

# THE EVOLUTION OF THE SOUND SYSTEM OF PORTUGUESE

Kimiko Tsukada

Department of Linguistics  
University of Victoria

## 1. INTRODUCTION[1]

The population of Romance speakers is approximately 487 million. Portuguese (including Galician) is spoken by 110 million people, which makes it second only to Spanish in the size of its speakership (Spanish has 215 million speakers)[2]. In terms of geographic distribution, the Romance languages cover almost 20% of the surface of the earth which is about 10 million square miles out of 52 million square miles. As far as Portuguese is concerned, it is spoken in Europe as a matter of course, on the South American continent (Brazil), in Africa (Angola, Mozambique, etc.), and also in Asia (Goa, Macao, part of Timor, etc.) either in the form of standard language or in the form of Creole.

The purpose of this paper is to describe the sound system of Portuguese of each period and sound changes the language has gone through. Portuguese, 'o latim com pouca corrupção (Latin with little corruption)', is generally considered to be one of the most conservative languages in the Romance branch. It, however, possesses some innovative aspects as is demonstrated in this paper.

## 2. THE HISTORY OF EUROPEAN PORTUGUESE

There are several ways of dividing the history of Portuguese into stages from Vulgar Latin to modern Portuguese. If we were to follow the history of this language in the strict sense, we should not ignore some important phonological changes which took place in Vulgar Latin, such as 1) the change of the vowel system, 2) deletion of vowels (/i,u/) between consonants, 3) voicing of intervocalic stops (/p,t,k/) and of intervocalic fricative /s/, 4) palatalization of velars (/k,g/) before /i/ and /e/, and so forth. However, I do not intend to pay much attention to what happened in the Iberian Peninsula before Galego-Português, which is a mother language of both Portuguese and Galician, arose. This 'Época Proto-Histórica' in which the very origin of Portuguese was established is the point from which I would like to start.

### 2.1. Época Proto-Histórica (EPH)

EPH started in the late 9th century and continued until the beginning of the 13th century. The language in the western part of the Iberian Peninsula had already experienced several characteristic changes in the preceding period. Those changes are quite important in that they did not occur in other parts of the Peninsula. In other words, such changes kept Portuguese and Galician distinct from other languages which we could find in the Iberian Peninsula. Changes such as 1) velarization of intervocalic /l/, 2)

nasalization of the vowel preceding the nasal consonant and 3) /kl-,fl-,pl-/ > /tʃ/ are known. These changes went further and in the EPH, velarized /l/ was deleted, as was an intervocalic nasal. The following are some examples:

### 2.1.1. deletion of intervocalic /l/

Lat.

dolore > do-or (later in Po. and G. > dor cf. Sp. dolor)  
 filu > fi-o (later in Po. and G. > fio cf. Sp. hilo) 'pain'  
 'thread'

### 2.1.2. deletion of intervocalic /n/

Lat.

bonu > bōno > bō-o (later > bō=bom cf. Sp. bueno) 'good (masc.)'  
 manu > mǎno > mǎ-o (later > mão cf. Sp. mano) 'hand'  
 luna > lūna > lū-a (later > lua cf. Sp. luna) 'moon', etc.

### 2.1.3. /kl-,fl-,pl-/ > /tʃ/

Lat.

clave > chave	Sp. llave	'key'
flamma > chama	llama	'flame'
plicare > chegar	llegar	'to arrive'

Let me briefly refer to the Arabic influence in this period. Although there was quite a number of Arabic words which came into Portuguese, they impinged only on the lexicon, that is, they did not affect the phonology or syntax of Portuguese. And the number of these words is smaller than in Spanish. Probably this is due to the historical fact that in Portugal the Reconquest was already accomplished in 1249, which is 250 years ahead of Spain (the Reconquest was completed only in 1492 in Spain), and also to the geographical fact that Portugal was far from the centre of Islamic culture. Below are some words of Arabic origin which penetrated in the Iberian Peninsula:

