Vowel Harmony and Metaphony in Iberia: A Revised Analysis

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Harmonía vocálica e metafonía na Península Ibérica: unha revisión

Resumo

O obxectivo deste artigo é describir e explicar o fenómeno da metafonía, tal e como se observa no norte da Península Ibérica, dentro do contexto dunha descrición da harmonía vocálica observable noutras linguas do mundo. Sinálase a participación de dous trazos no proceso de harmonización vocálica do norte da Península Ibérica: a elevación da lingua e a centralización, causados ambos polo final de palabra /ɨ/ e /ʉ/. Tras as explicacións diacrónicas e diatópicas do fenómeno en cuestión discútese sobre os trazos morfolóxicos e semánticos que se asocian coa metafonía hispánica. Finalmente, faise unha comparación coa metafonía observable en Galicia, Portugal e Italia. Como conclusión preséntase a hipótese de que a metafonía era un trazo dos primeiros poboadores romanos que se instalaron en España, que chegaron nomeadamnte do áreas de Italia onde a metafonía está aínda hoxe fortemente establecida.

Abstract

The present article seeks to describe and account for the phenomenon of metaphony, as observed in the north of the Iberian Peninsula, within the context of a description of the vowel harmony observable in other languages of the world. Two features are shown to participate in Northern Iberian vowel harmony, namely tongue-height and centralization, both triggered by word-final /ɨ/ and /ʉ/. Diachronic and diatopic accounts of the phenomena concerned here are followed by discussion of the morphological and semantic features that are associated with Hispanic metaphony. Finally, a comparison is made with the metaphony observable in Galicia, Portugal, and Italy. In conclusion, it is speculated that metaphony was a feature of the earliest Roman settlers of Spain, who came predominantly from areas of Italy where metaphony is strongly established today.

Sumario

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1. INTRODUCTION

Vowel harmony occurs in part of the Iberian Peninsula (the north and northwest of Spain, and Portugal), although not in standard Castilian or Catalan or in most non-standard varieties in the centre and south of Spain. The aim of this paper is to compare and contrast this Iberian vowel harmony with the types of harmony reported in other languages, especially the Romance languages.

2. VOWEL HARMONY: DEFINITION

Vowel harmony implies a restriction on the vowels that may co-occur in any given domain (word, etc.). In cases of vowel harmony, one vowel in the domain functions as the trigger. One or more of its phonological features must be shared by the other vowels of a particular domain (the targets), while vowels with competing features are excluded.

2.1. The trigger for harmony may be the tonic or another vowel, typically the final vowel. In Hungarian, Finnish, and Turkish, which have a well-developed system of vowel harmony, it is the tonic.
The target is all other vowels in a particular domain (which may be the same morpheme, the same word, the same phonological word).

2.2. Harmony may be simple. In this case one feature only is shared by the trigger and the target(s), typically

➢ [±back]: all vowels in the domain must be either [+back] (e.g., /u/, /o/, /ɑ/) or all must be [-back] (e.g., /i/, /y/, /e/, /ø/, /æ/)

➢ [±high]: all vowels in the domain must be either [+high] (e.g., /u/, /y/, /i/) or all must be [-high] (e.g., /e/, /ø/, /o/)

➢ [±ATR]: all vowels in the domain must be either [+ATR] (advanced tongue root = with widened pharynx) or all must be [-ATR] (with non-widened pharynx)

➢ [±rounded] all vowels in the domain must be either [+rounded] (e.g., /u/, /o/, /y/, /ø/) or all must be [-rounded] (e.g., /i/, /ɯ/, /e/, /æ/)

➢ [±centralized] all vowels in the domain must be either [+centralized] (e.g., /ɨ/, /ʉ/, /ɐ/) or all must be [-centralized] (e.g., /i/, /e/, /u/, /o/, /a/)

2.3. Harmony may involve the simultaneous operation of two or more of these processes. (For all these processes, see Laver 1994.)

