THE ACCENTUAL SYSTEM OF MALLABIA BASQUE

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In this paper we examine accentuation in Mallabia Basque. This is an accentual system that is clearly transitional between the northern Bizkaian pitch-accent system (with a lexical distinction between accented and unaccented words, and phrase-final or phrase-penultimate unmarked accentuation) and the central Basque systems (with accent on the post-initial or, in the marked case, on the initial syllable). The study of the accentual patterns in Mallabia Basque offers us important clues to understand the historical connection between these two very different prosodic systems.

1. Introduction

In a broad western and central area of the Basque-speaking territory, we find accentual systems with regular post-initial accent (where some lexical exceptions may receive initial accent instead) (Tzillardegi 1984; Hualde 1991, 1999a). In the northern part of Bizkaia, on the other hand, we find a rather different accentual system, reminiscent of that of Tokyo Japanese, where there is a lexical distinction between accented and unaccented words, the latter subject to a rule of phrase-final accentuation in certain contexts (Hualde 1988, 1991, 1999a; Elordieta 1997; cf., also Azkue 1931-32, Basterrechea 1974-75, Michelena 1972). In Hualde 2003 it is claimed that this Northern Bizkaian system represents a more conservative stage and several historical developments are proposed for the emergence of post-initial accent as a general pattern. In particular, it is proposed that the accentual system employed nowadays in the Mallabia dialect is a transitional type that sheds light on one of these possible diachronic routes. In this paper we describe the patterns of accentuation in Mallabia Basque in greater detail, since it demonstrates a particularly interesting prosodic development and since there are no other published descriptions of this accentual system beyond the very brief description offered in Hualde (2003).1

Mallabia is a township of approximately 1110 inhabitants located about 15 km south of Markina and only 3 km to the west of the urban area of Erumua and Eibar. Its accentual system, although related to those of the Markina and Gernika areas, has a number of very interesting specific features. As mentioned, it represents a transitional type from the Northern Bizkaian pitch-accent system towards

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1 Although Gaminde's (1998) survey of Basque accentual types contains a brief mention of the Mallabia dialect (pp. 83-4), it overlooks the most interesting features of this system.
the system with generalized accent on the second syllable (with exceptional accent on the first) found in some other neighboring areas such as Durango and Etorrio.

2. Accentual patterns

In their citation form (which for nouns and adjectives is the absolutive singular, viz., stem + article /a/ — or /e/ after a high vowel), words in Mallabia Basque can be classified along two accentual dimensions: the position of the accent and the shape of the accentual pitch contour. Considering pitch-accent shape first, in some words, the pitch rises on the accented syllable and has an abrupt fall on the post-tonic. We will refer to this pitch-contour as 'acute accent'. In a lexically contrastive fashion, other words bear a 'grave accent' instead, in which the pitch also rises on the accented syllable but falls gradually towards the end of the word or phrase. Regarding the position of the accent, on the other hand, the accent may be located either on the first or on the second syllable of the word but not on any other syllable. All words accented on the initial syllable have an acute accent, whereas among those accented on the second, some have acute accent and some others have grave accent. By far the largest group is that of words with grave accent (on the second syllable) in their citation form. All of this is summarized and illustrated with examples in (1).²

(1) Words in citation form

I. Marked classes: Acute accent (rapid fall)
   A. Acute initial accent: égie 'truth'
   B. Acute post-initial accent: errótarrixe 'whetstone'

II. Unmarked class: Grave accent (slow fall). Always on the second syllable: mendìxe 'mountain', errótarrixe 'miller'

Minimal or near-minimal pairs can be found across both accentual dimensions of contrast, as shown in (2):

(2) (Near-)minimal pairs

a. Acute post-initial vs. grave
   frútürxe 'fruit-bowl' vs. frútèrxe 'fruit-seller'
   atákíxe 'attack' vs. atákíxe 'gate'
   sagítxue 'little mouse' vs. sagítxué 'shrew'
   errótarrixe 'whetstone' vs. errótarrixe 'miller'

b. Acute initial vs. acute post-initial
   áskúrxe 'itch' vs. áskóríxe 'ax'

c. Acute initial vs. grave post-initial
   ártíxe 'art' vs. ártíxe 'live-oak'
   bárríxe 'bar' vs. bárríxe 'laughter'
   básíxe 'base' vs. básíxe 'mud'
   páríxe 'pair' vs. páríxe 'shovel'

² All examples in this paper are cited using Basque orthographic conventions: x is a voiceless prepalatal fricative, tx the corresponding affricate, tz a voiceless dental fricative, ll a palatal lateral, r a voiceless palatal stop, r a rhotic tap between vowels and rr an alveolar trill.

