]   [−round]

In a similar way, the front rounded vowel in the other variant of the diphthong reduces the opposition of features, this time by harmonising the feature [+round]:

(24)   /ø/   /u/
        [−back]   [+back]
        [−high]   [+high]
        [+round]   **[+round]**

The introduction of [ø], then, evens out the feature oppositions of the two initial diphthongs [ow] and [oj], abandoning the easier articulation of [ow], but facilitating the articulation of [oj] after it was introduced and spread in the system of Portuguese. Following this step, the monophthongisation to [ø] could be the last phase while [øw] and [øj] could be the remains of the intermediate stadium. The form [ew], in contrast, seems unnecessary as a hypothesis for an intermediate step since it presents no advantage in feature symmetry over [oj]:

(25)   /o/   /i/   /e/   /u/
       [+back]   [–back]   [–back]   [+back]
       [–high]   [+high]   [–high]   [+high]
       [+round]   [–round]   [–round]   [+round]

In terms of feature structure, [oj] and [ew] are equally complex, the only difference being that [oj] is abundantly documented in a variety of dialectological and diachronic data. Etymology and dialectological data from mainland Portugal further confirm this hypothesis since, as Brissos (2014b: 76) observes, "only those cases of historical [oj] that can be identified with contexts of historical [ow] can have a fronted *o*."

Taken together with the historical and dialectological data and the feature structure of the diphthongs in question, it seems more likely that the monophthong is the final form while all diphthongs, with or without front rounded vowels, can be seen as the initial or intermediate structures. The fact that Rogers (1948: 16–17) had already attested alternate forms with [øw] and [øj] in the 1940s points in the same direction that this phenomenon is not an effect of recent language change due to the influence of standard Portuguese. In order to fully confirm this hypothesis, more data are needed, e.g. in order to test whether younger, more urban or socioeconomically more privileged and progressive speakers differ from more traditional speakers in their use of [ø] compared to [øw] and [øj].

For the sake of completeness, it should be noted that diphthongised forms with the front rounded vowel [y] are extremely rare. Only three tokens with the form [yj] are attested in the ALEAç data.

Depending on the framework one adopts, these feature sets can either be seen as configurations of articulation on a phonetic level or as their abstract representations in the speakers' sound systems on a phonological level. For the analysis and the question of symmetry as such, both approaches are possible and equally valid. In other words, it could either be the case that feature structure provides a phonetic basis for a change in the phonological system or that the development of [ø], [øw] and [øj] can be considered a phonological process within the mental abstractions of pronunciation.

3. A different kind of contact and the social significance of front rounded vowels

3.1. *Contact or no contact?*

While the principal mechanisms of the emergence of front rounded vowels in Portuguese have been described and only some additional details and background processes remain to be uncovered, the sociohistorical circumstances of these processes remain much more obscure. It has been established in the literature that front rounded vowels in São Miguel Portuguese are not a result of language contact but rather of language-internal change. Sociohistorically, Flemish influence can be excluded for São Miguel. While front rounded vowels are a prominent feature in Dutch, and Flemish settlers played an important part

in the population of the Açores, their presence was marginal on the island of São Miguel (Meneses 2008: 101). The islands of Faial and São Jorge which saw a much more important influx of Flemish settlers in the 15th century do not present front rounded vowels in their dialects. In Terceira, where Flemish settlers were also present, front rounded vowels are sporadically attested, but the systemic position of this phenomenon in the island's dialect is not yet sufficiently understood so that there is no possibility of tracing it back to a specific instance of language contact.

Blayer (2004: 50–51) sees front rounded vowels in the Azores as a feature brought by the settlers from the southern regions of continental Portugal who already produced these vowels in their respective dialects.[7] In these regions, front rounded vowels are regular phenomena of sound evolution that are not at all uncommon in other Romance languages. So far, most explanations of these particular features of São Miguel Portuguese and similarly of those found in continental dialects focus on language-internal processes rather than language contact (Blayer 2004: 45). As a matter of fact, the sound chain causing the lowering of front vowels and raising of back vowels mentioned in the introduction appeared in these continental dialects, rather than in those of the Azores. The insular dialect of São Miguel, then, simply presents the result or continuation of this sound chain that occurred earlier on the continent.