3. METAPHONY

3.1. Synchronic view

The most developed form of vowel harmony we find in Iberia is metaphony. Its nature is as follows:

3.1.1. The trigger is the final vowel (which, as we shall see, may mark a gender contrast, a contrast of number, or the contrast between continuous and discontinuous referents [mass nouns versus count nouns]).

3.1.2. The target is all other vowels in the domain. In Cantabria, the domain is the phonological word, which includes proclitics and prepositions, but there are insufficient studies to know whether this is also true of Asturias or Galicia.

3.1.3. The phonological harmonization we can observe in Cantabria comprises two simultaneous processes:

➢ Centralization of non-final vowels in anticipation of a centralized final unstressed vowel. This type of harmony is evident in Cantabria, and probably also occur in Asturias, although the Asturian data are unclear on this point – descriptions often refer to the unclear nature of vowels in cases where the final is high. ALPI transcriptions often, but erratically, transcribe final /u/ as [u] with two superscript dots (their diacritic for centralization). Similarly in the case of the other vowels of words containing this final vowel.

➢ Tongue height assimilation (typically raising of an underlying mid or low vowel to high or mid position in anticipation of a high final unstressed vowel) is found in all areas where Iberian metaphony is reported (Cantabria, Asturias, Galicia, Portugal).

3.1.4. A second tongue-height harmony (strong but not categorical) is observable in words whose vowels are not centralized. In this case, a [+high] tonic vowel or a tonic vowel preceded by a glide strongly promotes [+high] pretonic and post-tonic vowels: *midir, sultura, murir, lición, gurrión* (standard *medir, soltura, morir, lección, gorrión*). This process is widespread in non-standard Peninsular varieties (Penny 2000: 133-34).

3.1.5. Hispanic metaphony therefore comprises a type of vowel harmony in which the vowels of a given word (strictly, the vowels of a given 'domain') may be selected *either* from set (1) *or* from set (2) but *not* (with a couple of exceptions) from a mixture of the two. The differences between (2a), (2b) and (2c) are solely diatopical.

➢ (1) /i/ /e/ /a/ /o/ /u/   All vowels are non-centralized; all three vowel heights are permissible.

➢ (2a) /ɨ/ (/e/) /ɐ/ (/ø/) /ʉ/ (Cantabria)   Extreme vowels are [+centralized]; underlying mid vowels become [+high] and [+centralized]. Where tonic is [+high] (/ɨ/ or /ʉ/), only two tongue heights are permissible; where tonic is [–high] (/ɐ/), three tongue-heights occur.

➢ (2b) /ɨ/ /ɜ/ /ʉ/ (South-Central Asturias)   Extreme vowels become centralized; mid vowels become raised and centralized. /ɜ/ is my interpretation of R-C's [e] with two superscript dots.[1] Only two tongue heights are permissible.

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[1] Rodríguez-Castellano, with reference to a South-Central Asturian variety, says (1952: 43): 'El vocalismo de este dialecto se caracteriza por su timbre oscuro, debido al predominio de las vocales de la serie posterior. En el singular por efecto de la metafonía vocálica [...], este carácter es mucho más acusado que en el plural. También hay que señalar la presencia de un timbre mixto en las vocales inflexionadas', and (1952: 58-59): 'Las vocales resultantes de esta inflexión no son sonidos de timbre claro y preciso, a la manera castellana, sino que presentan un matiz oscuro y mixto muy característico. Donde mejor se aprecia este matiz es en la *é* (< *a*). [...] la palabra *palo*, al inflexionar su *a* por influjo de la *u* final se pronuncia *pelu*, forma ésta que los no naturales la confundirán con la voz *pelu* 'cabello' (que como se ha dicho mantiene su *e*). Pero para los hablantes de esta comarca no existe tal confusión. Su sentido lingüístico establece la diferencia semántica mediante una ligera modificación del timbre vocálico de la *e*. Los sujetos pronunciaban *pelú* 'palo' con u final y e tónica un poco abierta y mixta, mientras que en *pelo* [final symbol has subscript dot and superscript dieresis] 'cabello' la vocal final no era tan cerrada y la *e*, aunque de timbre claro, mostraba una tendencia al cerramiento.'

