European Portuguese dialectal features: a comparison with Cintra's proposal

XOSÉ AFONSO ÁLVAREZ PÉREZ

Abstract

This article examines the distribution of the five linguistic features that were used by Luis F. Lindley Cintra (1971) to establish his widely accepted classification of Portuguese dialects. The main objective of this study is to assess the internal consistency of Cintra's proposal and its validity in modern Portuguese. The network of this analysis has 143 points in European Continental Portuguese and uses unpublished materials from the Atlas Linguístico-Etnográfico de Portugal e da Galiza. In order to produce a more accurate account, a new methodological approach is proposed: the utilization of a sizable corpus (194 questions and 20486 answers) and quantitative cartography yields a more dynamic picture of the dissemination of linguistic change and the vitality of dialectal features. The results of this analysis reveal several inconsistencies in Cintra's proposal that are not due to diachronic developments but to the limitations of traditional dialectology and opaque data selection. This article demonstrates that certain dialectal features are present, even today, in a wider area than has usually been attributed to them in dialectological literature. The maps obtained in this study also show the main areas of occurrence for each phenomenon; thus, it is possible to track the routes of linguistic change and to infer future developments.

1. Aims, methodology and materials

This article provides an overview of the dialectal distribution in European Portuguese of the five linguistic phenomena that the eminent philologist Luis F. Lindley Cintra used to establish his well-known *Nova proposta de classificação dos dialectos galego-portugueses* (Cintra, 1971), about which

***J*ournal of *P*ortuguese *L*inguistics, 13-1 (2014), 29-62** ISSN 1645-4537

more information is given in the next section. Our analysis has been carried out with more recent data and a quantitative approach; in this way, both the validity in modern Portuguese and the internal consistency of Cintra's proposal will be checked. As this proposal is widely accepted and diffused in Portuguese Linguistics, a critical review seems essential. However, this paper does not seek to propose a "reviewed classification" for Portuguese dialects. Cintra's contribution was very important in his time, but today a dialectal classification based only on certain phonetic characteristics is very questionable from a theoretical point of view. Further classifications should consider other linguistic disciplines and newer methodological approaches.

Adopting the same criteria as Cintra permits diachronic comparisons in Portuguese Dialectology. It is obvious that more modern materials may offer a different linguistic scene, because since Cintra's surveys, during the middle of the 20th century, society has undergone major changes (such as the increase of schooling or the penetration of mass media) that may favour the expansion of certain linguistic forms and thereby alter the dialectal map. It is also necessary to check the consistency of Cintra's proposal through analysis with greater number of tokens. A recent study (Álvarez Pérez & Saramago, 2012) has demonstrated that the network used by Cintra to establish his proposal is too sparse as to provide an accurate picture of dialectal variation in Portugal. Furthermore, as will be detailed later, this article has found some problems in Cintra's handling of data that raise doubts about the accuracy of his classification.

Another motivation for this article is the definition of a methodological proposal for the analysis of data and the presentation of results that is considered more reliable than traditional dialectology for observation of linguistic change and for providing an accurate picture of dialectal variation.

According to an adage in dialectology, each word has its own history. The same informant can produce in a different way the same phone that is placed in a similar position in two words (depending on the linguistic context, the semantic field, its etymology, connotations, etc.): as shown in section 5, the same person can pronounce an affricate for the first digraph of *chocalho* 'cowbell', but then utter *cheda* (a piece of the traditional cart) with a fricative sound. Thus, if a study chooses only one question as the basis for the distribution of a given phenomenon, it may reach false conclusions, because the selection of one or another question as representative dictates the areal extension of the feature in the resulting map.

In order to avoid a bias attributable to the choice of questions, the corpus that has been used in this study analyzes a large number of questions, including practically all the items in the questionnaire of the ALEPG that had relevant answers throughout most of Portugal. Altogether, the corpus is composed of 194 questions (see Table 1, annex) and tens of thousands of

answers.[1] Therefore, this methodology allows a quantitative approach that can assess the vitality of the phenomenon in each point, depending on the number of answers where the studied feature was present.

Obviously, this approach requires a cartographic system that allows representation of quantitative results. As can be observed in figure 1, the answers will be represented in polygon maps, which were created from the geographic location of each point of inquiry through a geometrical process known as Voronoi's tessellation. This process, commonly used in dialectometrical studies, groups into the same cell the "area of influence" of each point, this is, all the territory that is closer to that point than to another.

The corpus used in this article comes from unpublished materials of the *Atlas Linguístico-Etnográfico de Portugal e da Galiza* (ALEPG), currently being edited at the Centro de Linguística da Universidade de Lisboa; see Saramago (2006) for a more detailed description. The interviews for ALEPG have been conducted in two stages, the first between 1973 and 1984 (59 points, mainly in the south of Portugal) and the second between 1988 and 1997 (84 points). The ALEPG follows the patterns established by classical dialectology. Its questionnaire examines above all semantic fields of ethnographical pertinence (agriculture, animals and vegetation, craft, human body, mill, etc.). Within each point, the ALEPG selected a main informant, who usually fits the classical requirements in traditional dialectology (over 50 years old, a short period of schooling, etc.). In many cases further informants were selected, either to provide information about specific semantic fields (craft, mill, fauna, etc.) or as a complementary informant during the whole interview; these secondary informants may not always fulfil the aforementioned requirements. As is apparent from this, the ALEPG's approach is not sociolinguistic. Classical dialectology preferred older informants and ethnographic content because of their usefulness for retrieving linguistic data not influenced by urban life or centres of prestige,

[1] Obviously, the procedure disregards all answers that do not contain a relevant context for the analysis of the linguistic features selected for the study. For example, in the question 1251.1 of the ALEPG (*chouriço* 'chorizo') answers such as *linguiça* will be deleted, because they are not pertinent for the study of the realization of digraph *ch* as an affricate or post-alveolar fricative. It is impossible to quantify the exact number of items that were analysed because the final table used in the calculation procedures did not counted the many variants due to alternations between informants; nevertheless, these variants were taken into account to calculate the percentages of realization (see the final paragraph of this section). Therefore, all figures for the number of answers in the corpus represent only the sum of the number of points in the network that provided one or more results for each question. Finally, except when indicated otherwise, all the values about the number of answers in the corpus, the rate of occurrence of dialectal phenomena, vitality percentages, etc. refer only to Portuguese-speaking area; the 4 Astur-Leonese points have been excluded from this count.

and also to preserve a traditional world threatened by important changes in the lifestyles of European societies.

The interviews for the ALEPG were audio-recorded and the transcription for each point is made later by members of the same fieldwork team, with ample experience in dialectological work. Therefore, the quality of the linguistic treatment of the data is high, and the risk of discrepancies between the transcribers and interference with their own idiolect is low.

It has not been possible to include all 176 points of the ALEPG located in mainland Portugal, since some interviews are still being transcribed by the survey team. However, the network is still represented by 143 points (fig. 2), a substantial number that is almost twice the number of interviews conducted by Cintra in the framework of the *Atlas Lingüístico de la Península Ibérica*, the main source for his dialectological publications.

Four of these points belong to the Astur-Leonese linguistic domain, located in two discontinuous areas in the northeast of Portugal. These are the following points of ALEPG: Bragança-1 (Rio de Onor), Bragança-2 (Guadramil), Bragança-3 (Constantim) and Bragança-5 (Duas Igrejas). Their inclusion will allow a comparative analysis between this area and Portuguese linguistic territory; as shown throughout this article, various features exhibit quite different patterns of distribution, but also some convergences. In any case, the Astur-Leonese area is indicated by a broken line on the maps, so the reader who is not interested in these data can easily disregard them.

It is common for certain linguistic characteristics to be given by one informant but not by another in the same locality. Moreover, multiple variants may be produced by the same informant in response to the same question. All these fluctuations are obvious indicators of ongoing linguistic change, in some cases resulting from the confluence of the dialectal system and the standard language, which comes about through school, contact with individuals with an idiolect close to the standard (for example, newcomers and/or educated people, such as the priest, the teacher, pharmacist, etc.) or, more recently, the mass media. Sometimes, this circumstance is explicitly mentioned in metalinguistic statements during the interview, as in Martins, Segura & Andrade (2003: 265):

INQUIRIDOR1: Eu não quero que ela...

INFORMANTE: Vá [va]

INQUIRIDOR1: Portanto, eu posso dizer assim: “Olha tu vais ali, mas depois tens que cá...”

INFORMANTE: Vir [v'iri].

INQUIRIDOR2: Mas não é assim que a senhora diz habitualmente, a senhora diz: “Eu quero que ela [ba], não diz [va]”

INFORMANTE: Não! [ba]! (Risos). Mas eu muitas vezes digo com as letras! (Risos) Eu às vezes digo com as letras e outras vezes digo sem

> as letras, porque eu sei escrever e depois já se quiser dizer com as letras... eu sei as letras...[2]

These alternations must be taken into account in the collection and analysis of data because they are relevant for the study of particular variables. Obviously, the degree of vitality of a linguistic characteristic at a given point is different when all the informants systematically produce it in their responses, as opposed to when there are discrepancies among informants or even for the same informant. Thus, in the corpus all the answers collected have the same weight, regardless of the informant. An example will illustrate the method. In the point Aveiro-5 (Covo), the answers collected for the question 0847 of the ALEPG (*couve* 'cabbage') for which all the informants replied with the lexical type *couve*, were as follows: informant 1 provided with two responses, both with a bilabial [β]; informant 2 did not answer; informant 3 alternated, with one response containing [β], but another response employing the labiodental phone, [v]; informant 4 had only one response, with [β]. Hence, at this point 5 forms were collected, and 4 of them contained bilabial forms; as a result, the percentage of vitality of the non-distinction between /b/ and /v/ assigned to question 0847 at this point will be 80%.

2. Cintra's dialectal classification

Luis F. Lindley Cintra (1925-1991) is, without any doubt, one of the most recognised Portuguese philologists, not only because of his own works, but also because of his training of several generations of researchers and the conception and execution of several initiatives and projects, such as the *Atlas Linguístico-Etnográfico de Portugal e da Galiza*, which provides material for this article. In issue XXII of the *Boletim de Filologia*, under his own direction, he published the article *Nova proposta de classificação dos dialectos galego-portugueses* (Cintra, 1971), which would turn, in the successive years, into a reference work in Portuguese dialectological studies.