However, a general hypothesis of contact-induced sound change has been present in linguistics for decades, explaining the presence of front-rounded vowels in Romance languages mainly through Celtic influence. Damasio (1972 [1962]: 107–109) gives an early account of different historical explanations. Crothers (1976) sketches a history of phonological contact across many language families in Eurasia, including the case of Germanic influence on Romance languages like French and Gallo-Italian dialects without, however, taking into account the dialects of Portuguese that have front rounded vowels. Fernandes (2008: 14) hypothesises that front rounded vowels in the south of Portugal might be due to the influence of an early Celtic substrate or of Frankish templars and *hospitalários* (Knights Hospitaller), or to a convergence effect of the two. Furthermore, the dialects in this region were marked by the contact which occurred during the southward Reconquista expansion between varieties of Portuguese and the non-Iberoromance languages of some French and Flemish settlers in this period as well as the Mozarabian, Hebrew, Berber and Arabic varieties of the local populations (Fernandes 2008: 6). Hammarström (1953: 148) makes a compelling argument against the idea of direct borrowing of /y/ in the Algarve dialects, stating that:

> "le fait que la qualité antérieure n'est pas 'stable' (on a l'impression d'une transformation non encore achevée), de même que notre observation selon laquelle ce sont plutôt les jeunes qui présentent les voyelles les plus antérieures, plaident en faveur d'une transformation récente."
>
> ["the fact that the anterior quality is not 'stable' (it seems like a transformation that has not yet been completed), and also our observation that mostly young speakers produce the most fronted vowels, speak for a recent transformation."]

If this is the case, then the realisation of [y] in São Miguel is particularly interesting as it is much more consistent than the fluctuant variation between [y] and [u] that Hammarström observed in southern continental Portugal in the 1950s. The process of dialect formation

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[7] Boléo (1987: 620–622) additionally mentions significant parallels between the dialects of southern Portugal and the Azores on a lexical and phraseological level as well as toponymical evidence for close historical links between the two regions.

on the island could have stabilised a phenomenon that crystallised in the continental dialect and remained much more fluent throughout the centuries. As Brissos (2014a) and Brissos & Saramago (2014) show, the fronting of [u] is geographically much more widespread and frequent today than previous research suggested so that the exact status of [y] several centuries ago remains all the more uncertain. Yet, the frequent alternation of the monophthong [ø] with its diphthong variants contradicts the hypothesis of a 'stabilising force' in dialect emergence during the settlement of the Azores.

While it remains unclear which part most of the languages involved played in the development of the dialectal sound systems in the south of Portugal, it seems plausible to assume that the front rounded vowels did indeed originate in the multilingual context of pre-modern Southern Portugal and were brought to São Miguel from there. Frutuoso (1998 [1586–1590]) gives a thorough account of the first settler families to arrive in the Azores. Even though he almost exclusively focuses on noble families and leaves out the significant part of settlers from more modest origins, it becomes clear that many of the socially dominant settlers came from the Algarve and Alentejo regions.

The internal development of the vowel system described with the patterns of a sound chain might very well be linked to external influences in the preceding situation of language contact in southern continental Portugal. By 'external influences', we do not necessarily need to think of direct borrowing of a phoneme from an adjacent linguistic system. Such influences may just as well be situated on a more abstract level in terms of a general phase of increased systemic dynamics which might have favoured or triggered the transformations of the phoneme set. Brissos' (2014a: 94) idea of a system-internal "exponentiation of a general tendency in the South" therefore does not necessarily contradict the assumption that language contact played a role in the emergence of front rounded vowels in these dialects. In connection with the emergence of youth vernaculars in highly multilingual cities in Africa and Europe, Wiese (in press) puts forward the idea that "the multilingual context supports a generally more dynamic setting that is beneficial for language variation and change, rather than triggering specific grammatical transfers. In this case, contact works as a boost for existing, internal tendencies, thus stimulating or facilitating change." (See also Cheshire et al. 2011 for a similar account of language contact in Multicultural London English).