➢ (2c) /ɨ/ /o/ /ʉ/ (Central & N-Central Asturias)   As for (2b), except that the lowest vowel is mid-back rather than mid-front.

Examples:[2]

- ◆ (1) /beθéɾa/ *becerra*   /texabáɾna/ *tejadillo*   /kobaɾáta/ *covacha*
- ◆ (2a)/bɨθíɾʉ/ *becerro*   /texéʉ/ *tejado*   /købɐɾétʉ/ *covacha*
- ◆ (1) /suégɾa/ *suegra*   /kálba/ *calva*   /anója/ *añoja*
- ◆ (2b)/sʉígɾʉ/ *suegro*   /kɔ́lbʉ/ *calvo*   /ɟnʉ́jʉ/ *añojo*
- ◆ (1) /suégɾa/ *suegra*   /ɡáta/ *gata*   /anója/ *añoja*
- ◆ (2c)/sʉígɾʉ/ *suegro*   /ɡótʉ/ *gato*   /ɟnʉ́jʉ/ *añojo*

3.1.6. It can be seen that the use of /e/ and /ø/ in set (2a) is restricted: these vowels only appear when the tonic is centralized /ɇ́/, allowing three tongue-heights under these conditions. A further consequence is that there is partial overlap of the two sets: /e/ appears in both. Such overlap between otherwise mutually exclusive sets has been observed in other languages that have vowel harmony (e.g., Turkish).

3.1.7. We can therefore see that the tongue height contrast is neutralized in the case of underlying /i/ and /e/, and of /o/ and /u/ (and also of /a/ and /e/ in places where vowel-set (2) takes the form (2b)).

3.1.8. An alternative analysis of the absence of tongue-height opposition would be the following:

➢ When centralized vowels are called for (system (2a-c)), the contrast between mid and high is underspecified. The default realization is a high centralized vowel, front or back, but mid realizations also occur. We could say that underspecified /I/ is realized as [ɨ] or [e], while underspecified /U/ is realized as [ʉ] or [ø]. These underspecified segments contrast with fully specified /ɐ/.

➢ When centralized vowels are called for (system (2a)) and the tonic is /ɇ́/, the full specification of atonics may occur, showing three tongue heights (e.g., /mɨlénʉ/ *milano*, /benténʉ/ *ventana pequeña*, /bɐɾbéxʉ/ *trapajo*, /røðénʉ/ *prado pequeño*, /tʉxéɾʉ/ *hueco del árbol*.

➢ When non-centralized vowels are called for (system (1)), similar underspecification of tongue height arises. In this case, the realization of /I/ as /i/ or /e/ and the realization of /U/ as /u/ or /o/ depends in broad terms on the tongue height of the tonic, or on presence or absence of a glide in the tonic syllable: a high tonic or a tonic preceded by a glide demands high atonic vowels (/i/ or /u/) (recall *midir, sultura, murir, lición, gurrión*, above) while a mid or low tonic vowel (unless preceded by a glide) allows any tongue height in atonic vowels.

Data for this discussion is drawn from Penny (1969a) and Rodríguez-Castellano (1952), while the analysis draws upon Goldsmith (1987), Hualde (1989), McCarthy (1984), Penny (1969b, 1970, 1992-93), Picard (2001), Spencer (1986), Vago (1988), and Wilson (1988).

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[2] Glosses are given in Castilian, with the aim of helping the reader to identify the lexical item in question with least difficulty.