As Cintra declares in the first pages of the text, his intention was to create a simple classification, based in a reduced number of criteria that were perceived as representative by the linguistic community. Therefore, he selected only five phonetic-phonological features, whose isophones are

[2] Translation: INTERVIEWER1: I do not want her to ... // INFORMANT: Go [va]// INTERVIEWER1: Therefore, I can say: "Look, you go there, but then you must ..." // INFORMANT: Come [v'iri] // INTERVIEWER2: But you don't usually say in this way, you say: "I want her to go [ba]", you don't say "go [va]" // INFORMANT: No! [ba]! (Laughs). But I often speak according to the letters! (Laughs) I sometimes speak like the letters, and other times I speak without the letters, because I can write and then, if I want to speak like the letters... I know the letters".

shown in figure 3. The combination and superposition of the areas where these phenomena were present allowed him to propose a bipartite classification of Portuguese dialects (fig. 4): northern Portuguese (*português setentrional*) and central-southern Portuguese (*português centro-meridional*), each of them also divided in two groups of dialects. Cintra also introduced a sixth criterion (absence of voiced fricatives) in order to separate Galician from Portuguese and he divided Galician into two groups of dialects (occidental and oriental), according to the existence of *gheada*, i.e., absence of the voiced velar occlusive or fricative /g/ and presence of some type of aspiration, a glottal, pharyngeal, uvular or velar fricative. However, this article focuses only on Portuguese dialects, because the inclusion of Galician will increase excessively the dimensions of the paper and would not be peaceful from a theoretical approach.[3]

Cintra (1971: 82) names two sources for the materials he used to establish the classification: the six dialectal surveys made with his students between 1962 and 1968 and the notes he took during his inquiries for the *Atlas Lingüístico de la Península Ibérica* (ALPI). The ALPI enquiries began in the 1930s. The coverage of Portuguese points was assigned to the Galician Aníbal Otero Álvarez and to the Portuguese Armando Nobre de Gusmão (substitute of Rodrigo de Sá Nogueira). However, the Spanish Civil War interrupted the fieldwork after only a few interviews had been completed. Because of various problems, the interviews were not resumed until 1953. By then, Gusmão was not able to participate because of health problems, so a new collaborator had to be chosen. This person was Cintra, who had already spent some time in Madrid working under the supervision of Menéndez Pidal, the founder of the ALPI. Over the next two years, Cintra and Otero explored 77 points throughout Portugal. Their relationship was neither easy nor peaceful. Otero complained frequently about Cintra's work, reproaching him for a lack of accuracy in phonetic transcriptions and a poor choice of informants, which included some persons who had travelled and/or were influenced by the standard language.[4]

Moreover, Cintra is not very transparent about his sources or materials, and as it will be explained in this article, this is not a petty oversight. More

[3] More information about relationship between modern Galician and Portuguese can be found in BILEGA, which contains more than 300 works under the thematic code 1311 (*Galician and Portuguese*), and in Álvarez Pérez (2013). Two recent studies that compare Galician and Portuguese dialectal data are Dubert & Sousa (2002) and Álvarez Pérez (2010).

[4] During the last decade, quite a lot of works about this aborted dialectal enterprise (only one volume was published, in 1962, but now the Consejo Superior de Investigaciones Científicas is working in a digital edition) have been published. Some studies that specifically examine the execution of Portuguese surveys and the role of Cintra in the project are: Cortés Carreres & García Perales (2009), Pedrazuela (2005) and Ricós (2007).

specifically, we are unable to determine the exact dimensions of his network, the points for interviews, the weight he attributed to ALPI's materials and to the dialectal surveys with students and, last but not least, which specific questions he took into account to trace the isoglosses that delimit his dialectal areas.

3. First feature: absence of phonological distinction between /b/ and /v/

This phenomenon, colloquially designated as *troca do v pelo b* (exchange of *v* for *b*), consists of the absence of a phonological distinction between /b/ and /v/, in favour of the first, which is produced, depending of the context, as occlusive [b] or fricative [β]. Thus, a large part of Portugal lacks a phoneme that is part of the inventory of Standard Portuguese, which distinguishes 2 phonemes and assigns them different letters in its orthography: on the one hand, *vaca* 'cow' and *cavalo* 'horse' (/v/), and on the other hand *boi* 'ox' or *receber* 'to receive' (/b/). The diachronic evolution of the labials since Romanization and their spatial distribution across history is a complicated question that has not been free of polemic. In fact, while the formulation given by Cintra suggests that this area *exchanged* /v/ for /b/, some scholars doubt that /v/ ever existed in northern Ibero-romance or restrict it to very specific contexts, such as the voicing of Latin intervocalic –F– (PROFECTU > *proveito*). More information on this subject can be obtained in Lloyd (1993: 382-383), Maia (1986: 472-485), Mariño (2008: 88-89), Pinto (1980) or Riiho (1994).

In order to examine the distribution of this phenomenon, 27 items from the questionnaire of the ALEPG were selected. They include questions eliciting items such as *vindima* 'grape harvest' (ALEPG-957), *carvalho* 'oak tree' (ALEPG-185) or *couve* 'cabbage' (ALEPG-847), whose more common answers contain, in standard and southern Portuguese, a labiodental phoneme /v/ in initial (4) or intermediate position (23). Altogether, 3171 usable answers were obtained, and 39.31% of them contained a bilabial sound, either [b] or [β].

Figure 5 shows the territorial distribution of this feature. Although it is present across a wide area of Portugal (67.63% of points in our network lacked this opposition to some degree), its vitality is uneven. Only in northern regions are there points with systematic neutralization; in fact, only 7 points (4 of them in the Astur-Leonese area) have 100% bilabial results and only 16 localities surpass 90%. The average rate of realization with some bilabial forms over all the points is 56.05%.

An examination of the map reveals important discrepancies with the area delimited by Cintra (marked in fig. 5 with a continuous black line). Instead of diachronic changes, these differences seem to represent deficiencies in Cintra's proposal, as will be explained in following paragraphs. The first

anomaly, easily observable in the map, is that bilabial realizations occur in an area twice as large as that Cintra assigned in his map. Admittedly, many of these points exhibit a percentage of less than 10% and some of them could be explained as sporadic cases of betacism. However, almost all these localities show a clear areal continuity with the zone that still has a predominantly bilabial realization today; therefore, this geolinguistic distribution suggests that they are the remains of a formerly wider area where the labiodental phoneme did not exist and which has not yet totally disappeared in favour of the system with two elements, reinforced by Standard Portuguese. This continuity of ancient traits is not a new discovery. The aforementioned Álvarez Pérez & Saramago (2012) showed the persistence in the centre and south of Portugal of some old lexical items (e.g. *cordeiro* 'lamb'*, úbere* 'udder') that Cintra (1962) considered to have already disappeared in these areas.

Taking into consideration only points with upper percentages, there are still two significant anomalies. The area with bilabial forms extends along the Portuguese coast beyond the district of Coimbra, the southern area in Cintra's proposal. Segura (2003: 182) had already noted this discrepancy: «este fenómeno ocorre igualmente numa ilhota a norte de Lisboa, perto do litoral, não representada no mapa» [This phenomenon is also found in a small island to the north of Lisbon, close to the coast, which does not appear on the map]. However, fig. 5 shows a larger area that furthermore is not a linguistic island. It does not seem the result of recent expansion, because at least point 272 of the ALPI (Sobreiro, municipality of Mafra) – which was researched by Cintra and Otero in November of 1954 and consequently would be part of his network for the proposal – systematically shows bilabial results in all the five maps published in 1962 that contain relevant information for this phenomenon: map 8, *avô* 'grandfather'; map 17, *árvores* 'trees'; map 29 *cavalo* 'horse'; map 48 *cravo* 'nail'; map 67 *dívida* 'debt'.

Another anomaly consists in the omission of an extensive area of bilabial results in the eastern half of Portugal, in the districts of Guarda, Castelo Branco and Portalegre. As with the previous anomaly, it is hard to determine why Cintra did not include this island, since point 233 of the ALPI (Aldeia do Bispo, municipality of Sabugal, contiguous to the border with Spain), surveyed in September of 1953, always showed bilabial realizations in the five maps of the ALPI previously referred to. It is noteworthy that, almost half a century later, the locality of Fóios (distant only 5 km from Aldeia do Bispo and covered for the ALEPG in 1996), showed 71.43% bilabial results, as shown in figure 5.

Finally, it seemed appropriate to check if the distribution of the phenomenon is affected by the position of the labial consonant, at the beginning or in the interior of a word. Thus, two maps were created according to the context (figures 6 and 7). The differences are remarkable, in both vitality and territorial extension. Regarding the initial placement, the questionnaire of ALEPG contained little information, so only 4 answers were

taken into account (a number so low that it is not possible to exclude some bias in statistical calculations), with 533 answers, and 31.29% of them had bilabial consonants. 67 points of the network showed bilabial forms and the average percentage of realization in this area reaches 64.52%. Regarding medial position, the corpus comprised 23 questions with 2638 answers, 39.09% of them with bilabial consonants. The extension is notably higher, 93 points, but the average percentage is only 57'96%; this lower value is due to the great number of points with low percentages, under 20%, in medial position (see figure 7).