Po.	Sp.	
açúcar < as-sukkar	azúcar	'sugar'
algodão < al-qutum	algodón	'cotton'
arroz < ar-ruz	arroz	'rice'

Note that when these Arabic words were introduced into French or Italian, they took a form without the article al or its assimilated variant. For example:

Fr.	It.	
sucre	zucchero	'sugar'
coton	cotone	'cotton'
riz	riso	'rice'

## 2.2. Período Arcaico 1 (PA1)

The period from the early 13th century to the middle of the 14th century is referred to as Período Arcaico 1. This is often called the period of Galego-Português because there are no phonological or syntactical differences which would enable us to distinguish these two languages. The relationship between Portuguese and Galician is that of

co-dialects and we could call them 'línguas gémeas', which literally means 'twin languages'. The following are some of the features of this period, starting with vowels:

### 2.2.1. Vowels

#### (1) oral vowels

##### (a) in stressed position:

i	u
e	o
ɛ	ɔ
a	

##### (b) in pretonic position:

i	u
e	o
a	

The system (a) is identical to that of Vulgar Latin. In the pretonic position, E, O in Latin became not [ɛ], [ɔ] but [e], [o].

##### (c) in unstressed, final position:

e	o
a	

At the beginning of this period, [i] was also possible. However, later on, a three-vowel system was established.

#### (2) nasalized vowels

##### (a) in stressed/pretonic position:

ĩ	ũ
ẽ	õ
ã	

##### (b) in unstressed, final position:

ẽ	õ
ã	

#### (3) diphthongs

ei	ui	iu	
ai	oi	eu	ou
		au	

It is during the next period that the language shows an increase in diphthongs. Nasalized diphthongs which are fairly characteristic of Portuguese did not occur in this period.

### 2.2.2. Consonants

stops: p, b, t, d, k, g

nasals: m, n, ŋ

laterals: l, ʎ

trill: r

flap: ɾ

fricatives: f, v, s, z, ʃ, (d)ʒ

affricates: ts, dz, tʃ

Some of these consonants did not exist in Latin. Below are such consonants.

[ɲ] < nj < ni, ne + vowel, -gn-

seniore > senhor 'Lord'	linea > linha 'line'
cognoscere > conhecer (> conhecer) 'to know by experience'	

The orthographic symbol <-nh-> appeared in a document of 1267 (Arquivo Historico Portuguez, vol.6).

[ʎ] < lj < li, le + vowel, -cl-

filiu > filho 'son'	palea > palha 'straw'
oclu (< oculu) > olho 'eye'	apicla > abelha 'bee'

The orthographic symbol <-lh-> appeared in 1265 (Arquivo Historico Portuguez, vol.4). It is generally accepted that these graphs, <-lh-> and <-nh->, are borrowed from Provençal.

[r]: r-, -rr-

rumpere > romper 'to break'	riuu > rio 'river'
terra > terra 'earth'	ferru > ferro 'iron'

[v] < u+vowel, b, f

uacca > vaca 'cow'	uita > vida 'life'
debere > dever 'duty, must'	profecto > proveito 'profit'

[ś] < s-, -ss, -s; [ź] < -s-

solo > so-o > só 'only'	passu > passo 'step'
ossu > osso 'bone'	mense > mês 'month'

[ś], [ź] are apico-alveolar fricatives.

[ʃ] < -x-, sj < si, se+vowel

saxu > seixo 'pebble'	passione > paixão 'passion'
basseu > baixo 'low'	

[(d)ʒ] < g(+e,i), i+vowel, dj < di, de+vowel

gelare > gear 'to freeze'	fugio > fujo 'I escape'
iocu > jogo 'game, play'	hodie > hoje 'today'
video > vejo 'I see'	ianuariu > janeiro 'January'

[ts] < c(+e,i), tj < ti, te+vowel

caecu > cego 'blind'	civitate > cidade 'city'
facio > faço 'I do'	oratione > oraçon (> oração) 'prayer'

[dz] < -c(+e,i)

facere > fazer 'to do'                      uicinu > vizī-o (> vizinho) 'neighbour'  
cocina (< coquina) > cozī-a (> cozinha) 'kitchen'

[tʃ] < pl-, cl-, fl-

See section 2.1.3.