3.2. Diachronic view

Looked at in historical terms, metaphony and vowel harmony have developed in the following ways:

3.2.1. If the final vowel of a word is /e/, /a/ or /o/ (or /i/ or /u/, although these are rare or non-existent in non-standard Spanish), or if there is no final (atonic) vowel then the predictable non-centralized, non-raised tonic vowels emerge. All three tongue heights are possible:

- ⬩ underlying /i/: Mᴏʀī > *ᴍᴏʀīʀᴇ > /muɾíɾ/ *morir*
- ⬩ underlying /e/: Iɴᴛᴇɢʀᴀ > /entéɾa/ *entera*
- ⬩ underlying /a/: Pᴀɴᴛĭᴄᴇ > /pánθa/ *panza*
- ⬩ underlying /o/: Pᴀʟūᴍʙᴀ > /palóma/ *paloma*
- ⬩ underlying /u/: Dᴜʟᴄᴇ + -ūʀᴀ > /dulθúɾa/ *dulzura*

3.2.2. If the final vowel of a word is /ʉ/, then all the other vowels of the phonological words (including prepositions and proclitics) have become centralized:

- ⬩ underlying /i/: Iɴᴛᴇɢʀᴜ + suffix > /intiɾíθʉ/ *enterizo*; /tí̵sʉ/ *tieso*; /il mʉlínʉ/ *el molino*
- ⬩ underlying /e/: Sᴘᴇᴄᴜʟᴜ > /ispíxʉ/ *espejo*; /biθíɾʉ/ *becerro*
- ⬩ underlying /a/: Aᴠᴇʟʟāɴᴜ > /ɐbiʎénʉ/ *avellano*; /ún ɡʉɾøté̵θʉ/ *un garrotazo*
- ⬩ underlying /o/: Rᴏᴛūɴᴅᴜ > /ɾidúndʉ/ *redondo*; /bɐbúsʉ/ *baboso*
- ⬩ underlying /u/: Mīɴūᴛᴜ > /minúdʉ/ *menudo*; /iskúɾʉ/ *oscuro*

3.2.3. Under the same circumstances (i.e., where final vowel is /ʉ/), mid vowels become [+high] (examples above). However, where the tonic is /é/, atonic vowels may be high, mid or low:

- ⬩ high /ɨ/, /ʉ/: /mɨlénʉ/ *milano*, /ɡʉsénʉ/ *gusano*
- ⬩ mid /e/, /ø/: /benténʉ/ *ventana pequeña*, /ɡʉɾøté̵θʉ/ *garrotazo*
- ⬩ low /ɐ/: /kɐmpɐnéɾiʉ/ *campanario*

Therefore, where the final vowel is /ʉ/ and the tonic is /í/ or /ú/, there is merger between underlying /i/ and /e/, on the one hand, and between /o/ and /u/, on the other, whether tonic or atonic. On the other hand, if the tonic is /é/, there is full specification of atonics (high vs mid vs low). It is open to doubt whether this difference between high and mid atonic vowels ever constitutes a phonemic contrast.

3.2.4. The final vowel may be /ɨ/ in a limited number of cases (masc. sing. demonstratives, imperatives, etc.). In this instance, too, there is centralization and raising of underlying vowels:

- ⬩ underlying /e/: Isᴛᴇ > *ɪsᴛī > /ístɨ/ *este*
- ⬩ underlying /a/: ᴛᴀʀᴅē > *ᴛᴀʀᴅī > /téɾdɨ/ *tarde*
- ⬩ underlying /o/: ᴀᴜᴅī > /új̵ɨ/ *oye* (imper.)

No other centralized vowel may appear in final position. Of set (2) above, only /ʉ/ and /ɨ/ give rise to metaphony. Centralized /ɐ/ is simply absent from final position, while /ø/ occurs only pretonically, before tonic /ɐ/.