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sárke 'large basket' vs. sárke 'net'
básíxe 'drinking glass' vs. básíxe 'forest'
págxe 'payment' vs. págxe 'beech tree'
sérke 'zero' vs. sérke 'sky'
saltzie 'the selling' vs. saltzie 'sauce'
bégira 'looking' vs. bégira 'more or less'

The acute/grave distinction is illustrated with a minimal pair in Figure 1.

Figure 1: (a) frútürxe da 'it is the fruit seller'
(b) frútèrxe da 'it is the fruit bowl'

As we can see in Figure 1, in both examples the pitch rises on the second syllable (the curve is interrupted here because of the voicelessness of the /h/). The difference is that in Figure 1a (left-hand example) the pitch continues rising in the post-tonic before it starts to fall. In Figure 1b (right-hand example), on the other hand, there is a rise and a fall within the accented syllable and a much steeper fall to the end of the utterance.

If we consider the behavior of these different accentual classes in non-phrase-final position, we discover that acute-accent words have a rise-fall pitch accent (as in their citation form), which causes the downstep of the accent in a following word. On the other hand, grave-accent words show a relatively high, slowly falling plateau after the rise and, crucially, do not induce downstep of the accent on the next word in the phrase. Thus, if we compare, for instance, the examples in (3), a clear difference is that in the second example of each pair of sentences the second accent is downstepped (reduced) with respect to the first accent, whereas in the first example of each pair either the second peak is higher or both accentual peaks reach approximately the same level:

(3) 1. lagúñan alá已经被 da 'it is the friend's (sg) daughter'
    lagúñen alá已经被 'it is the friends' (pl) daughter'

2. lagúñan alá已经被 die 'they are the friends' (sg) daughters'
    lagúñen alá已经被 die 'they are the friends' (pl) daughters'

In Figure 2 and Figure 3, we include Fₐ tracings for the two pairs in (3).
Figure 2: (a) lag änan alabie da 'it is the friend's (sg) daughter'
(b) lag änen alabie da 'it is the friends' (pl) daughter'

Figure 3: (a) lag änan alabak die 'they are the friends' (sg) daughters'
(b) lag änen alabak die 'they are the friends' (pl) daughters'

As can be seen in Figure 2 and Figure 3, a major difference between the (a) and (b) contours is in the scaling of the second peak. Both alabie ‘the daughter’ in Figure 2 and alabak ‘the daughters’ in Figure 3 present a much lower peak in the (b) example than in the (a) example. The acute accent of the genitive plural form lag änen ‘of the friends’ is manifested as a steep fall after the accented syllable which triggers the reduction of the second accent in the phrase, whether this second accent is grave, as in Figure 2b, or acute, as in Figure 3b. On the other hand, in the (a) examples, where the genitive singular lag änan ‘of the friend’ has a grave accent, there is no downstream. The second accent of the phrase is realized as a higher peak than the first accent in both Figure 2a and Figure 3a.

Clearly the acute/grave distinction in Mallabia is related to the accented/unaccented distinction found in other Bizkaian varieties (see Hualde 1991, 1996, 1997, 1999a, 2000; Hualde & Bilbao 1992, 1993; Hualde, Elordieta & Elordieta 1994; Elordieta 1997; Hualde, Elordieta, Gaminde & Smiljanic 2002). The main difference is that instead of the high plateau or slightly rising contour up to the end of the phrase that, with lexically unaccented words, we find in other Northern Bizkaian varieties, in Mallabia we find a slowly falling contour beginning in the post-tonic. This has resulted in a reinterpretation in the perception of prominence, as argued in Hualde 2003.²

Accentual distinctions play a major role in inflected nominal forms in Basque. For words in the unmarked class, singular and plural forms often have different accentuation. In the next section we examine the accentuation of inflected nominals.