### 2.2.3. Hiatus

Frequent occurrence of hiatus is another characteristic of Portuguese (Galego-Português). The reason is that in addition to the deletion of intervocalic /d/, /g/[3], intervocalic /l/ and /n/ also underwent syncope. As a result of this /n/-deletion, a nasalized vowel came to be adjacent to an oral vowel, and they constituted the hiatus, which prevented the nasalized diphthong from appearing. For instance:

Lat.	
malu > ma-o (> mao=mau)	'bad (masc.)'
mala > ma-a (> má)	'bad (fem.)'
bonu > bō-o (> bō=bom)	'good (masc.)'
bona > bō-a (> boa)	'good (fem.)'
germanu > irmã-o (> irmão)	'brother'

As mentioned earlier, during this PA1 the Reconquest of Portugal was concluded (1249). However, we cannot expect a language to change rapidly. There is always a transitional stage. Let us see how Portuguese was established as a koiné. As the Christians regained their power and exiled the Arabs from the Iberian Peninsula, the political centre moved south. So did the Christians who had been evacuated to the northern part of the Peninsula (the north of the Douro River[4]). So the language of the moçárabe[5] and the language which was spoken by the northern Christians became mixed. They interacted with each other, and as a result, koiné or common Portuguese came into being. The role of poetry written in Galego-Português should not be neglected. Previous scholars seem to agree that in the 12th and 13th centuries, in the Iberian Peninsula, poetry was written almost exclusively in Galego-Português. This was the cultural norm which was accepted throughout the Iberian Peninsula. In other words, even Castilian poets chose this language over their own which was still in the process of being established as a national language. Rodrigues Lapa, M. (1973) states that '...até essa época tudo indica que não há dois, apenas um lirismo, e esse indiscutivelmente galego-português (...until this period everything indicates that there are not two, but only one type of lyricism, and that this is unquestionably Galego-Português). The Galego-Português culture was not inferior to the Arabic culture, which was considered to be highly sophisticated at that time.

### 2.3. Período Arcaico 2 (PA2)

The period from the middle of the 14th century to the middle of the 16th century is referred to as Período Arcaico 2. This is the period in which Portuguese became separate from Galician and started to establish its own position firmly. During this period, a number of hiatus were lost. Generally speaking, monophthongization and nasal-diphthongization were completed by the end of the 15th century.

## 2.3.1. Vowels

## (1) monophthongization

## (a) hiatus made up of oral vowels:

If vowels are identical, they monophthongized.

le-er (< legere) > ler	'to read'
cre-er (< credere) > crer	'to believe'
ma-a (< mala) > má	'bad (fem.)'
do-or (< dolore) > dor	'pain'
pa-aço (< palatium) > paço	'palace'

The combination of two a's resulted in an open [ɑ], which contrasts phonemically with [a]. So the vowel system in stressed position became different from that in Galego-Português. This is the same as the modern Portuguese vowel system.

i	u
e	o
ɛ	ɔ
ɑ	

In the pretonic position, the same thing happened. So,

i	u	i	u
e	o	e	o
a	became	ɛ	ɔ
		ɑ	

This is also a result of monophthongization of e-e, a-a, o-o, which became [ɛ], [ɑ], [ɔ], respectively. This system remained for a long time until the language experienced a reduction, that is, e > ə, o > u. Since there is some fluctuation in the orthography, it is not easy to specify when these changes took place. According to Ikegami (1984), however, both e > ə and o > u are the changes that occurred in the Período Moderno 2.

In unstressed, final position, hiatus a-a, o-o became [a], [o]. e.g. Braga-a > Braga 'Braga (the name of the city which is located in the north of Portugal)', pobo-o > povo 'people'.

e	o
a	

This system is identical to that of the preceding period.