Still, this explanation leaves several questions open that are rarely addressed in research about the history of Portuguese and its dialects. First of all, the notion of 'language contact' which previous research on the sound system of Portuguese in the Azores dealt with is rather narrow and limits the scope of what contact actually can explain. It only raises the question whether or not front rounded vowels could have been introduced by *Abstand* languages[8] of Portuguese, e.g. Dutch or French. Dialect contact seems to be excluded from what would count as 'actual' contact. Yet, dialect contact is exactly what is usually addressed, but not extensively discussed, in the literature. If front rounded vowels were already present in continental dialects of Portuguese and were brought to the Azores by speakers of these dialects, they must have entered into contact with other dialects – since not all settlers in the archipelago came from the same area. The same holds true for the specific case of São Miguel as the population of the island was very heterogeneous from the very beginning (Meneses 2008: 85–92). In this context of dialect contact, one may still raise the question as to why and how a particular feature could prevail. At the same time, the discussion about system-internal sound change eclipses the fact that external factors,

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[8] The term *Abstand language* refers to a language which is structurally, typologically or historically very distinct from another language with which it is being compared, as opposed to closely related languages or instances of a dialect continuum (see Kloss 1976 for a more detailed theoretical background).

among which contact can be an important one, could have played a significant role in stimulating or triggering the process of sound change. With regard to the different steps of the sound chain, Damasio (1972 [1962]: 113) poses the question: "[D]entro de la pura consideración estructuralista […] es evidente que todos estos hechos están relacionados; pero ¿dónde se originó el movimiento?" ["Within a purely structuralist consideration it is evident that all these facts are related, but where did this movement begin?"] This stimulation may have taken place during the founding period of the Azorean society or earlier in the regions of origin of those speakers who brought along dialects with front rounded vowels in their sound system. The front rounded vowels found in São Miguel Portuguese may, then, not be due to influence from Flemish or French, but they are nevertheless an effect of contact.[9] As linguistics is moving away from looking at languages as discrete units with clear-cut boundaries, contact linguistics, too, has to take into account the fact that *contact* does not necessarily involve influences between completely different linguistic systems perceived as 'individual' languages. We may conceptualise the contact between different Portuguese dialects as a fairly common type of language contact which brings about similar, though maybe more subtle, effects to contact between more distant linguistic systems. A model that bridges the gap between such seemingly different types of contact is that of the *feature pool* described in Mufwene (2005). This concept which was developed primarily in the context of creolistics has been shown to be prolific also for the analysis of other contexts of language contact such as multi-ethnic youth languages in Europe (Cheshire et al. 2011; Wiese 2012).

3.2. Triple markedness and the feature pool in São Miguel

Even though the early (linguistic) history of the Azores is not a situation of creolisation, concepts and ideas from creolistics like the *feature pool* hypothesis can be transferred to this case. We have to take into account that we are not dealing with a case of colonial exploitation in the narrow sense, but the settlement of the archipelago shares some important characteristic traits with more 'typical' colonial situations. Both scenarios involve the strategy of permanently establishing a local population in order to secure geopolitical influence and power for political or economic reasons. In both cases, the newly founded societies have a strictly hierarchical structure from the outset. We can qualify the early history of the Azores as a sort of 'proto-colonial' setting.

In such a situation, a wide range of different languages were usually present due to the very diverse origins of the newly established local population. In the colonies, this population would exhibit an important share of underprivileged inhabitants like slaves or indentured labourers. In the Azores, we certainly cannot assume a system of mass slavery, but we may well take note of a clear-cut social hierarchy with an important share of persons who were brought to the islands against their will or relocated under intense pressure, e.g. *mouriscos* that indeed lived in conditions of slavery, Jews or newly converted Christians that fled the violence and social exclusion in continental Portugal, or other types of servants and farm labourers (Carita 2008: 56; Meneses 2008: 84–85; Campos 1985: 100–101). Additionally, the society was shaped along strict lines of social stratification with a feudal system of land division and tenancy (Frutuoso 1998 [1586–1590]: 228). The social stratification in the first decades of settlement can be seen from various historical sources that count only half of the population of São Miguel as *almas de confissão* ('confessing souls', i.e. persons who were considered capable of

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[9] The idea of French or Flemish influence as an explication for the particularities of Azorean dialects remains a very strong local narrative that is used as an element of linguistic identity contrasting with continental Portuguese (Boléo 1987: 611–612).

independent understanding and moral or confessional insight), most likely excluding both children and non-Christians from this category (Campos 1985: 136–137; see also Frutuoso 1998 [1586–1590]: 490) This division of the population suggests a clear-cut social divide in which one out of two inhabitants would have been in a less influential position.