3. Accentuation of inflected nominal forms

As in other western and central Basque varieties (many Bizkaian and Gipuzkoan, and some High Navarrese varieties), singular and plural forms often contrast in accentuation. An interesting fact of the Mallabia dialect, not found in any other variety that has been described until now, is that words with vowel-final bisyllabic stems differ from other words in their accentuation in the plural. Furthermore, /i/-final stems, which undergo epenthesis of a voiceless prepalatal fricative x /f/ between the stem and vowel-initial inflectional suffixes, are treated as consonantal-final for accentual purposes.

The unmarked pattern is grave accent in most singular forms and post-initial acute accent in the plural and ablative singular, as shown in the following partial paradigm for mendī ‘mountain’.⁴

(4) mendī ‘mountain’

<table>
<thead>
<tr>
<th></th>
<th>sg</th>
<th>pl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolutive</td>
<td>mendixe</td>
<td>mendixek</td>
</tr>
<tr>
<td>Dative</td>
<td>mendixai</td>
<td>mendixe</td>
</tr>
<tr>
<td>Genitive⁵</td>
<td>mendixan N</td>
<td>mendixen N</td>
</tr>
<tr>
<td>Benefactive</td>
<td>mendixant</td>
<td>mendixant</td>
</tr>
<tr>
<td>Inessive</td>
<td>mendixen</td>
<td>mendixtan</td>
</tr>
<tr>
<td>Allative</td>
<td>mendire</td>
<td>mendixeta(r)</td>
</tr>
<tr>
<td>Comitative</td>
<td>mendixakin</td>
<td>mendixekin</td>
</tr>
<tr>
<td>Ablative</td>
<td>mendittik</td>
<td>mendixetik</td>
</tr>
</tbody>
</table>

By and large, the accentuation of these forms corresponds closely to what has been described for some northern Bizkaian varieties (the Gernika-Getxo type, Hualde 1999a, among others). For the most part, the grave-accent forms correspond to the unaccented forms of these other varieties. In particular, the anomalous accentuation of the ablative singular (which has acute accent) with respect to

² An intermediate step in this evolution undoubtedly was the retraction of the accent from the final syllable of the phrase to the penultiminate, as in neighboring Martina and Ondarroa (Hualde 2000, 2003).

⁴ mendī is the bare stem. The citation form is mendixe. Bare stems can be used without inflectional suffixes if accompanied by modifiers; e.g., lau mendī ‘four mountains’.

⁵ The genitive must be followed by a noun; e.g. mendixan adia ‘the mountain’s name’ or by a determiner; e.g. mendixana ‘the one of the mountain’ vs. mendixena ‘the one of the mountains’.

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other singular forms is general in Bizkaian. One difference with respect to other dialects is found in the comitative, which is accepted in both singular and plural in other Bizkaian varieties, although the accent oftentimes falls on different syllables in the two numbers, e.g.: Getxo sg laguná ‘with the friend’, pl lagunakas ‘with the friends’; Gernika sg lagunégas ‘with the friend’, pl lagúnekin ‘with the friends’; Markina sg lagínas, pl lagúnekin.

We find the same pattern with all consonant-final and (epenthesis-triggering) /i/-final stems and also with vowel-final stems of three or more syllables, as illustrated in (5) with the absolutive singular and plural:

(5) a. Consonant-final stems (including /i/-final)

<table>
<thead>
<tr>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>uninflected stem</td>
<td>sg</td>
</tr>
<tr>
<td>ogi ‘bread’</td>
<td>ogixe</td>
</tr>
<tr>
<td>gison ‘man’</td>
<td>gísona</td>
</tr>
<tr>
<td>lagun ‘friend’</td>
<td>lagúne</td>
</tr>
<tr>
<td>katedral ‘cathedral’</td>
<td>katedrala</td>
</tr>
<tr>
<td>katamixer ‘squirrel’</td>
<td>katamixera</td>
</tr>
<tr>
<td>bersolarí ‘verse-singer’</td>
<td>bersólarixe</td>
</tr>
</tbody>
</table>

b. Vowel-final stems of three or more syllables

<table>
<thead>
<tr>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>alaba ‘daughter’</td>
<td>alábak</td>
</tr>
<tr>
<td>abade ‘priest’</td>
<td>abádie</td>
</tr>
<tr>
<td>kategorixa ‘category’</td>
<td>kategórixie</td>
</tr>
<tr>
<td>astakume ‘baby donkey’</td>
<td>astakumie</td>
</tr>
<tr>
<td>basamortu ‘desert’</td>
<td>basamortue</td>
</tr>
<tr>
<td>arrijasotaille ‘stone-lifter’</td>
<td>arrijasotaillie</td>
</tr>
</tbody>
</table>