## (b) hiatus which contains a nasalized vowel:

When the stress was on the nasalized vowel, hiatus reduced to a nasalized monophthong as opposed to a nasalized diphthong.

fīes (< fines) > fīis > fīs (=fins)	'end (pl.)'
bēes (< benes) > bēs (=bens)	'well (pl.)'
lāa (< lana) > lā	'wool'

When the nasalized vowel is not stressed, it lost its nasality and became an oral monophthong.

tēer (< tenere) > teer > ter	'to have'
vīir (< venire) > viir > vir	'to come'

## (2) diphthongization

### (a) hiatus made up of oral vowels:

If the first element is stressed, a-e, a-o diphthongized to ae(=ai), ao(=au), respectively.

sina-es (< sinales) > sinaes (=sinais)	'sign (pl.)'
ma-o (< malu) > mao (=mau)	'bad (masc.)'

These diphthongs merged with those which had already existed. Some new diphthongs appeared as a result of this diphthongization.

sō-es (< soles) > sōes (=sóis)	'sun, sunshine (pl.)'
cruε-es (< crudeles) > cruεes (=cruéis)	'cruel (pl.)'
cε-o (< caelu) > cεo (=céu)	'sky'

After the language gained these three diphthongs, the system of this period became

	ui	iu	
ei	oi	eu	ou
ɛi	ɔi	ɛu	
	ai		au

However, hiatus i-es with stress on i went through the following change and became a monophthong: i-es > i-is > is

civi-es (< civiles) > civi-is > civis	'civil (pl.)'
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e-a, e-o stayed hiatus and in the next period, went through the change e-a > ei-a, e-o > ei-o.

che-a (< chē-a < plena) > cheia	'full (fem.)'
cre-o (< credo) > creio	'I believe'

This epenthesis did not take place until the beginning of the 16th century.

### (b) hiatus which contains a nasalized vowel:

When the nasal is more open, hiatus became a nasal diphthong. That is, ā-o > āo (=āũ), ō-e > ōe (=ōĩ), and ã-e > ãe (=ãĩ).

irmã-o (< germanu) > irmão	'brother'
razõ-es (< rationes) > razões	'reason (pl.)'
pã-es (< panes) > pães	'bread (pl.)'

A nasalized diphthong is one of the most conspicuous features of Portuguese. This period is fairly important in that the language knew *ãĩ, õĩ, ãũ* for the first time.

### (3) 'new' hiatus (loss of nasality)

In the sequence of a nasal vowel + an oral vowel, when the nasal sound is more closed, it lost its nasality and became hiatus. Formerly, hiatus was due to the deletion of the intervocalic consonant. But this one could be regarded as new, because it was created by the loss of nasality.

arê-a (< arena) > arê-a (> areia)	'sand'
chê-a (< plena) > chê-a (> cheia)	'full (fem.)'

As for *ĩ-o* and *ĩ-a*, not only the loss of nasality, but also a palatalized [ɲ] sound appeared. This phenomenon is considered to result from the influence of *ĩ*. So *ĩ-o* > *inho*, *ĩ-a* > *inha* as in

vĩ-o (< vino) > vinho	'wine'
vizĩ-o (< vicinu) > vizinho	'neighbour'

[ɲ] itself is not a new sound, as the language already had it in the period of Galego-Português. This loss of nasality is thought to have taken place in the 16th century or even later. Incidentally, in the northern part of Portugal, speakers still use the nasalized sound. This type of denasalization was not so radical in Portuguese as in French and when it did occur, the nasal consonant did not reappear. In other words, in French, the distinction between a nasal vowel and a vowel followed by a nasal consonant was retained as in bon /bɔ̃/ 'good (masc.)' versus bonne /bɔ̃n/ 'good (fem.)'.