In such conditions, the different groups would bring all the structural features of their original languages or varieties together into the so-called *feature pool*. The feature pool is an abstract entity that unites all the grammatical, lexical, pragmatic, and phonological representations that the new community's individuals bring together (Mufwene 2002: 46; see also Mufwene 2001). An individual speaker does not necessarily need to have access to all of the features in the feature pool, especially at the beginning of a social transformation such as the settlement of a new territory. However, they increase the number of variants in their individual repertoire of representations as interaction with speakers of other languages or dialects intensifies. This means that the newly formed society, while developing a new common form of speech, can make use of a wide range of alternative features and select a limited number of them which will prevail as characteristics of a new set of structural rules. Ultimately, the new system will be considerably distinct from any of the initial systems that were involved. In a 'typical' colonial setting, this new system can be a Creole language. In the Azores, the new system was somewhat less distant from the original forms as the languages involved belonged for the most part to the same language family.

In order to establish the reasons why a particular feature is selected over another one, we have to consider the sociolinguistic conditions that are attached to the features in question. Three main factors are at play. To begin with, demographics are certainly important. A feature that is introduced by a large number of speakers will be well represented in the feature pool. In the case of São Miguel, settlers from the south of Portugal were probably the numerical majority so that the perpetuation of features from their dialects became more likely as they contributed heavily to the feature pool.

However, demographics alone cannot account for the selection of a feature. In colonial settings, the underprivileged part of the society, e.g. slaves, were usually in the demographical majority and yet, features from their languages did not prevail as frequently as one might expect. As a second factor, then, we can assume that it is much more likely that a feature will be selected due to the socio-indexical value that it carries even though it is initially only realised by a smaller part of the society. This socio-indexical value can have connotations of overt or covert prestige, depending on the social implications of the varieties in question. As Mufwene (2002: 49) observes, "each unit is learned with an interpretation of the constraints associated with its usage." These constraints do not only encompass grammatical rules, but also pragmatic conditions of use and qualitative social norms of who uses which form in which context. In São Miguel, both quantity and quality were in favour of the front rounded vowels in the southern dialects as their speakers held a privileged position compared to the speakers of Mozarabian, Arabic, Berber or Hebrew who were usually not among the socially dominant. The third and last factor that we have to take into account is the so-called *founder principle*:

> "Structural features of creoles have been predetermined to a large extent (but not exclusively!) by characteristics of the vernaculars spoken by the populations that founded the colonies in which they developed." (Mufwene 1996 : 84).

We can assume that this principle also came into effect in the formative period of the São Miguel dialect. The first settlers to arrive on the island and in the entire eastern group of

the archipelago were predominantly people from the south of Portugal.[10] Those parts of the Azores that were more distant from the continent were populated some decades later and received their first population mainly from the centre and the north of Portugal. (Meneses 2008: 91–92) Speakers of dialects from those regions may have also arrived in São Miguel or relocated there from one of the western islands at a later stage. At that point, however, they would have entered a society where the decisive part of dialect formation was over. Their influence on the subsequent language change must have been considerably reduced and the pressure to adapt to the emerging dialect shaped by the southern continental features was probably high. Taken together, these factors contributed to a development which, until today, preserves front rounded vowels as a particularly marked feature of the dialect of São Miguel.

As mentioned in the introduction, front rounded vowels are marked in the sense that they are an exceptional phenomenon in the world's languages (see Mufwene 2002: 54–55 for a discussion of markedness as a criterion for feature selection). At the same time, they are marked on an articulatory level. In most phonological systems, spread front vowels and rounded back vowels increase the perceptive contrast between the two vowel groups since they minimise or maximise the length of the resonating cavity. Front rounded vowels counteract this principle as rounded lips increase the oral cavity which ideally should be reduced for front vowels to be recognisable. As I have shown in chapter 2, however, the non-ideal feature structure presents the advantage of levelling asymmetries in diphthongs, at least as far as [ø] is concerned.

On a third level of markedness, front rounded vowels have a particular social-indexical value which makes up for the articulatory 'flaws' of this type of vowels.[11] The phonemes [ø] and [y] are seen as exceptional in contrast to the respective standard languages and therefore are suitable as markers of a regional or local identity. This is particularly visible in the adaptation of English loanwords by early re-migrants that used to live in the United States and returned to São Miguel (Borges 1960). These speakers frequently introduced front rounded vowels according to the phonological patterns typical for São Miguel when using English loanwords in dialectal speech. Silva (2008) shows that the maintenance of front rounded vowels is a very important marker of Azorean regional identity and origins for dialect speakers that emigrated to the United States and, even more so, for their locally born children and grandchildren. Conversely, speakers of (northern) continental Portuguese have been shown to attach a strong impression of marked dialectal speech to Azoreans, an impression which is particularly attached to the vowel system (Ferreira 2009: 257–261).