4. Second feature: apical realization of voiced and voiceless alveolar fricatives

The consonantal system of archaic Portuguese distinguished four sibilants: two with apico-alveolar realization ([s̺] and [z̺]) and other two with laminal articulation ([s] and [z]). Each of them has different etymological origins and specific representation in standard Portuguese orthography. Roughly speaking, *s-* in initial position and intervocalic *-ss-* are pronounced as [s̺]; they come essentially from Latin initial S- (SALE > *sal*), Latin intervocalic geminate -SS- (PASSU > *passo*) and, less frequently, from consonantal groups as -KS- (DIXI > *disse*) or -RS- (PERSICU > *pêssego*). Intervocalic *–s–* is assigned to the voiced correlate of previous phone, [z̺], which usually comes from Latin intervocalic -S- (CAUSA > *coisa*). Regarding laminal sibilants, the situation is more complicated, because there were processes of affrication and also loss of affrication, as well as different evolutions depending on phonetic and accentual contexts. *C* before *e*/*i* and *ç* before *a/o/u* are the graphemes that represent [s]; this sound comes mainly from the Latin sequences CE and CI (CENTU > *cento*, *CINQUE > *cinco*, FACIO > *faço*) or TI (PALATIU > *paço*, *CAPTIARE > *caçar*), usually in initial or atonal position. Its voiced correspondent, [z], is represented by *z* in standard Portuguese; it comes from the aforementioned groups in other phonetic contexts (RATIONE > *razão*, PRETIARE > *prezar*, FACERE > *fazer*). More information on the historical evolution of sibilants in Portuguese can be obtained in Maia (1986: 446-468, 503-507), Martins & Saramago (1993) or Riiho (1994).

Currently, three different systems of sibilants survive in Portuguese. The conservative system keeps the aforementioned distinction of four elements. It is found in norther and northwester Portugal, in the group of dialects that Cintra called *Transmontanos* and *Alto-Minhotos* (fig. 4). The other two systems have reduced the opposition of four elements in favour on one of the two articulatory positions, apical or laminal: the other groups of northern dialects, denoted by Cintra as *Baixo-Minhotos, Durienses* and *Beirões*, kept only the apico-alveolar branch; on the other hand, the rest of Portugal (as well as standard Portuguese) neutralised the opposition in favour of laminal

sibilants, consolidating a process that originated in the last years of the 16th century (Segura, 2003: 189-190).

Lindley Cintra placed great importance in dialectological terms on the apical realization of sibilants, to such a degree that in his proposal the isophone that marks the southern limit of apico-alveolar sibilants is also the line that establishes the great division in Portuguese varieties between northern groups and centre-southern ones. Even though Cintra's proposal (fig. 3) includes only the southern isophone, this article will propose a division in two sections, according to the orthography and etymology of each word, in order to analyse the validity of the distinction in two groups areas within the northern dialects (Cintra's dividing line, shown in fig. 4, is represented in this article with a discontinuous black line).

4.1. First group of questions

The first group is composed by 37 items of the questionnaire of the ALEPG whose usual answers contain *s-*, *-ss-* or *-s-* graphemes in standard Portuguese, like *semente* 'seed' (ALEPG-719), *pássaro* 'bird' (ALEPG-233) or *casa* 'house' (ALEPG-1513). According to Cintra's classification, these sibilants should be realized as apical in all northern dialects. Our corpus comprised 4099 relevant responses over the whole Portuguese-speaking territory and 30.97% had apical realizations.

Regarding territorial extension (fig. 8), there is a strong correspondence with the area delimited by Cintra. There are slight discrepancies in the coastal area (the area with laminal sibilants is larger in ALEPG network than in Cintra's study), but perhaps the most striking divergence is the existence of two points in inland area with no apical sibilants, Arcos de Valdevez (Viana do Castelo-8)[5] and Roalde (Vila Real-8), both surveyed in 1996. In this case, the published volume of the ALPI does not help very much because there are only two maps that can help to elucidate this phenomenon. However, they raise some suspicions about the accuracy of Cintra's proposal because those two maps (18-*asa* 'handle' and 38-*causa* 'cause') confirm the extension of the littoral region with no apical sibilants and also showed some points with laminal forms in the interior of Portugal. In any case, it is also true that some points in this area were surveyed by Otero and Gusmão before the war, so Cintra would have no direct information about them; however, he could have checked with the maps of the ALPI.

The vitality of the phenomenon is different in the two groups of dialects. There is a clear-cut core placed in the districts of Viseu, Guarda and Castelo

[5] It must be explained that even though Arcos de Valdevez had no apical sibilants in our corpus, an annotation in the questionnaire states that one informant produced plural morphemes with apical consonants and also that other informants had certain peculiarities in their laminal realizations.

Branco where the realization is almost systematic: 6 points have 100% apical forms and another 12 points, almost all contiguous, fall into the 90.01-99% interval. However, in the area of the so-called *Alto-Minhotos* and *Transmontanos* dialects, only 2 points approach to these values (with 90.63% and 90.28%, respectively). Across the whole area, the average of the percentages obtained in the 62 points that showed some apical forms is the highest for all the phenomena studied in this article: 72.06%.

Finally, figures 9 and 10 show the distribution according to the position of the sibilant in the word. In this analysis, the situation is similar, with slightly higher values in medial position. For initial position, 18 questions were examined, yielding a total of 2016 answers, and 30.48% of them contained apical sibilants. 57 points of the network show apical consonants in this context, and the average rate of apical realization was 71.57%; only 8 points reached the 100% apical realization. With regard to medial position, 17 questions were examined, providing 2083 answers, and 31.46% of them contained apico-alveolar fricatives. In addition, 57 points in the network (not always the same points as for initial position) showed apical sibilants, with an average realization of 74.74%. 13 points showed 100% apical realization.

4.2. Second group of questions

The second group comprises 40 questions that contain *c*, *ç* or *z* in the spelling of standard Portuguese, such as *cebola* 'onion' (ALEPG-870), *nabiça* 'turnip greens' (ALEPG-874) or *azeite* 'olive oil' (ALEPG-988). According to Cintra's proposal, the sibilants contained in these words should be articulated as laminal in the far northern dialects (*Alto-Minhotos* and *Transmontanos*), north of the dotted line in our maps, where the original system with four elements is still preserved. However, in the other northern dialects (*Baixo--Minhotos, Durienses* and *Beirões*), lying between the continuous and dotted lines, they should be pronounced as apical, because these groups of dialects have neutralised the opposition in favour of apico-alveolar forms.

The 40 questions included in the corpus provided 4119 relevant answers, and only 15.36% of them showed apical realization. Figure 11 shows the distribution of the phenomenon and its vitality. The pattern on the map raises many questions and three main issues will be discussed in the following paragraphs.

The first observation is that none of the points reaches 100% of apical realization. Nevertheless, it is possible to discern a well-defined core in the interior of Portugal (essentially, the districts of Viseu, Guarda and Castelo Branco, the same area as that noted in the previous section, but with less vitality) that have percentages above 90%; the values steadily diminish as one approaches the coastal area, which has no apical sibilants at all. The different vitality of the variables discussed here and in section 4.1 is evident when one notes the average realization: 44.50% and 72.06%, respectively.

There is a coastal zone without any apical forms, extending roughly from the estuary of the River Minho to the mouth of the River Douro, and contiguous inland points show quite low values. Cintra (1971: 106) had written that «ao norte do Douro, especialmente na costa minhota e galega, e no interior de Trás-os-Montes, [existem] certas ilhotas (ou mesmo zonas de alguma extensão) de *s* de tipo predorsodental», but that area was quite small on his map (fig. 3) in comparison with the results from the ALEPG. As in previous cases, it does not seem to be a diachronic change, but a deficiency in the data utilized by Cintra, since a comparison with published maps of ALPI corroborates the distribution shown in fig. 11. It must be remembered, in any case, that Cintra had limited experience with this area because he only conducted interviews at points 206 and 208 of the ALPI, whereas the other points in this region (ALPI 202, 203, 207, 212 and 213) were covered by Otero and Gusmão before Spanish civil war.

A very noteworthy finding is the existence of areas with apical realizations inside the territory of *Alto-Minhotos* and *Transmontanos* dialects, which should not have these consonants in this group of words according to Cintra's proposal. Nevertheless, in the 24 points of the network of the ALEPG located in that area (in this case, the Astur-Leonese area is included, because there are no major differences in its linguistic behaviour for this feature), 15 of them have apical consonants to some degree. Nevertheless, these percentages are usually low: the highest, Sambade (Bragança-7), surveyed in 1996, shows only 21.15% apical realizations. In any case, the existence of apical sibilants in these localities raises interesting questions. Could it be a relic of previous linguistic stages when apical consonants may have occurred throughout that territory? The published volumes of ALPI do not provide enough evidence to support this assertion, although there are sporadic apical forms in this area, as in map 47-*cinco* 'five' in point 222 (Rebordãos, municipality of Bragança), surveyed by Cintra and Otero in July of 1954. Another possibility is the existence of a process of reduction of the original system with 4 elements to a simpler one with 2 apico-alveolar voiced and voiceless phonemes, as happened in the other northern dialects.

Finally, figures 12 and 13 represent the distribution of apical sibilants according to their position in a word. As happened with bilabial consonants (see section 3), patterns are different in two positions, in terms of both territorial distribution and vitality. Regarding the word-initial context, 11 questions were considered, providing 1231 answers, of which 15.01% exhibited an apical consonant. 37 points of the network featured apical sibilants in this context, and the average percentage of apical forms was 62.28%; about a fifth of the points, 7, showed 100% apical results. The corpus in medial position comprised 29 questions, which provided 2887 answers, 15.85% of them with presence of the studied feature. 62 points of the network contained apical sibilants in some degree, and the average

realization is substantially inferior, only 46.45%, and only one point reached 100% apical realization.

5. Existence of a voiceless post-alveolar affricate: [tʃ]

Classical and mediaeval Portuguese systematically distinguished between a voiceless post-alveolar fricative consonant [ʃ] – the result of certain developments from Latin and quite rare in Portuguese – and a voiceless post--alveolar affricate [tʃ], with extensive occurrence in the language, which was usually the result of the evolution of Latin groups PL, CL and FL in syllable--initial position. This distinction still exists in standard Portuguese orthography, which assigns *x* to the first elements (*enxada* 'hoe'< *ASCIATA) and *ch* to the second ones (*chave* 'key'< CLAVE). From the last years of 17th century, grammarians reported frequent confusion and hypercorrection between those two types. Those phenomena demonstrated the existence of a process of loss of affrication in [tʃ] that finally resulted in merger with the *original* palatal fricative over a large part of Portugal. According to some researchers, this innovation arose in southern Portugal, and Lisbon played an important role in his diffusion (Castro, 1991: 31-32; Segura, 2003: 190). Currently, the affricate pronunciation is one of the more socially stigmatised dialectal features socially (Ferreira, Carrilho, Lobo, Saramago & Cruz, 1996: 492-493). More information about the distribution of this feature in recent history can be obtained in Pinto (1981).