### (4) *ã* > *ão*, *õ* > *ão*

In this period, *-ã-o*, *-ã* and *-õ* merged into *-ão*. This started in the central and the southern part of Portugal and later became a standard. But the plural adhered to the original form, so that we are left with three different types of plural when the singular form of the words ends in *-ão*.

period 1	period 2
sg. <i>mã-o</i> (< manu)	<i>mão</i>
<i>pã</i> (< * <i>pãe</i> < pane)	<i>pão</i>
<i>razõ</i> (< * <i>razõe</i> < ratione)	<i>razão</i>
pl. <i>mã-os</i> (< manos)	<i>mãos</i>
<i>pã-es</i> (< panes)	<i>pães</i>
<i>razõ-es</i> (< rationes)	<i>razões</i>

### 2.3.2. Consonants

ts	ś	s	ś
dz	ź	z	ź

became



In the late 15th century, the language lost the affrication part and the contrast turned into that of voiced and voiceless fricatives. In the preceding period, there was no confusion in the orthography.

[s] was represented by	ç, c(+e,i)
[š]	s-, -ss-, -s
[z]	z-, -z-
[ž]	-s-

Thus the constituents of the system changed, but the system itself remained the same, by which I mean that Portuguese of this period still possessed this rectangular system. [š], being apical, differs from [s] in terms of the point of articulation.

#### 2.4. Período Moderno 1 (PM1)

PM1 started in the middle of the 16th century and continued until the middle of the 18th century. One of the characteristics of the PM1 is that starting from the middle of the 15th century, for about 200 years, there was a period of bilingualism involving the Portuguese intellectuals. For these intellectuals, Castilian, being the prestigious language, was more than just a foreign language. Historical events such as intermarriage between the Royal families of Portugal and Spain and the annexation of Portugal by Spain from 1580 to 1640 also influenced their attitudes towards the Castilian language. Portuguese grammarians were the only people who took the view that Portuguese is a distinct language from Castilian.

##### 2.4.1. Vowels

###### (1) in stressed position

orals		nasals	
i	u	ĩ	ũ
e	o	ẽ	õ
	a		ã
ɛ	ɔ		
	ɑ		

Both of these are identical to the system of the preceding period and to that of modern continental Portuguese.

###### (2) in unstressed position

###### (a) pretonic:

i	u	ĩ	ũ
e	o	ẽ	õ
	a		ã
ɛ	ɔ		
	ɑ		

Because of some instability in the orthography, it is possible to assume that [e], [o] did not occur in this position, and [i], [u] were represented by <e>, <o>, respectively. However, such instability can only be seen in some limited words and is not a common phenomenon. Thus it is reasonable to assume that it does not concern the vowel system.

## (b) final

It is even more difficult to decide the phonetic value of the unstressed, final vowels. The most plausible system that we could postulate would be

e	o	i	u
a	became	a	

That is, mid vowels were raised in the early 18th century. And later, the change  $i > \text{ə}$  took place only in continental Portuguese. This claim is partially supported by evidence from Japanese, in which Christian doctrine was transcribed in the syllabary towards the end of the 16th century. For instance, Portuguese words ending with <-e> or <-o> such as caridade 'charity', Cristo 'Christ' are consistently transcribed using /e/ or /o/ in the Japanese syllabary (karidaade, kirishito, respectively).

## (3) ou &gt; o

This change is assumed to have occurred in the 17th century in the central and southern part of the country. In the northern area (and in Galicia, too), speakers still use the diphthong [ou]. At the same time, some of the words experienced the change  $ou > oi$ . For example:

cousa : coisa	'thing'
louro : loiro	'blond (masc.)'
tesouro : tesoiro	'treasure'

However, it is only some of the words that have two forms, because the change did not apply to the whole lexical item. So the indicative, preterite, 3rd person, singular form of a verb whose infinitive ending is -ar, compro '3rd (sg.) bought', for example, was never affected by this change. The language also had the change  $ei > e$ , which is thought to have taken place in the late 18th century. This happened only in the southern part of the country and did not include the area from Lisboa (Lisbon) to Coimbra. Therefore to pronounce [ei] as [e] is regarded as being 'incorrect' and dialectal.