On the other hand, bisyllabic stems ending in a vowel other than /i/ show a shift of the accent to the initial syllable in all plural forms (but not in the ablative singular, even though this form also has an acute accent), this is illustrated in (6) with a partial paradigm of etxe ‘house’. Further examples, in the absolutive, are given in (7):

(6) Vowel-final bisyllabic stems: etxe ‘house’

<table>
<thead>
<tr>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolutive</td>
<td>etxie</td>
</tr>
<tr>
<td>Ergative</td>
<td>etxiek</td>
</tr>
<tr>
<td>Dative</td>
<td>etxii</td>
</tr>
<tr>
<td>Genitive</td>
<td>etxian N</td>
</tr>
<tr>
<td>Benefactive</td>
<td>etxiantzat</td>
</tr>
<tr>
<td>Inessive</td>
<td>etxien</td>
</tr>
<tr>
<td>Allative</td>
<td>etxera</td>
</tr>
<tr>
<td>Ablative</td>
<td>etxetik</td>
</tr>
</tbody>
</table>

(7) Other examples of vowel-final bisyllabic stems

<table>
<thead>
<tr>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>lora ‘flower’</td>
<td>lorak</td>
</tr>
<tr>
<td>kale ‘street’</td>
<td>káliek</td>
</tr>
<tr>
<td>asto ‘donkey’</td>
<td>ástuek</td>
</tr>
<tr>
<td>esku ‘hand’</td>
<td>éskuek</td>
</tr>
</tbody>
</table>

Phrase-final accent is generally avoided. This results in retraction of the accent to the first syllable of two-syllable words in final position:

(8) Phrase-final retraction

baltz ‘black’
balzi ‘the black one’
baltz da ‘it is the black one’
cf. pl: balziak die ‘they are black’, balziak ‘the black ones’

The phrase-final retraction rule has an exception in allative forms, which can be optionally contracted: etxera ~ etx ‘to the house, allative sg.’

What we have said so far applies only to words in the unmarked class (=grave accent in citation form, abs sg). All words that have an acute accent in the absolutive singular (and in their uninflected form, whether on the initial or on the post-initial syllable), keep the accent on that syllable throughout their inflectional paradigm. With these exceptional words there is no accentual distinction between singular and plural:

(9) Marked class: acute stems

<table>
<thead>
<tr>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>músker ‘lizard’</td>
<td>múskerak</td>
</tr>
<tr>
<td>txistu ‘flute’</td>
<td>txistuek</td>
</tr>
<tr>
<td>lengthu ‘cousin’</td>
<td>lengthusuek</td>
</tr>
<tr>
<td>báxerri ‘farm’</td>
<td>báxerekek</td>
</tr>
<tr>
<td>arrá nonzero</td>
<td>arránuek</td>
</tr>
<tr>
<td>basérritar ‘farmer’</td>
<td>basérritarra</td>
</tr>
<tr>
<td>basérritarra</td>
<td>basérritarra</td>
</tr>
</tbody>
</table>

Consequently with what we have said, many of the minimal pairs given in (2) are not distinguished in the plural:

(10) Minimal pairs

<table>
<thead>
<tr>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruteru ‘fruit-seller’</td>
<td>frutúreek</td>
</tr>
<tr>
<td>fruteru ‘fruit-bowl’</td>
<td>frutúreek</td>
</tr>
</tbody>
</table>

4. Marked words (acute accent in citation form)

As mentioned, words with an acute accent in their citation form are exceptional (i.e., they form a relatively small class). As in other western and central Basque dialects with an accentually exceptional or marked class, these words fall into two main groups: (a) compounds and words with certain derivational suffixes and (b) borrowings, some of them very old (Michelena 1972, Hualde 1992, among others). In addition, there is a small residue of words of unclear origin. In general, it seems that the Mallabia dialect has fewer marked words than some other Bizkaian varieties whose lexicon has been explored from this point of view, such as Lekeitio (Hualde, Elordieta & Elordieta 1994) and Getxo (Hualde & Bilbao 1992).