In order to study the present distribution of affricate pronunciation, a corpus has been selected that is composed of 40 questions of ALEPG whose more frequent answers would have etymologically an affricate realization: *chuva* 'rain' (ALEPG-27), *chorar* 'cry' (ALEPG-668), *machado* 'axe' (ALEPG-1112), etc. This corpus provided 3659 relevant answers, only 11.28% of which had affricate realizations. Figure 14 shows the geographical distribution of the phenomenon. Its extension is similar to the area in which apical sibilants are found; however, its vitality is much lower, not even a third of the total. While 41% of the points of the network have some affricate consonants, the average realization in these points is only 28.70%, the lowest by far of all the phenomena that are studied in this article. In fact, there is systematic realization of the affricate only in the Astur-Leonese area, where 3 of its 4 points exceed 94% of events. Regarding the Portuguese area, only one point (Gagos, in the municipality of Celorico de Basto, district of Braganza, surveyed in 1996) exceeds 85% of tokens. Another 5 points fall between 60 and 80%, and the rest of the network falls below this threshold.

The distribution of the phenomenon in the ALEPG network resembles the map designed by Cintra decades ago, although there are some discrepancies in the delimitation of forms, sometimes with wider distribution of the affricate, and sometimes with broader distribution for the fricative. In any

case, the edited volume of the ALPI does not contain any map that can help in qualifying these discordances, so it is not possible to discount the possibility that they could be diachronic changes (but, at the same time, it would be strange that such a stigmatised feature as the affricate realization could spread in recent years).

As in previous cases, two maps have been created according to the position of the affricate consonant in the word. For the initial position (fig. 15), the corpus contained 19 questions, yielding 1592 answers, with only 10.12% produced as affricates. 54 points of the network contained a post--alveolar affricate in this context, and the average percentage of occurrence was 26.46%. For medial position (fig. 16), the corpus had 21 questions, which provided 2067 relevant answers, 12.18% of them with affricate. 54 points in the network showed some incidence of affricates, but the average percentage is quite high, at 33.64%. Therefore, affricate forms show greater occurrence in medial position, and, moreover, fig. 16 shows that in this context it has also a more clearly-defined region of occurrence, in the north--eastern part of the Portuguese linguistic domain, with some extension into the Astur-Leonese area.

6. Permanence of diphthong *ou*

The two last features considered by Cintra in determining his dialectal classification are related to the monophthongization of two diphthongs.

One of the phenomena included in his map (fig. 3) is the conservation or loss of the diphthong that is represented *ou* in the orthography of standard Portuguese and is usually pronounced as [o̯u̯] or [a̯u̯]. According to Teyssier (1982: 52-53), from the 17th century, an innovation that would spread through a large part of the territory began in southern Portugal: the monophthongization to [o]. The diphthong *ou* also undergoes a marked process of alternation with diphthong *oi* (*couro/coiro* 'leather'; *touro/toiro* 'bull', etc.). This article will not examine this development, so only responses with diphthong [o̯u̯]/[a̯u̯] or monophthong [o] will be considered in calculations and analysis.

The corpus includes 18 questions – such as *couve* 'cabbage' (ALEPG--847), *ouriço* 'chestnut bur' (ALEPG-933) or *rouxinol* 'nightingale' (ALEPG-246) – that have provided 1954 answers, 27.12% of them exhibiting preservation of the diphthong. There were insufficient questions with diphthongs in initial position to create separate maps for each context.

Figure 17 shows the territory where diphthong *ou* is still present. As with the affricate fricative (see section 5), only the Astur-Leonese linguistic area contains points with 100% diphthongal responses, though they appear in only two of the four points within that region. Inside the Portuguese area, only 4 points show over 90% diphthongs. Just over half of the points in the network

(53.96%) preserve the diphthong to some degree and the average percentage for those points is 50.05%.

The spatial distribution in the ALEPG network shows significant discrepancies with Cintra's proposal. The isophone that the Portuguese philologist traced in his map marked the supposed southern limit of the area that still preserved the diphthong. However, figure 17 reveals that, south of that line, there are about 30 points where *ou* is still present, in some cases with surprisingly high percentages, including two non-adjacent points that show rates of 56.66% and 40.90%.

These findings raise suspicions about the accuracy of Cintra's proposal. It is true that he pointed out an island with preservation of the diphthong in the district of Leiria, around point 257 of ALPI (Mendiga, municipality of Porto de Mós), but in our map this area is larger and placed more to the northeast. In addition, the few data available in the published volume of the ALPI reveal the existence of diphthongs outside the area delimited by Cintra. For example, map 51 *coice/couce* 'kick' has a diphthong in the point 230 (Quinta Nova, municipality of Pinhel), that Cintra did not include in his map, despite his having surveyed this point in October 1953.

The existence of these islands in previous surveys suggests that we are not dealing with a recent innovation. On the contrary, at least in some cases, those would be zones that have not still adopted totally the linguistic innovation propagated from the southern territory. The process of linguistic change is more readily observable in this article because the corpus contains a great number of questions, making it possible to sharpen the boundaries and define the rates of occurrence in a more precise way. A similar analysis with the ALPI data will be undertaken in another paper, in order to outline the situation half a century ago and track diachronic variation.

7. Permanence of diphthong *ei*

The last variable considered by Cintra in his proposal was the preservation of diphthong *ei* (both in the formal realization [e̯i̯] and in the popular variant [ɐ̯i̯]), in contrast to a tendency toward monophthongization to [e] in southern areas; monophthongization has not been incorporated yet into the orthophony of standard Portuguese.

As in previous cases, Cintra does not inform the reader about the materials he took into consideration to trace the isogloss. This is not a trivial question, because synchronic diphthongal *ei* can be derived from quite disparate sources[6] and these different origins can have significant effects on

[6] The two historical processes that were responsible for most cases of diphthongal *ei* were the creation of diphthongs through the incorporation of a yod derived from

the territorial distribution of monophthongization. It is possible to demonstrate this fact by contrasting three maps published in the first volume of the ALPI.

The map 43-*cereja* 'cherry' (<*CERESĬA) shows 11 points with preservation of the diphthong south of Cintra's isogloss, and two of them, which were surveyed by Cintra himself, are located in the extreme south of Portugal, far from the area he showed in his maps. The map 64-*direita* 'right' (<DIRECTA) contains still more discrepancies, as it shows 21 points with diphthongal *ei* south of the line traced by Cintra; the Portuguese philologist himself was the surveyor in nine of these localities, so it is strange that these occurrences went unnoticed. Finally, the map 75-*eixo* 'axle' (< *AXU) corresponds better to Cintra's proposal, but it still has 6 additional points with diphthongs, four of which were surveyed with the participation of Cintra.

As a systematic differentiation by etymology would far exceed the scope of this article, and as Cintra's specific source materials remain unknown, the corpus used for the analysis contains 32 questions that include the diphthong *ei* in many contexts and with diverse origins, such as *azeite* 'olive oil' (ALEPG-988), *ceifa* 'harvesting' (ALEPG-753) or *eixo* 'axle' (ALEPG-817). These questions provided 3049 answers, and more than half (56.59%) preserved the diphthong.

Figure 18 shows the spatial distribution of the phenomenon. The first thing that strikes the observer is that its pattern of distribution is completely different from those of the other phenomena examined in this article. All of northern Portugal (delimited by a diagonal line quite close to Cintra's isogloss: it passes through the northern boundary of the district of Castelo Branco, crosses north-western Santarém and finally ends in the sea near Peniche) exhibits systematic realization of diphthongal *ei*, always with percentages above 90% except for three points that form a small dialectal island in the districts of Braga and Viana do Castelo, where the percentages decrease slightly (76.78%, 83.75% and 88.88%). South of Cintra's isophone, there are about 30 points that also preserve the diphthong, but with much less vitality, as only 3 of these localities exceed 50% of realizations. This division into two areas is the reason behind the low vitality: the average of percentages in all the points that retain diphthongal *ei* is 57.27%, similar to the value obtained for diphthongal *ou* and considerably greater than that of the first group of apical sibilants.

Finally, it must be stated that the monophthongization of *ei* is not as extensive as Cintra's proposal might lead one to think. In fact, only 8 of the 143 points in the total network show categorical monophthongization.

---

vocalisation in Latin consonantal groups (DIRECTU > *direito*) and metathesis of yod in the frequent ending –ARIU/ARIA (PRIMARIU > *primeiro*; RIPARIA > *ribeira*).

Although the percentages of the points situated south of Cintra's isophone are usually low, there are some exceptions, and, amongst them, the point Faro-3 of the network of the ALEPG stands out; this locality (Fuseta, municipality of Olhão, in the Algarve, at the very south of Portugal) has 80% of responses with diphthongal *ei*, a remarkable value distinctly higher than to the expected percentage in that area. This fact demonstrates that the innovation has not gone to completion even in the most southerly areas.

8. Conclusions

The methods of analysis used in this article have allowed us to discern a linguistic situation that is much less static than that usually depicted by traditional dialectological studies. Authors of these works tended to posit "binary" isoglosses, which separate an area where a certain phenomenon is documented from another one where it is not. However, as newer approaches show, the linguistic situation is more complex, with gradual evolution and many conservative islands, to a greater or lesser degree, along the postulated border. Linguistic change is an active and dynamic process, so it is normal for different choices to exist simultaneously, not only at the same location, but even for the same informant.

In particular, drawing a *representative isogloss* for a given phenomenon has proven an impossible task because each word has its own history determined by its etymology, membership in a given semantic field, connotation in the community, phonetic context, etc. All these circumstances may condition the speaker's choice and cause a certain phonetic phenomenon, for example, to occur in one word but not in another. To account for this variability, this article employs a large corpus that includes numerous questions for each phenomenon, facilitating the determination of dialectal boundaries with greater exhaustiveness and precision.