## (4) ea &gt; eia, eo &gt; eio

When /e/ was stressed in hiatus, there was an insertion of /i/ by vowel epenthesis, which probably took place in the middle of the 16th century.

crea (< creda) > creia	'that I believe (subj.)'
lea (< lega) > leia	'that I read (subj.)'
creo (< credo) > creio	'I believe'
leo (< lego) > leio	'I read'

## 2.4.2. Consonants

## (1) loss of the contrast between s and ś, z and ź

The system of the preceding period existed at least until the middle of the 16th century, because no confusion in the orthography could be discerned. But later the language started to lose the contrast between these two pairs of fricatives. In northern Portuguese, there still remains the 4-fricative system. After the loss of the contrast, the system was split into two parts. On the north (upper) side of the isogloss, ś-ź is kept and

on the south side, s-z is kept. The latter is considered to be the standard pronunciation. For example:

saber [s]	'to know by practice'
passo [s]	'step'
casa [z]	'house'

(2) contrast between b and v

At present, in the central and southern part of Portugal, /b/ has two different phonetic values, that is [b] and [β]. They are in complementary distribution. /v/ represents [v] and constitutes the different phoneme from /b/. Whereas in the northern part, both /b/ and /v/ represent [b], [β] and there is no contrast between the two phonemes. In the late 16th century, this confusion was regarded as a peculiar feature of the northern (Galician) speech and in standard Portuguese, speakers already distinguished /b/ from /v/.

(3) tʃ > ʃ

In Galego-Português, [tʃ] and [ʃ] were represented by <ch>, <x>, respectively. There was no orthographic confusion until the beginning or middle of the 17th century. The change from tʃ to ʃ is considered to have been completed by the early 18th century and ʃ has been the standard sound since then. Since the confusion started in the south and did not influence the northern (Galician) speech, [tʃ] can still be heard in those areas. The present distribution of these two sounds has remained almost the same.

Christian missionaries who went to Japan in the 16th and 17th centuries used both ch [tʃ] and x [ʃ]. When they transcribed Japanese words in the Roman alphabet, two symbols—ch and x—always had a different sound and there was a clear distinction. That is the reason why the change tʃ > ʃ serves to tell the phonetic values of Japanese in those days. When the missionaries wanted to transcribe the [ts](=[c]) sound which they had already lost, they invented the spelling of <tq>.

(4) s, z in syllable final position

In modern, standard, continental Portuguese (and Brazilian Portuguese spoken in Rio de Janeiro, especially), s, z are palato-alveolarized to [ʃ], [ʒ] when they occur at the end of the syllable.

três [ʃ]	'three'
todos [ʃ]	'all (pl., masc.)'
estar [ʃ]	'to be (temporary)'

The 15th and 16th centuries are an important period when Portuguese spread to Asia and Africa. The study of various types of Creole helps us to examine the phonetic value of Portuguese of this period. It is reported that Portuguese spoken in Africa has a lot more in common with that of Brazil, as both of them retain the conservative aspects which the language has already lost in Europe.

## 2.5. Período Moderno 2 (PM2)

PM2 started in the middle of the 18th century and has lasted to the present day. Most of the features which enable us to distinguish continental Portuguese from the

Brazilian counterpart are attributed to the phonological changes which took place in this period.

### 2.5.1. Vowels

(1) in stressed position:

i		u
e		o
	a	
ɛ		ɔ
	ɑ	

This system has not changed since PA2. However, there were some important changes in terms of the distribution of each sound.