3.2.5. We can therefore see that the tongue height contrast between high and mid vowels has come to be neutralized (while the lowest vowel, in whatever shape, remains in contrast with all higher vowels):

- underlying /í/ ... /ʉ/ >   /ɨ/ ... /ʉ/: /ɨɾɨ́θʉ/ *erizo*
- underlying /é/ ... /ʉ/ >   /ɨ/ ... /ʉ/: /píɾʉ/ *perro*
- underlying /ó/ ... /ʉ/ >   /ʉ́/ ... /ʉ/: /lʉ́bʉ/ *lobo*
- underlying /ú/ ... /ʉ/ >   /ʉ́/ ... /ʉ/: /bjʉ́ðʉ/ *viudo*
- underlying /á/ ... /ʉ/ >   /é/…/ʉ/: /gétʉ/ *gato*
  - or   /ɜ́/ ... /ʉ/: /gɜ́tu/ *gato*
  - or   /ó/ ... /ʉ/: /gótu/ *gato*

4. GEOGRAPHICAL AND SOCIAL EXTENT OF THIS PHENOMENON IN IBERIA

Limited vowel harmony is widespread in non-standard varieties throughout Spain (and Spanish America). By 'limited' is meant the partial restriction on the incidence of atonic vowels, the appearance of atonic /i/ and /u/ co-occurring with a high tonic vowel, while mid and low atonics co-occur with non-high tonics (see Penny 1969a: 133-34).

Metaphony is a recessive (but persistent) feature, now limited to the unguarded speech of less educated groups of speakers in certain rural areas:

4.1. Central Asturias: the coastal area of Cabo de Peñas; the now separate area of the Mieres and Aller valleys;

4.2. South Central Cantabria (the Montes de Pas, where the varieties concerned are known as *pasiego*);

4.3. Relics are observable in the intervening area (Eastern Asturias and Western Cantabria);

4.4. Galicia, especially in the West, but limited to a small proportion of the relevant lexical items (see section 8, below);

4.5. Portuguese, including the standard language (see section 9, below).

5. MORPHOLOGICAL FEATURES ASSOCIATED WITH METAPHONY AND VOWEL HARMONY

The alternation between the vowels of set (1), on the one hand, and those of set (2), on the other, frequently signals a grammatical contrast.

5.1. Gender contrast

Because, in Cantabria and Asturias, many (singular) masculine nouns and adjectives have high centralized /ʉ/ as their final vowel, all the vowels of such words must be centralized, and metaphony will occur. By contrast, corresponding feminine words end in non-centralized /a/, and so do not have centralized vowels and do not participate in metaphony. E.g..,

masc.	fem.
/gʉ́nʉ/ *bueno*	/guéna/ *buena*
/mʉlinírʉ/ *molinero*	/molinéra/ *molinera*
/téntʉ/ *tonto*	/tónta/ *tonta*
/kʉmpénʉ/ *cencerro*	/kampána/ *campana*
/ístɨ/ *este*	/ésta/ *esta*

Gender contrast is also marked, redundantly, by Galician, Portuguese, and Italian metaphony (see sections 8, 9, and 10, below).

5.2. Number contrast

Similarly, in Cantabria and Asturias many (masc.) singular words end in centralized /ʉ/ while their plural counterparts end in non-centralized /o/ or /u/, the singular words are marked by centralized and metaphonized vowels, while the corresponding plural forms have non-centralized vowels and no metaphony. E.g.,:

sing.	plur.
/gʉínʉ/ *bueno*	/guénos/ *buenos*
/mʉliníɾʉ/ *molinero*	/molinéros/ *molineros*
/tʉ́ntʉ/ *tonto*	/tóntos/ *tontos*
/kɛmpénʉ/ *cencerro*	/kampános/ *cencerros*
/ɨ́stɨ/ *este*	éstos/ *estos*

Number contrast is also marked by the alternations which result from Portuguese and Italian metaphony (section 9 and 10, below), but not by those resulting from Galician metaphony (section 8).