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4 This is also true of items in the marked accentual class in other western and central dialects, as already noticed in Michelena (1977).
4.1. Compounds

Many compounds have acute accent, including productively created compounds. The accent may be on the first or the second syllable. Most compounds with initial accent have a monosyllabic first member (i.e., the accent tends to occur on the first member of the compound). Nevertheless, it is not the case that all compounds have marked accent. Instead, we find some rather idiosyncratic subregularities. For instance, compounds with -ar ‘male’ and -eme ‘female’ have acute accent, but those with -kume ‘child, offspring’ do not:

(11) Compounds

Ia. Acute initial accent


Ib. Acute post-initial accent


II. Grave accent


4.2. Derived words

Most derived words have unmarked grave accent, but some derivational suffixes induce acute accent. Again, the grave vs. acute distinction corresponds directly to the unaccented/accented contrast of other dialects and, by and large, the same words and classes of words are found in the two groups as in other dialects.

(12) Derived words

I. Acute accent


-ka: adá-ka ‘hitting with horns’ (cf. adárra ‘horn’), arré-ke ‘throwing stones’

-kerie: adar-kerie ‘horn shape’ (cf. adárdadie ‘length of horns’), ibílr-kerie ‘manner of walking’, erras-kerie ‘way of combing, hairdo’, lús-erie ‘length’

-tza: dirà-tzia ‘amount of money’, lastò-tzia ‘pile of straw’, lagún-tzia ‘help’ morró-tzia ‘serfhood’


-dun: ard-dune ‘sheep owner’, motór-dune ‘motorized’ (BUT ulesuridûne ‘s.o. with white hair’)

-en: báltz-fa ‘blackest’

-agò: báltz-ague ‘black’

-egò: báltz-ègixe ‘too black’

II. Grave accent

-gàrri: berbè-garrixe ‘heater’

-tasun: berbè-tasune ‘heat’

-lari: berbè-larixe ‘verse-singer’

7 As remarked in Michélasa (1970) (see also Trask 1997: 267), this example shows that the semantic field of urdin, nowadays ‘blue’ or ‘gray’, must have formerly included the meaning ‘green’ (in which sense it has been replaced by the bowowing berde), since this mushroom’s color is a deep green.
4.3. Loanwords

Many words in the acute accent class are borrowings, both very old and recent. Whereas some of them preserve the etymological place of the accent, many others do not:

13. Acute-accent borrowings

1a. Initial

dbixie 'nest' < Lat. cavesa, ántzara 'goose' < Lat. anser, árbolize 'tree', árikxue 'risk', átu 'immediately' < Sp. en el acto, béspere 'night before' < Sp. vtopera, dantzie 'dance', déndie 'store', déporcie 'time' < Lat. tempora, démiekie 'Sunday' < Lat. dominica, dürduri 'type of bird, turdu viscivorus', gábanie 'atic' < Lat. camera, gónie 'skirt', fgurue 'surrounding area' < Lat. in gyrum, káxolie 'cage' < Rom. < Lat. caveola, kikerie 'pitcher' < Sp. jícara, kúrdie < Sp. guinda, kórtie 'yard', kúpizie 'blame', kúbixie 'Gúinea pig' < Sp. cuy, lándarie 'plant', língie 'plank', látizie 'pencil' < Sp. lapiz, léki 'place' < Rom. luceo, línure 'book', máixue 'teacher', máluxe 'hammer', périzie 'market day' < Sp. feria, póspolue 'match' < Sp. fósforo, pásatue 'Saturday', télutue 'roof' < Rom., cf. Sp. tejado.

1b. Post-initial

arkondarie 'shirt' < Old Sp. < Arab., askoríe 'axe' < Lat. asceola, arskíe 'sugar', bentanie 'window', domínistukie 'sneeze' < Lat. dominus tecum, erlóju 'watch', errégiti 'queen' < Lat. regina, errékie 'cricket' < Rom., cf. Occitan rec., eskolíe 'school', iltúrie 'aspect' < Sp. hechura, kitértu 'guitar', koméntú 'convent', marítzena 'Tuesday' < Lat. Martis eguna, pulüxie 'bladder' < Lat. uexica, áronzue 'squall', bandérié 'flag'.