(a) e > a

Until PM1, [e] could occur before palatals such as [ɲ], [ʃ], [ʒ], [ʎ]. It is not clear when [e] changed to [a] in this position, because it never affected the orthography. Probably this [a] sound had become popular around Lisbon by the end of the 19th century. Although speakers who use [a] in this position are the minority, it is regarded as being standard.

tenho [a]	'I have'
vejo [a]	'I see'
coelho [a]	'rabbit'

(b) ei > ai, ěi > ăi

These changes also started around Lisbon. The area where speakers use [ei], [ěi] is a lot wider but still it is considered to be standard to pronounce them [ai], [ăi].

tem 'to have (3rd., pers., sg., pl., pres.)', being pronounced [tãĩ], rhymes with mãe 'mother'.

(2) in pretonic position

(a) o > u

This change is thought to have occurred toward the late 18th century and by the end of the same century, [u] in this position had become a standard sound. According to Paul Teyssier (*Histoire de la langue portugaise*), Luís do Monte Carmelo pointed out in his *Compendio de Ortografia* (1767) that 'errors' had arisen in pronunciation such as cutovelo for cotovelo 'elbow', tucar for tocar 'to touch', xuver for chover 'to rain' and so forth. From this fact, we assume that [u] was becoming the popular pronunciation in the late 18th century.

(b) e > ə

The distribution of [ə] was quite unstable when it first appeared in the language. We cannot tell the origin of this sound from the orthography, because both [e] and [ə] were represented by <e> consistently. The assumption is that this [ə], which is peculiar to European Portuguese, began to exist in the late 18th century, and more specifically after 1750.

The pretonic vowel system is as follows:

i		u
	ə	
e		o
	a	
ɛ		ɔ
	ɑ	

(3) in unstressed, final position

Período Moderno 1			Período Moderno 2		
i		u			u
	a	became	ə		
			a		

In PM2, only [i] underwent change to [ə]. But even now, in southern Portugal or in Brazil, speakers still have [i] in this position. It is very likely that [ə] is deleted regardless of where it may appear. This phenomenon could possibly represent the beginnings of a new syllable structure.

### 2.5.2. Consonants

As for consonants, there was only one major change in this period.

In modern Portuguese, the alveolar trill is sometimes replaced by a uvular trill, or by a velar fricative. It is said that these sounds appeared somewhere around the late 19th century. Although [R], [x] are heard in Brazil, as well, it is unknown whether they are inherited from continental Portuguese or started on their own.

The reason why European Portuguese sounds are so different from their Brazilian counterparts is that almost none of the changes which took place in PM2 spread to Brazil, but remained inside Portugal. Brazilian Portuguese could be regarded as phonologically conservative in that it reflects the older form of continental Portuguese. However, we should never ignore the innovative aspects which the language in Brazil possesses.

## 3. FURTHER CONSIDERATIONS

As far as I am concerned, I would like to examine the Portuguese language more deeply in terms of (a) the phonetic differences between continental Portuguese and Brazilian or African Portuguese, (b) more detailed reconstruction of the older state of the language by examining Portuguese Creole spoken in Sri Lanka, Malacca, etc., (c) peripheral aspects common to Rumanian and Portuguese as the easternmost and westernmost outliers of Romance in Europe, if there are any, (d) comparison between Galician and Portuguese, (e) study of the values of 16th century Japanese by examining the transcription used in the Christian doctrine, and (f) Japanese spoken by those who first emigrated to Brazil and by their descendants.

## NOTES

- [1] I would like to thank my graduate committee members and WPLC editors for their careful reading of this paper.
- [2] The figure does not include the speakers who reside permanently abroad and non-native, cultural speakers.
- [3] This took place in the passage from Vulgar Latin to Galego-Português and so did the spirantization of intervocalic stops and their deletion except /b/.
- [4] This river is the border between the Islamic and the Christian power.
- [5] At the beginning of the 8th century, the Arabs attacked the Iberian Peninsula. Some of the inhabitants left for the north or the northwest mountainous area, some remained where they lived before and surrendered. There were also people who never gave up their religion and refused to convert to Islam. They are called moçárabe which literally means those who pretend to be Arabs. Moçárabe (Mozarabic) is romance spoken by the Christians in Arab territories. It is highly arabicised.

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