6. Semantic functions associated with metaphony and vowel harmony

The alternation between the vowels of set (1) (in section 3.1.5, above), on the one hand, and those of set (2), on the other, may signal a semantic contrast, between opposing properties of the referents concerned.

6.1. Count/mass contrast

Many countable (masculine) nouns are marked by a final centralized /ʉ/, while corresponding non-countable (mass) nouns are marked by final non-centralized /o/ or /u/. Consequently, (masc.) count-nouns frequently have vowels belonging to set (2), with the associated metaphony, while corresponding mass-nouns have the vowels of set (1) and no metaphony. E.g.:

count-nouns	mass-nouns
[-continuous]	[+continuous]
/ʉ́n kísʉ/ *un queso*	/késu/ *queso*
/kʉíɾʉ/ *(una) piel(individual)*	/kwéɾu/ *(el) cuero*
/ɟíɾʉ/ *(un) hierro*	/ɟéɾu/ *(el) hierro (el metal)*
(un pan) /t∫íkʉ/ *pequeño*	*(el pan es)* /ɣuénu/ *bueno*

This type of semantic contrast appears not to be marked by the output of Portuguese or Galician metaphony (sections 8 and 9, below), but is one of the features marked by Italian metaphony (see section 10).

6.2. Although feminine count-nouns and mass-nouns cannot be distinguished on the basis of their vowel-morphology (unlike masculine nouns, as we have just seen), they can be distinguished syntactically. A large class of adjectives and pronouns whose referent is a

feminine count-noun end in /a/, while they end in /o/ or /u/ if the referent is a mass-noun. This phenomenon occurs over a much wider area than that occupied by vowel harmony and metaphony. It includes these areas but extends far south into León and Old Castile.[3] E.g.:

(una piedɾa) /tʃíka/ *pequeña*   *(piedra)* /dúɾu/~dúɾo/ *dura*
(una hierba) /roxíθa/ *rojiza*   *la mi hierba es aquello*
tu chaqueta, vas a romperla   *esta tela voy a comprarlo*

There appear to be no correlates of this syntactical pattern in Portuguese, Galician, or Italian.

7. History

The origins of vowel harmony and metaphony are very difficult to establish, and there is no agreed account. The key question is how did final centralized vowels emerge. Once they are in place, it is relatively straightforward to explain the harmonic and metaphonic effects that they exercise over the whole domain to which they belong.

7.1. Contrary to what has sometimes been claimed, it is almost certain that the contrasts we have observed do not have their origins in the gender contrasts of Latin. Although the Latin neuter category included a good number of [+continuous] nouns, many such nouns are also to be found in the masculine and feminine genders. And in any case, there is nothing in the morphology of neuter nouns which would account for their development of a final vowel different from that of many masculine nouns: neuter Ferrŭm 'iron' can be expected to develop the same final vowel as masculine Caseŭm 'cheese', while such mass-nouns have the same ending as countable nouns like masc. Dominŭm 'master' or neut. Humerŭm 'shoulder'. The term 'neutro de materia', used by some Spanish scholars as a label for the mass-noun agreement system just described, is therefore inappropriate.

7.2. The origins of the final-vowel contrast probably lie in contrasts between the case-forms. Although he was unaware of centralizing vowel harmony in Northern Spain, Hall (1968) sought to explain the facts of metaphony on the basis of a preserved contrast between the ending of the Nominative/Accusative -ŭm, which gave rise to metaphony, and pre-Classical Ablative –ōd, which did not. My own preferred explanation (Penny 1970) is a preserved contrast between Nominative/Accusative –ŭm (marking masculine count nouns) and Dative -ō (with partitive genitive function, as seen in some Latin sources, indicating an indeterminate quantity of a substance). In this scenario (as in Hall's), Latin ŭ and ō do not fall together (by contrast with what happens in most of the Latin-speaking world), but remain distinct, as is supported by independent evidence of developments in Northern and Western Iberia (see Alonso 1962).