The *Nova proposta de classificação dos dialectos galego-portugueses* is beset with many problems that lead one to doubt the accuracy of its view of Portuguese dialectal boundaries. The great many discrepancies between Cintra's data and the maps of the first and only volume of ALPI is worrying. Cintra would have had no access to the questionnaires, which remained under the control of the editors of the ALPI, so he must have used personal notes, probably written during the surveys. However, when the Portuguese philologist published his article (1971), the peninsular atlas had already been published (1962), yet his proposal makes no mention of the discrepancies between the maps of the ALPI and his notes, especially regarding the territorial extension of the convergence area of /b/ and /v/ and the zones where the diphthongs *ou* or *ei* are maintained. These discrepancies may have stemmed from a decision by Cintra to rely on just one question to trace each isophone and also, obviously, to the classical approach which lacks a

quantitative perspective. However, it is impossible to prove this hypothesis since he never discusses in detail the materials used for his proposal.

The five variables examined in this article show very different distribution patterns and notable variation in their vitality, as summarized in Table 2. Without a doubt, the feature that is most endangered is the affricate post-alveolar consonant, [tʃ]. Its territorial extension is still broad, covering about a third of the European Portuguese mainland territory, but its vitality within this area is very low, with an average percentage of realization of 32.85%, and only 6 points above 60%. It is clearly a declining variant, and as the typical informant of the ALEPG is an aged person, no doubt its vitality among the whole linguistic community is even lower.

The merger of the bilabial and labiodental phonemes /b/ and /v/ still maintains high vitality, especially in the northernmost territories, but there are also localities with high percentages outside the limits pointed out by Cintra, such as the Portuguese coastal area (from Alcobaça to the vicinity of Lisbon), the southern part of the district of Coimbra or places contiguous to the Spanish border in the Guarda district. The average realization within the area where this phenomenon still exists is 57.86%, and there are readily apparent differences in the maps which depend on the position, initial or medial, of the labial phoneme in the word.

The area of distribution of the apico-alveolar consonants shows a great deal of agreement with the area defined by Cintra. The most notable aspect is the striking difference in vitality between the two sound classes. The first has a sibilant represented with *s-*, *-ss-* and *-s-* in standard Portuguese which, according to Cintra's proposal, is articulated as apical in all the northern dialects. The average rate of apical realization across the Portuguese domain is 72.06%. The second sibilant is written as *c-*, *ç-* and *-z-*, and it claimed only to be produced as an apical in the *Baixo-minhoto, Durienses* and *Beirões* dialects; its average vitality is only 44.50%. Moreover, we observe several cases of apical realizations in items pertaining to the second group in localities situated in the territory of the *Alto-Minhotos* and *Transmontanos* dialects, which might be indications of a tendency to reduce the conservative system of four contrastive units to one with only two contrastive apical elements.

Regarding the conservation of diphthongal *ou* and *ei*, the two show some similarity in their spatial distributions. In both cases, the territorial extension in the network of ALEPG practically duplicates the area traced by Cintra. However, as is apparent in figures 17 and 18, there are two different areas in the maps: one in the north, where the number of occurrences is high, and another in the south, usually with lower percentages and discrete islands conserving the phenomenon. These maps show that the diffusion of the linguistic innovations is still in process, at a slower pace than Cintra's *binary* map suggests, especially for diphthongal *ei*. Diphthongal *ou* is not documented in the southern half of Portugal and, in the north, none of the

surveyed points show 100% incidence and only 4 localities surpass 90%; the average occurrence is 50.05%. Diphthongal *ei* is present to some degree in almost all of Portugal: only 8 of the 143 points in the entire network show 0% occurrence. As previously pointed out, it is possible to distinguish two very different zones in the map. The northern one, roughly north of the districts of Lisbon, Santarém and Castelo Branco, shows a near-categorical realization of diphthongal *ei*, with percentages always above 90% except for one very small area with lower values. The southern area is equally extensive, but with much lower percentages that exceed 50% only in 3 cases. The existence of these two different areas diminishes the global rate of realization (i.e., the average percentage of diphthongal *ei* over the whole territory), which is only 56.49%.

In conclusion, the results obtained in this study reveal a picture of dialect variation that differs considerably from those provided by traditional dialectology. The use of a sizable corpus of data and a cartographic methodology that can accommodate a quantitative approach represents a notable advance in dialectological studies on European Portuguese because they allow tracking of the progression of the changes in language and also offer a more realistic view of dialectal variation. Finally, the maps in this article demonstrate that dialectal features are still alive in Portuguese across a wider territorial area than that defined in the *Nova proposta*.

Acknowledgments

This article is a part of projects *Tesouro Dialectal Português* (Fundação para a Ciência e a Tecnologia, Portugal, PTDC/CLE-LIN/102650/2008) and *Tesouro do Léxico Patrimonial Galego e Portugués. Banco de datos electrónico (corpus gallego)* (Ministerio de Ciencia e Innovación, Spain, FFI2009-12110). The author was funded by the program of human resources of the abovementioned *Fundação para a Ciência e a Tecnologia*. I am grateful to an anonymous reviewer for a careful reading and useful suggestions.

References

ALPI = Navarro Tomás, T. (dir.) (1962) *Atlas Lingüístico de la Península Ibérica*, I – *Fonética*. Madrid: Consejo Superior de Investigaciones Científicas.

Álvarez Pérez, X. A. (2010) *E os da banda d'alá son máis estranxeiros ca os de Madrí?* Estudo contrastivo de designacións galegas e portuguesas no campo semántico da gandaría, *Verba. Anuario galego de Filoloxía,* **37**, 57-88. http://minerva.usc.es/bitstream/10347/6008/1/59-90.pdf (accessed on 27/11/2012).

Álvarez Pérez, X. A. (2013) A fronteira entre galego e portugués. A perspectiva portuguesa. In: *Contacto de linguas, hibridade, cambio: contextos, procesos e*

consecuencias (E. Gugenberger, H. Monteagudo & G. Rei-Doval, editors), pp. 97--136. Santiago de Compostela: Consello da Cultura Galega / Instituto da Lingua Galega. http://www.geolinguistica.org/artigos/simposioilg2010.pdf (acessed on 14/07/2014).

Álvarez Pérez, X. A. & Saramago, J. (2012) Áreas lexicais galegas e portuguesas: um novo olhar para a proposta de Cintra, *Estudis Romànics,* **XXXIV**, 55-97. http://publicacions.iec.cat/repository/pdf/00000181%5C00000009.pdf (accessed on 7/7/2012)

BILEGA = García Gondar, F. (dir.) (1998-) *Bibliografía informatizada da lingua galega*. Santiago de Compostela: Centro Ramón Piñeiro para a Investigación en Humanidades. http://www.cirp.es/bdo/bil (accessed on 7/7/2012).

Boléo, M. de Paiva (1951) Dialectologia e história da língua – Isoglossas portuguesas, *Boletim de Filologia*, **XII**, 1-44. http://cvc.instituto-camoes.pt/bdc/lingua/boletimfilologia/12/pag1_44.pdf (accessed on 7/7/2012).

Castro, I., Marquilhas, R. & Acosta, J. L. (1991) *Curso de História da Língua Portuguesa*. Lisboa: Universidade Aberta. http://purl.pt/293 (accessed on 7/7/2012).

Cintra, L. F. Lindley (1962) Áreas lexicais no território português, *Boletim de Filologia*, **XX** (3-4), 273-307. http://cvc.instituto-camoes.pt/bdc/lingua/boletimfilologia/20/pag273_307.pdf (accessed on 7/7/2012).

Cintra, L. F. Lindley (1971) Nova proposta de classificação dos dialectos galego--portugueses, *Boletim de Filologia*, **XXII**, 81-116. http://cvc.instituto--camoes.pt/bdc/lingua/boletimfilologia/22/boletim22_pag81_116.pdf (accessed on 7/7/2012). [Republished in Cintra, 1983]

Cintra, L. F. Lindley (dir.) (1976) *Bibliografia dialectal galego-portuguesa*. Lisboa: Centro de Linguística das Universidades de Lisboa.

Cintra, L. F. Lindley (1983) *Estudos de Dialectologia Portuguesa*. Lisboa: Sá da Costa.

Cortés Carreres, S. & García Perales, V. (eds.) (2009) *La historia interna del 'Atlas Lingüístico de la Península Ibérica' (ALPI): Correspondencia (1910-1976)*. València: Universitat de València.

Dubert García, F. & Sousa Fernández, X. (2002) Áreas lexicais galegas e portuguesas. A proposta de Cintra aplicada ao galego. In *Dialectoloxía e Léxico* (R. Álvarez, F. Dubert & X. Sousa, editors), pp. 193-222. Santiago de Compostela: Instituto da Lingua Galega / Consello da Cultura Galega, http://consellodacultura.org/mediateca/extras/dialectoloxia.pdf (accessed on 7/7/2012).

Ferreira, M. B. (1992) Dialectologia da área galego-portuguesa. In *Atlas da Língua Portuguesa na História e no Mundo* (A. L. Ferronha, org.), pp. 30-40. Lisboa: Imprensa Nacional-Casa da Moeda.

Ferreira, M. B., Carrilho, E., Lobo, M., Saramago, J. & Cruz, L. S. da (1996) Variação linguística: perspectiva dialectológica. In *Introdução à Linguística Geral e Portuguesa* (I. H. Faria, E. R. Pedro, I. Duarte & C. A. M. Gouveia, coords.), pp. 477-502. Lisboa: Caminho.

Lloyd, P. M. (1993) *Del latín al español. I. Fonología y morfología históricas de la lengua española*. Madrid: Gredos.

Martins, A. M., Segura, L. & Andrade, A. (2003) Fragmentos: De uma reflexão sobre o conhecimento à manipulação dramática da prosódia. In *Parole romanze. Scritti per Michel Contini* (R. Caprini, editor), pp. 243-258. Alessandria: Edizioni dell'Orso.