In a community with a standard variety which does not have front rounded vowels, using them is a very easily perceivable sign for localness both in basilectal structure and in regiolectal utterances. Conversely, when the standard does have front rounded vowels, using them is a sign of targeting acrolect forms. This is the case, for example, in French-based Creole languages where front rounded vowels usually are not part of the basilectal sound system but are used very frequently as soon as a speaker slightly moves towards French in their repertoire. A similar effect can be seen in dialects in the South of Germany which do not use front rounded vowels while standard German does. In Rhine Franconian dialects of German, saying gr[y]n instead of gr[i]n 'green' in an otherwise

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[10] Campos (1985: 148), however, advises against the widespread assumption that the first settlers came from the Algarve region; an assumption that he states is based upon speculation. Given the fact that the attribution to the exact region of Algarve indeed remains difficult, it seems appropriate to speak more generally of settlers from the south of Portugal.

[11] According to Brissos (2014a: 94), "the vowel u is decisive for the characterisation of these dialects (and can therefore be seen as the most important vowel, in dialectological terms, of the Centre-South)."

dialectal utterance would be perceived as a clear tendency towards the standard. The same holds true for e.g. Réunion Creole with a speaker replacing *lari* [i] by *laru* [y] 'street' (Bollée 1978: 32). In a more general sense, front rounded vowels can be used as productive means of differentiation between speaker groups or communicational contexts while providing sufficient warranty for a successful act of communication. In the history of the Azores, this seems to be a fundamental principle which guided the maintenance of FRV during the emergence of a new insular society.

4. Conclusion: Front rounded vowels and dialect levelling in São Miguel Portuguese and beyond

The specificities of the ALEAç data allow for areas of research to be identified which deserve to be explored in greater depth. On the one hand, more research is needed in order to better understand the diachronical and synchronical position of front rounded vowels in the phonological system of São Miguel Portuguese in relation to categories like stress, diphthongisation or feature symmetry. On the other hand, it would be worthwhile to study the distribution of the phenomenon both on a diatopical level – how do we need to interpret the sporadical presence of front rounded vowels on islands other than São Miguel? – and on a sociolinguistic level with regard to specific speaker groups in terms of age or social status.

The ALEAç data confirms the essential findings of previous research. Front rounded vowels [y] and [ø] can be found in stressed positions where Standard Portuguese has [u] and [ow] or [oj]. It is likely that they arose during a chain shift process which initiated in the original continental dialects of southern Portugal and transferred into the new dialect of São Miguel due to the sociohistorical circumstances of the island's settlement. The ALEAç data also shows that the phenomenon is much more widespread than established research suggests. Firstly, front rounded vowels can be frequently found also in non-stressed positions – a fact that calls for further investigation given the contrast of this fact with the tendency of weakening or deletion of unstressed vowels in the São Miguel dialects. Secondly, the mid-front rounded vowel [ø] shows a considerable level of alternation with the diphthongised forms [øw] and [øj]. The feature structure of these forms compared to the historical and Standard Portuguese forms [ow] and [oj] suggests that the development of [ø] might have taken a path via [øj] and [øw]. These alternate forms, then, would be remaining variants of this diachronic background, rather than newly re-diphthongised forms.

As for the geographical distribution, the data given in the dialect atlas clearly shows that front rounded vowels in Azorean Portuguese are a phenomenon largely exclusive to São Miguel and sporadically observed in Terceira, while they remain virtually unknown on the other islands of the archipelago.

This is in sharp contrast with the fact that even in a wide range of sociophonetic variation, front rounded vowels, and most prominently [y], "persist in even the most careful speech" and across all socioeconomic groups in São Miguel. (Silva 2005: 7) One might expect that such a highly prominent and widespread feature would have been transferred to the other islands by now, given that São Miguel is the demographic and economic centre of the archipelago and that front rounded vowels are increasingly integrated into the regional standard which is used also in more formal settings. Clearly, we need to make a distinction between front rounded vowels as a marker of Azoreanness in a supra-regional context, i.e. within the whole of Portugal or abroad, and their function as markers of local identity in São Miguel which maybe precludes them from being used on any of the other islands. Due to the demographic and political importance of São Miguel as compared to the rest of the autonomous region of the Azores, speakers from the continent may tend to see front

rounded vowels as typical features of the entire archipelago instead of acknowledging the particularities of the São Miguel dialect as such.