7.3. Later development, of an unexplained kind, evidently led to the contrast between centralized and non-centralized results:

Ferrŭm [-continuous] > /jírɥ/ 'a (tool made of) iron'
Ferrō [+continuous] > /jéro/ or /jéru/ ' (the metal) iron'

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3 See, for example, Fernández-Ordóñez (1994, 1999).

8. Galician metaphony

Galician metaphony (see Álvarez Blanco 1988) is of a more restricted kind than that of Asturias and Cantabria, at least in its modern manifestations. These limitations can be summarized as follows:

8.1. Galician metaphony is not found throughout Galicia. It is essentially a (south-)western phenomenon, whose most easterly manifestations do not reach the frontier between Galicia and Asturias/León, Zamora. There is therefore no territorial continuity between Asturian and Galician metaphony.[4]

8.2. It is lexically restricted, in the sense that only a small number of the eligible nouns and adjectives (those with final /-o/) are affected, while others (which share the same historical vowel-structure as the latter) are unaffected. There appears to be no semantic motivation for this disparity of outcomes. Nor do the words affected by metaphony in Portuguese correspond with those similarly affected in Galician (e.g., Ptg. metaphonized /óso/ < ŏssu, by contrast with universal Gal /ɔ́so/).

8.3. In those words affected by metaphony, the raising of low-mid tonic vowels to high-mid position occurs as much in the plural as in the singular (e.g., /sógɾo/, /sógɾos/ vs /sɔ́gra/, /sɔ́gras/ < sŏcru, -a). Therefore, unlike the case of Asturian, Cantabrian, Portuguese metaphony (but similar to what happens in the case of Italian metaphony, although for different reasons; see 10.1), Galician metaphony does not serve as a marker of number-contrast.

8.4. Galician metaphony does not consistently mark gender-contrast, since in a few words vowel-raising may occur in feminine forms as well as in the corresponding masculine words (e.g., /nóbo/, /nóβa/ < nŏvu, -a; /tórto/, /tórta/ < tŏrtu, -a).

8.5. The few examples recorded of metaphony caused by final /-e/ are confined to extreme Southern areas; e.g., *fixêse* vs *fixéra*, *néve* in Southern Pontevedra (vs *néve* elsewhere); the few cases of raising of mid-high vowels to high position before /-e/ (*nume, huxe, iste*) are similarly found in the far south of Galician territory, as are singular imperatives like *cume, bibe*.[5] There are no reported cases in Galicia of raising of mid-low back /ɔ/ to mid-high position (/o/) before /-e/.

On the other hand, like Portuguese (see 9.2, below), but unlike Asturian and Cantabrian, extreme south-western varieties of Galician show (in a few but by no means all relevant words) lowering of mid-high tonics to mid-low position before final /-a/ in nouns: /pɛ́ga/, /pɛ́gas/ < pīca(s), /mɛ́sa/, /mɛ́sas/ < mēnsa(s), /ɔ́la/, /ɔ́las/ < Ar. haṷla, /ɔ́ra/, /ɔ́ras/ < hōra(s). This phenomenon is even rarer in adjectives: /ʃeitɔ́sa(s)/ < -ōsa(s) (vs. masc. /ʃeitóso(s)/), /sɛ́ka(s)/ < sīcca(s) (vs masc. /séko(s)/).

9. Portuguese metaphony

Portuguese metaphony is essentially similar to the metaphony we have described in Cantabria and Asturias, and presumably owes its origins to the same causes. There is apparently no equivalent to the centralizing effects seen in Spain or to the vowel harmony associated with it. But such specific centralizing tendencies may have been masked by broader centra-

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[4] In any case, Asturian metaphony does not extend to the Western third of Asturias.

[5] These forms are exactly comparable with Cantabrian and Asturian imperatives (e.g., Penny 1969a: 124; 1969b).

lizing tendencies in the Portuguese vowel-system. On the other hand, and unlike what has happened in Spain, metaphony in Portugal (and Brazil) has come to characterize the standard language.