Martins, A. M. & Saramago, J. (1993) As sibilantes em português: Um estudo de geografia linguística e de fonética experimental. In *Actas do XIX Congreso Internacional de Linguística e Filoloxía Románicas (Universidade de Santiago de Compostela, 1989)*. Vol. 4: *Dialectoloxía e Xeografía Linguística* (R. Lorenzo, editor), pp. 121-142. A Coruña: Fundación Pedro Barrié de la Maza, Conde de Fenosa.

Pedrazuela Fuentes, M. (2005) Nuevos documentos para la historia del 'ALPI', *Revista de Filología Española*, **LXXXV**(2), 271-293. http://revistadefilologiaespañola.revistas.csic.es/index.php/rfe/article/view/90/89 (accessed on: 01/07/2012).

Pinto, A. A. (1980) A neutralização da oposição fonológica *v/b* em português: estudo sincrónico e diacrónico, *Biblos*, **LVI**, 599-651.

Pinto, A. A. (1981) A africada *č* em português: estudo sincrónico e diacrónico, *Boletim de Filologia*, **XXVI**, 139-192. http://cvc.instituto-camoes.pt/bdc/lingua/boletimfilologia/26/boletim26_pag139_192.pdf (accessed on: 7/7/2012).

Ricós Vidal, A. (2007) España, Portugal y el 'ALPI'. Notas para una historia inacabada. In *Aula Ibérica: Actas de los congresos de Évora y Salamanca (2006--2007)* (Á. M. de Dios, editor), pp. 183-194. Salamanca: Ediciones Universidad de Salamanca.

Riiho, T. (1994) Portugiesisch: Interne Sprachgeschichte und Ent--wicklungstendenzen. In *Lexikon der Romanistischen Linguistik* VI, 2 (G. Holtus, M. Metzeltin & C. Schmitt, editors), pp. 498-511. Tübingen: Niemeyer.

Saramago, J. (2006) O Atlas Lingüístico-Etnográfico de Portugal e da Galiza (ALEPG), *Estudis Romànics*, **XXVIII**, 281-298. http://publicacions.iec.cat/repository/pdf/00000018/00000002.pdf (accessed on: 7/7/2012).

Saramago, J. & Álvarez, X. A. (2010) Um novo olhar sobre áreas lexicais portuguesas. In *Língua portuguesa: ultrapassar fronteiras, juntar culturas* (M. J. Marçalo *et alii*, editors), pp. 80-105. Évora: Universidade de Évora. http://www.simelp2009.uevora.pt/pdf/slg44/05.pdf (accessed on: 7/7/2012).

Segura, L. (2003) Variação dialectal em território português. Conexões com o Português do Brasil. In *Análise Contrastiva de Variedades do Português. Primeiros Estudos* (S. Brandão & M. A. Mota, editors), pp. 181-196. Rio de Janeiro: In-Fólio.

Annex: Figures

A file with all the maps provided in this article, in colour, is available at www.geolinguistica.org/artigos/JPL.zip (6.5 Mb)

In figures 5-18, the black line is the isophone traced by Cintra (1971).

Figure 1. Location of selected ALEPG points and Voronoi's tessellation. The dotted line separates the Astur-Leonese speaking area.

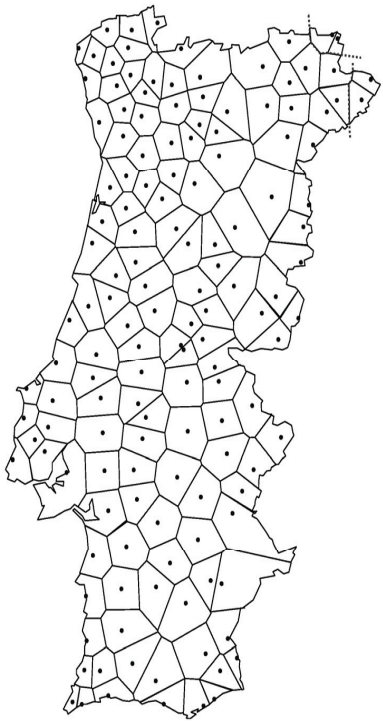


Figure 2. Network, with identification of points, according to the nomenclature of the ALEPG.

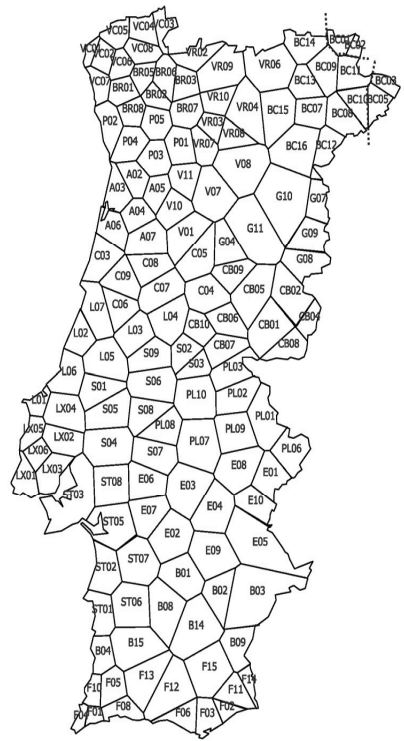


Figure 3. Isophones defined by Cintra in his *Nova proposta* (figure extracted from Cintra, 1971).

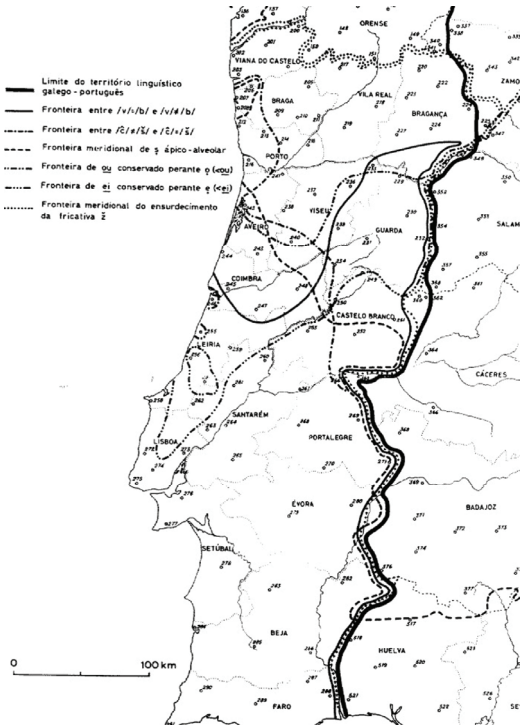


Figure 4. Cintra's classification of Portuguese dialects (figure extracted from Cintra, 1971)

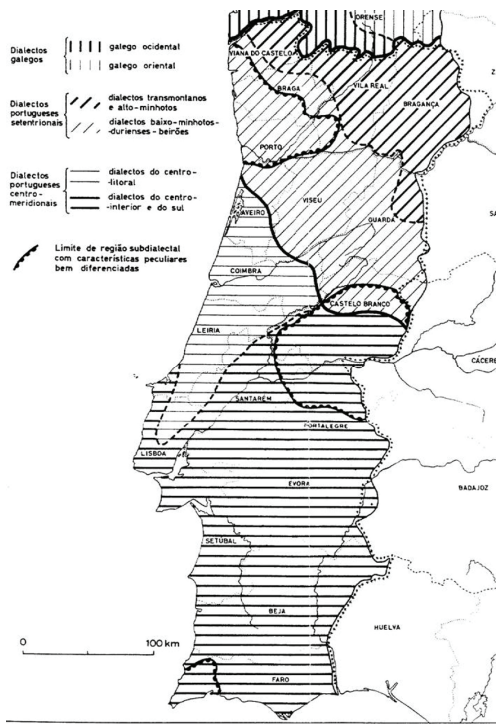


Figure 5. Bilabial ([b], [β]) realizations where standard Portuguese has a labiodental phoneme [v].

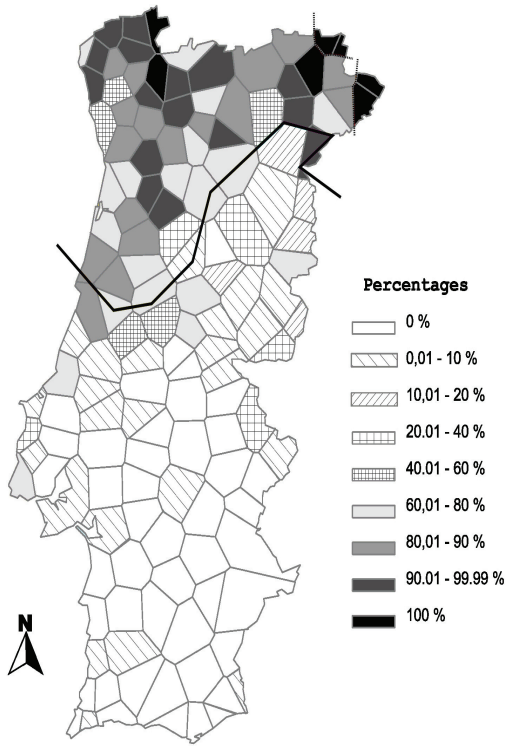


Figure 6. Bilabial realizations in initial position.

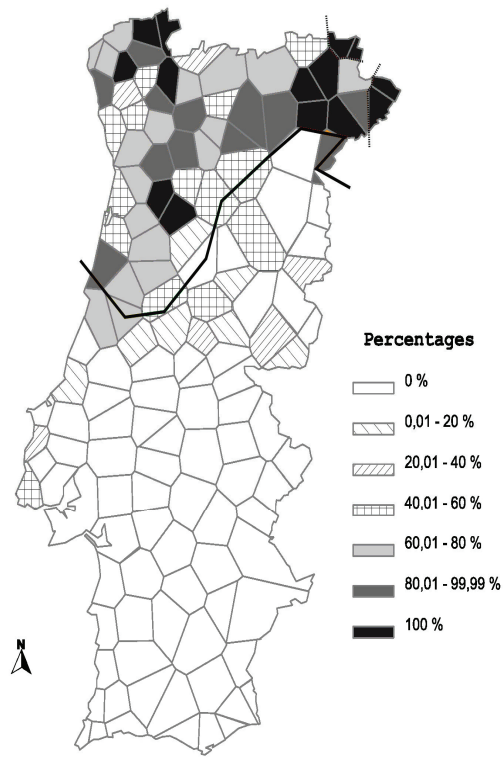


Figure 7. Bilabial realizations in medial position.