As communication nowadays is taking place more often in contexts beyond the traditional local dialect community, speakers feel the need to mark their regional background while at the same time avoiding overly dialectal forms in order to facilitate comprehension. As a consequence, regional dialects emerge alongside local dialects or even replace them. (Gleßgen & Thibault 2005) In such contexts, when speaking a regional dialect, most locally marked features are suppressed or lost while a small number of iconic features may remain as obvious markers of regional origins. One can hypothesise that front rounded vowels provide a practical instrument for regional identification in such a situation of increasing dialect levelling. On the one hand, they are clearly recognisable as typically local features for in-group listeners. On the other hand, they do not create excessive confusion for out-group listeners as these phonemes are not part of their original sound inventory and can easily be reattributed to a corresponding sound pattern of the common etymon.[12] This effect might be an explanation for Hammarström's observation of spreading [y] among younger speakers in the Algarve despite growing pressure towards standard pronunciation. Similarly, in his description of regional Italian in Ticino, Petrini (1988: 73) reports a "penetrazione di [ü]" since the mid-20th century to regions where the sound had been previously unknown. [y] is also realised instead of [u] in newer and spontaneous borrowings from standard Italian like *situazione*, *inhumano* or *sviluppo*.

Whether or not dialect levelling plays a role for the preservation of front rounded vowels in Azorean Portuguese will need further investigation with more pertinent informants. The persons recruited for the data collection of the ALEAç were chosen for the fact that they were conservative speakers with rather low mobility. The ALEAç data would therefore lend itself for comparison with more recent data from younger and more mobile speakers who use a more supralocal variety of Azorean Portuguese. The different levels of variation outlined in part two as found in the ALEAç data provide quite a number of criteria that would allow for more fine-grained tests of the sociolinguistic value of front rounded vowels, e.g. to what extent the opposition between the monophthong [ø] and its diphthongised counterparts carry social meaning or in which way front rounded vowels may be spreading to surroundings where they are not etymologically expected. A more thorough understanding of these seemingly irregular or erratic occurrences might also shed new light on the historical development of front rounded vowels in the São Miguel dialect.

The strong degree of markedness on all levels probably accounts for the role of front rounded vowels in synchronic variation and in diachronic developments alike:

> "It seems as though there is a natural beginning point for FRV's in assimilation, but that phonological systems are, as it were, unwilling to accept them without outside pressure. I interpret this as being due to the optimal character of small vowel quality systems." (Crothers 1976: 134).
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> "It seems likely that the hearing of sounds of this sort in some languages of the area may have given further support to phonetically natural processes in other languages, with the end result being the addition of front rounded vowels to the inventory of more of the languages." (Maddieson 2013, n.p.).

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[12] See Auer, Hinskens & Kerswill (2005: 19–20, 44–45) for a discussion of the significance of dialect levelling or convergence in European societies. The authors stress, however, the important reservation that it is difficult to attribute a precise function to "salient" features: They can either be used as a means of obvious accommodation or as the exact opposite in order to clearly mark differentiation.

Markedness on different levels, then, links language-internal and contact-based explanations of the emergence of the phenomenon. Situations of increased linguistic contact probably make the use of features with a strong social-indexical value particularly productive or even necessary in order to state one's position in the transforming society. If front rounded vowels carried such social-indexical meaning during the formative period of the Azorean society, this might explain why they prevailed during a time of increased contact and systemic variability.

One might say, in other words, that the phonological surrounding *enables* the emergence of front rounded vowels while contact with other languages – particularly those that already have them – *trigger* the introduction of these segments into the sound system. This triggering effect does not, however, occur in all cases where a language's sound system would allow it. Whether or not it does is determined by the social conditions and, most of all, by the social-indexical value attached to the variety that first exhibits front rounded vowels and the speakers associated with this variety. We can subsequently reapply this reasoning to creolistics. It is often said that Creole languages selected the "unmarked options" of the languages involved in their emergence; see, e.g., Bickerton (2016 [1981]: 46) and the discussion in McWhorter (2013). Even though the differences between creolisation and the history of São Miguel Portuguese remain important, the fact that front rounded vowels were selected for their markedness presents a counterexample to what would normally be expected in a proto-colonial setting.

Competing Interests

The author has no competing interests to declare.

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