9.1. It operates within the seven-vowel system of Portuguese (leading to results that potentially more complex than those that arise within the five-vowel system which operates in Asturias and Cantabria) and is most clearly evident in the raising of tonic mid-low /ɔ́/ to mid-high position (with consequent neutralization of the /ɔ/ ~ /o/ contrast in these circumstances):

> Pŏ̄rcu > /pɔ́ɾku/ > /póɾku/ *porco* 'pig'
> Pŏ̄rcōs > /pɔ́ɾkos/ > /póɾkuʃ/ *porcos* 'pigs'
> Pŏ̄rcā(s) > /pɔ́ɾka(s)/ > /pɔ́ɾka(ʃ)/ *porca(s)* 'sow(s)'

9.2. Additionally in Portuguese, another group of words (those with tonic ŏ/ŭ in Latin) have come to match the preceding set, effectively lowering /o/ > /ɔ/ whenever the final vowel is **not** /u/:

> Formōsu > /foɾmózu/ > /fuɾmózu/ *formoso* 'beautiful (masc. sing.)'
> Formōsōs > /foɾmózos/ > /fuɾmɔ́zuʃ/ *formosos* 'beautiful (masc. plur.)'
> Formōsa(s) > /foɾmóza(s)/ > /fuɾmɔ́za(ʃ)/ *formosa(s)* 'beautiful (fem. sing./plur.)'

10. Relatedness to Italian metaphony

Metaphony is pervasive in Italy (Politzer 1957, Tuttle 1985-86, Maiden 1985-86, 1987, Penny 1994), caused by both final /i/ and final /u/.

10.1. Since final /i/ in Italy marks masculine plurals while final /u/ marks masculine singulars, and since both vowels give rise to metaphony, metaphony in many Italian dialects serves to contrast masculine words (both singular and plural) with their feminine counterparts, unlike the case in Cantabria, Asturias, and Portugal, where metaphony serves to contrast the masculine singular with the masc. plural as well as with the feminine.

10.2. The effects of metaphony are more varied in Italy. Final high vowels induce diphthongization of the tonic vowel in many areas, while in others the effect is to raise the tonic one degree, as in Spain and Portugal.

10.3. In at least some areas of Italy, metaphony (and its absence) has come to mark the contrast between count nouns (with metaphony) and mass nouns (without).

10.4. Metaphony never seems to have belonged to Tuscany, and is therefore absent from standard Italian, based as it is on the writing of Tuscan authors, who in turn based their writing on their Tuscan speech. However, it occurs almost everywhere else, in the many non-standard Italian varieties that continue in such vigorous use.

10.5. There appears to be nothing comparable in Italy to the centralization process we have seen in Northern Spain, and consequently nothing of the vowel-harmony systems evident in Spain.

11. Conclusions

The distribution of metaphony in Iberia (the North and the West) suggests that it is ancient and was once more widespread. However, it never gained a foothold in the Burgos area and therefore remained alien to the emerging Castilian varieties and the later Spanish standard based on them. The probable ancient nature of metaphony in turn suggests a common origin with Italian metaphony, an origin to be sought in the spoken Latin of Classical times. We know that the earliest Roman colonists of Spain came predominantly from the southern half of the Italian peninsula (areas where metaphony is still strong today) and metaphony may have been a feature of their speech. If this was so, this feature of early Iberian Latin was challenged by later immigrants is whose language it did not appear. Thereafter, metaphony would have retreated to the remoter, peripheral parts of the Iberian Peninsula, surviving only in the North and West.

There appear to be no precedents outside Northern Spain for the centralizing vowel harmony we have discussed here. We therefore have to conclude that this is a local innovation that has never progressed from its place of origin, or, if it did spread from its place of origin, has since contracted to the rather remote areas it now occupies.

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