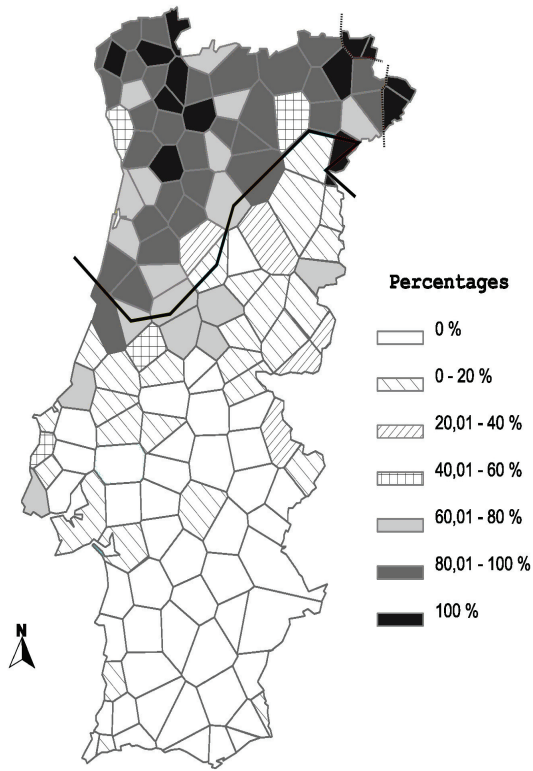


Figure 8. Apical realizations (first group).

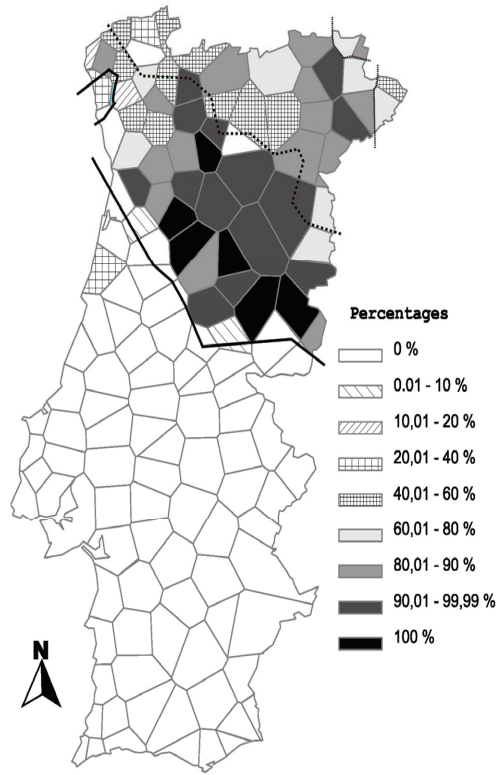


Figure 9. Apical realizations in initial position (first group).

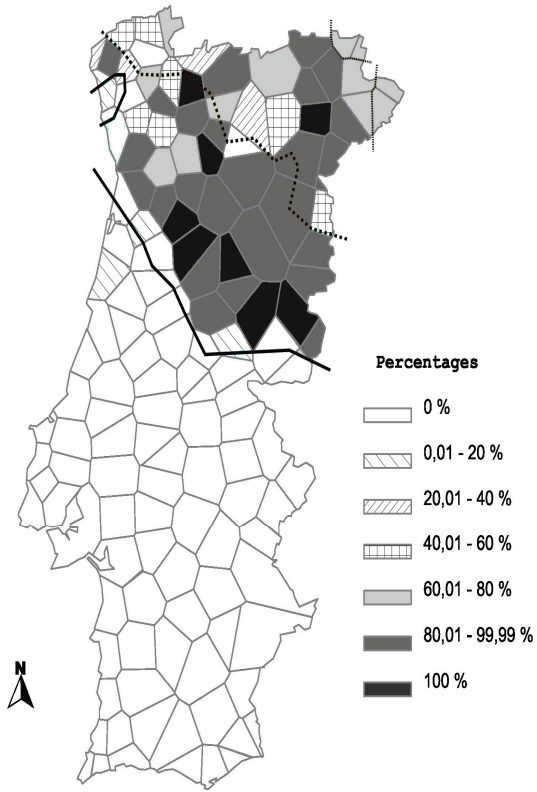
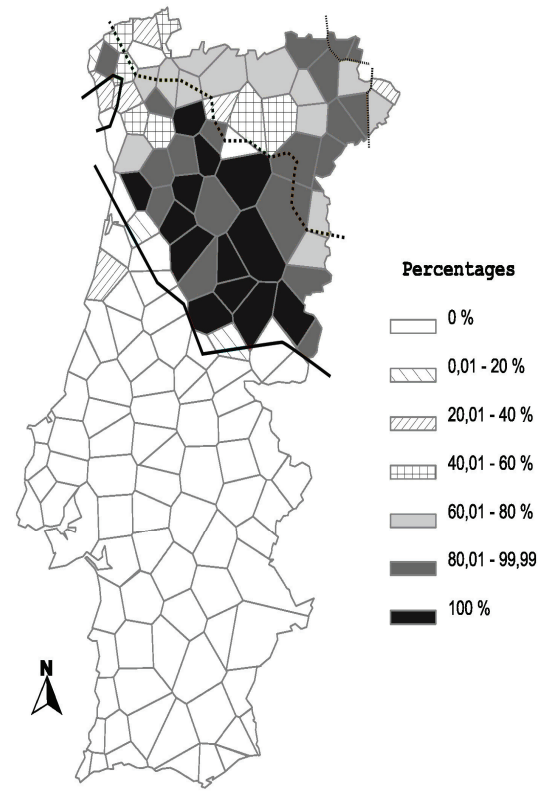


Figure 10. Apical realizations in medial position (first group).



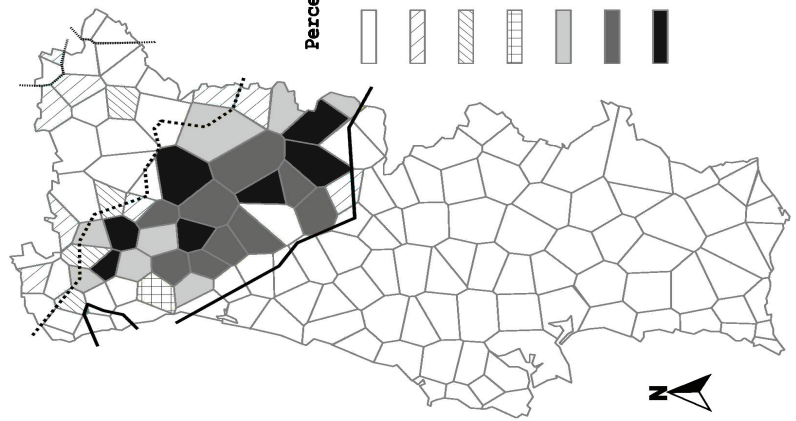


Figure 12. Apical realizations in initial position (second group).

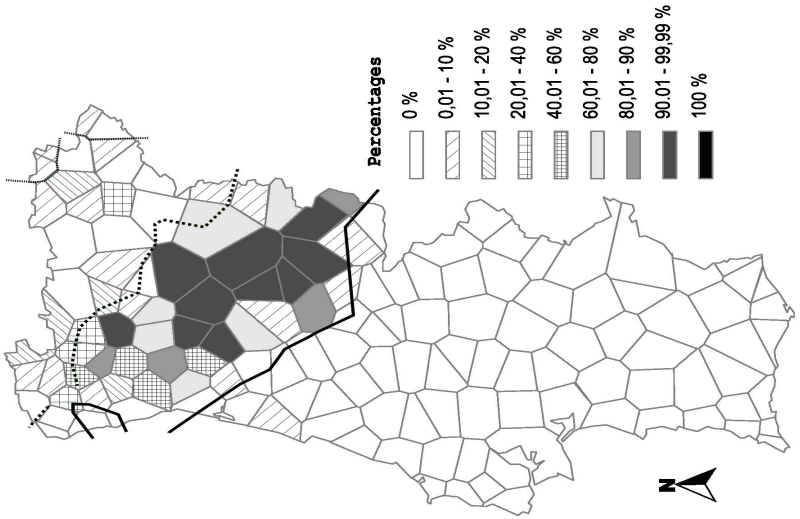


Figure 11. Apical realizations (second group).

Figure 13. Apical realizations in medial position (second group).

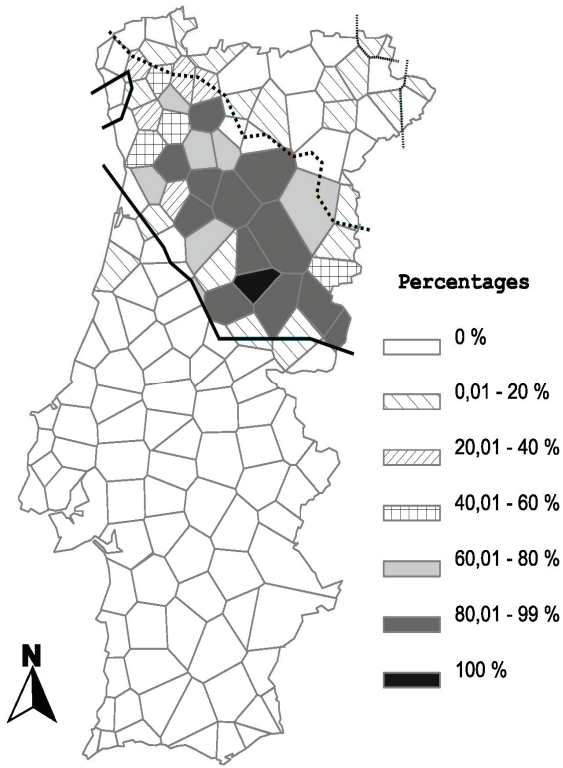


Figure 14. Affricate realizations: [tʃ].

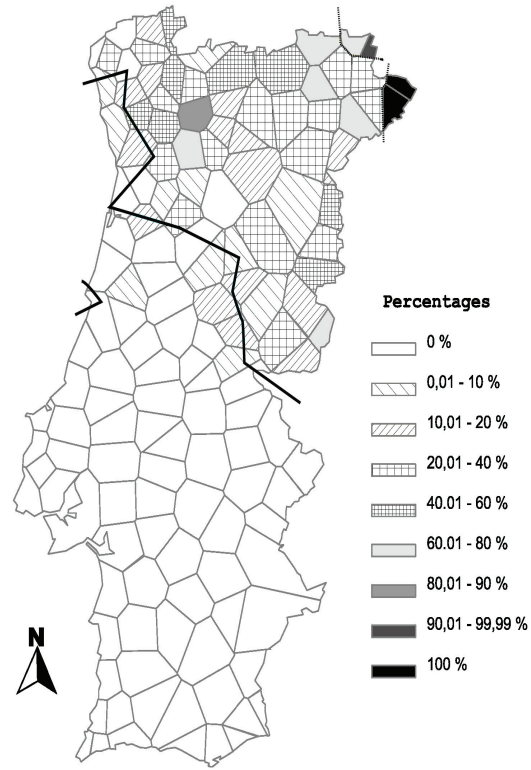


Figure 15. Affricate realizations (initial position).

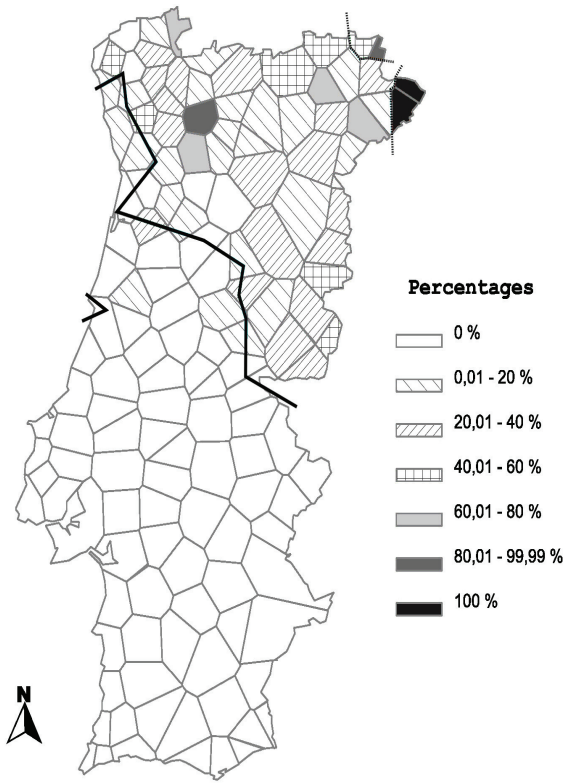


Figure 16**.** Affricate realizations (medial position).

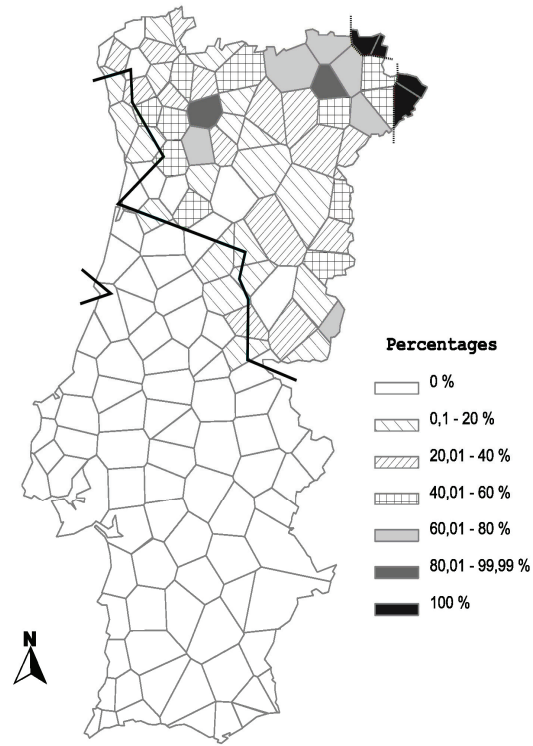


Figure 17. Preservation of diphthongal *ou*.

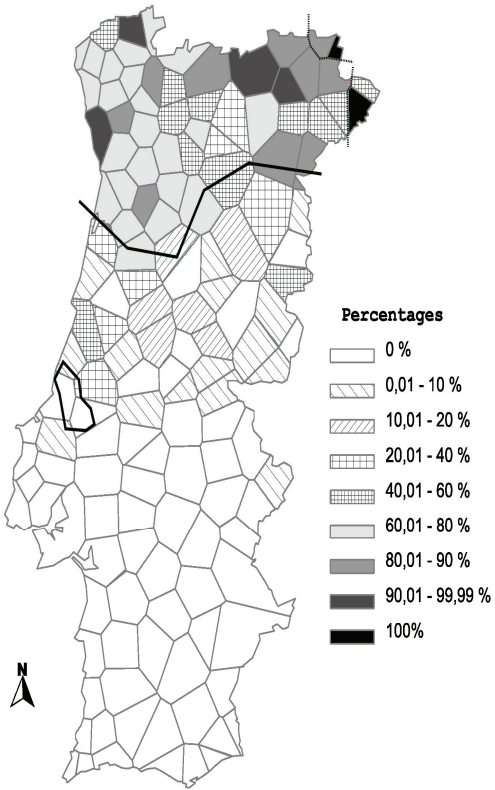


Figure 18**.** Preservation of diphthongal *ei*.

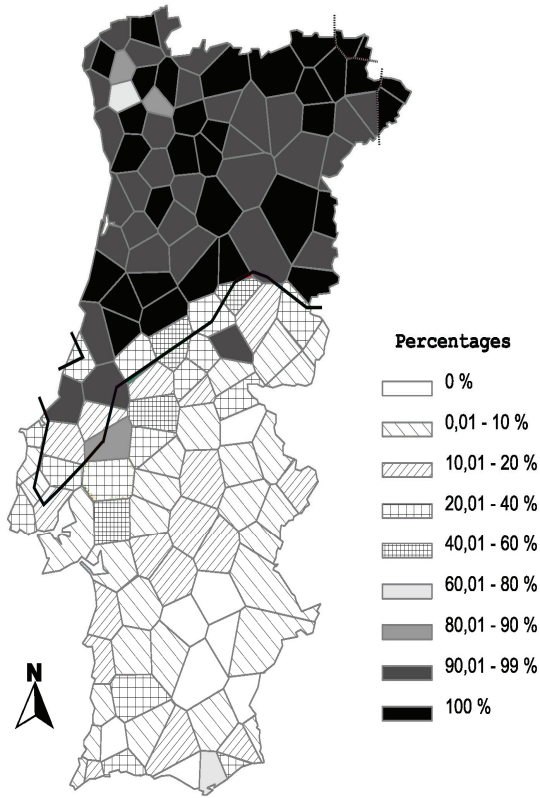


Table I. Questions that were examined for each feature.
They are identified by the number in the questionnaire of the ALEPG.

1. Bilabial pronunciation of /v/	114, 161, 176, 185, 255, 371, 703, 733, 748, 759, 760, 784, 809.6, 816, 847, 863, 931, 951, 957, 960, 977, 1069, 1152.1, 1175.1, 1253, 1279, 1479.
2. Apicoalveolar realization (first group)	3, 137, 164, 173, 174, 191, 193, 207, 209, 214, 233, 239, 240, 251, 390, 398, 399, 719, 743, 749, 787, 788, 789, 835, 854, 895, 907, 935, 1058, 1060, 1076, 1102, 1114, 1248, 1250, 1251, 1513.
3. Apicoalveolar realization (second group)	66, 121, 124, 141a, 225, 249, 269, 382, 383, 697, 698, 699, 746, 748, 753, 756, 791, 796, 820, 850, 865, 870, 874, 875, 883, 894, 900, 901, 913, 933, 967, 981, 988, 1006, 1050, 1064, 1073.8, 1075.0.2, 1093, 1111.
4. Affricate realization	27, 27a, 133, 153, 193, 194, 203, 265, 394, 668, 743, 743b, 744, 803.5, 809, 814.2, 814B.5, 815, 819b, 829, 928.1 [twice, both in initial and medial position], 953, 1084, 1112, 1160, 1193, 1209, 1148, 1226, 1228, 1229, 1230, 1234, 1252.1, 1259, 1285, 1286, 1286.1, 1299.
5. Maintenance of diphthongal *ou*	190, 194, 221, 222, 240, 261, 265, 372, 695, 847, 875, 933, 935, 947a, 1068, 1154, 1169, 1252.1.
6. Maintenance of diphthongal *ei*	124, 150, 190, 191, 196, 197, 198, 753, 763, 768, 785, 793, 795, 817, 819, 819a, 819b, 859, 903a, 910, 914, 929, 931, 977, 988, 1024, 1058, 1072b, 1076, 1097, 1175, 1197.

Table II. Summary of distribution and vitality of the studied features. Bold marks the most outstanding result for each linguistic characteristic and underline the lowest value.

	Number of questions	Number of answers	Territorial extension	Average realization in all the network	Average realization in the points where the feature appears
1. Bilabial pronunciation of /v/	27	3171	67.63%	37.78%	56.05%
2. Apicoalveolar realization (first group)	37	4099	41.72%	30.97%	**72.06%**
3. Apicoalveolar realization (second group)	**40**	**4119**	34.53%	15.36%	44.50%
4. Affricate realization	**40**	3659	41%	11.28%	28.70%
5. Maintenance of diphthongal *ou*	18	1954	53.96%	27.12%	50.05%
6. Maintenance of diphthongal *ei*	32	3049	**94.24%**	**56.59%**	57.27%

Xosé Afonso Alvarez Pérez
Centro de Linguística da Universidade de Lisboa
Av.ª Prof. Gama Pinto, 2 – 1649-003 Lisboa
xoseafonso.alvarez@gmail.com