Many borrowings have an acute accent on a different syllable from the source:

14. Borrowings with accent shift


As in other Bizkaian dialects, specific accentual patterns are applied to Spanish borrowings with certain endings. For instance, borrowings from Spanish -eto words have acute accent when the meaning is 'place, receptacle' but grave accent when the meaning is 'profession, occupation' (Hualde 1999b), as we see in the example in Figure 1.

Although clearly there are certain tendencies, in general it appears that the accentuation of borrowings is not completely predictable. Thus, to give just one example, whereas Sp. grámo, gráno give grámue, gránue, respectively, from Sp. grádo we have grádu.

4.4. Other exceptional items

Finally, besides compounds and derived words and various types of loanwords, there is also a relatively small group of acute-accent words of uncertain etymology. By and large, the same items belong to this group in all western and central varieties that recognize an accentually exceptional perspective:

15. Words of uncertain etymology with acute accent

1a. Initial

bélrarrixe 'ear', ábua 'honeycomb', ádorrie 'vigor' (< Sp. arder), árrautzie 'egg', átzie 'back part' árrrie 'front', bázkarikxe 'dinner', érderie 'Spanish lg.', éruskie 'Basque lg.', áxuikxe 'sun' (< eguzki < egu(n) 'day' + ?), bétsie 'other', gánorie 'skill', gárara-si 'cry', fitxaurre 'walnut' (< ? + ur 'hazelnut'), fisticarrixe 'throat', fúže 'sycy' (< igitai), máixie 'table', mâlxie 'level', múskerra 'lizard', ôrrata 'needle', símacrue 'fertilizer', tálu 'pancake', txálue 'appliance', txingorra 'hail', úsaba 'boss' (< ugazaba).

1b. Post-initial

adábagixe 'mending', arránuxe 'eagle', aséxié 'fox', berákatzia 'garlic', erfróxia 'laural', erRRúkixie 'pity', geróstixie 'holly', ilex 'aquilifolium', lapikxe 'cooking pot', orkáfiglie 'ankle', òztárie 'basket', úrduaxie 'lard, bacon' (< urde 'pig' + gai 'matter')?

5. A comparative/diachronic perspective

The acute/grave contrast lends the Mallabia accentual a certain amount of complexity. As mentioned at the beginning of the paper, undoubtedly this contrast is diachronically related to the accentuated/unaccented distinction found in Northern Bizkaian, including Markina, just a few kilometers to the north of Mallabia.

In an area from Getxo to Gernika, phrases composed entirely of lexically unaccented items receive final accent when focalized or when uttered in isolation. In these phrases, the pitch rises at the beginning of the phrase and stays high up to the last syllable, where it falls, as shown in the example on the left in (16) with a schematic contour. Accented words, on the other hand, present a sharp fall immediately after the accented syllable, as in the corresponding plural example on the right:

Unaccented words or phrases in isolation receive a pitch accent in Basque; just as in English or Spanish a word pronounced in isolation will regularly bear a pitch accent.
(16) Gernika-Getxo

\[ \text{lagunena dá} \] \quad \text{'it is the one of the friend'}
\[ \text{lagúnena da} \] \quad \text{'it is the one of the friends'}

In Lekeitio we find essentially the same contrast, with the difference that (almost) all lexical accents have shifted to the penultimate syllable of the word:

(17) Lekeitio

\[ \text{lagunena rá} \] \quad \text{'it is the one of the friend'}
\[ \text{lagúnena ra} \] \quad \text{'it is the one of the friends'}

In Ondarroa and Markina, unaccented phrases receive phrase-penultimate accent, instead of phrase-final accent. In Markina, where, in this particular case, the lexical accent of the plural form is on the same syllable as in Gernika, the resulting contrastive patterns are as in (18), whereas in Ondarroa, where the accent of the plural form has been shifted as in Lekeitio, the pitch patterns are as schematized in (19):

(18) Markina

\[ \text{lagunana da} \] \quad \text{'it is the one of the friend'}
\[ \text{lagúnena da} \] \quad \text{'it is the one of the friends'}

(19) Ondarroa

\[ \text{lagunana ra} \] \quad \text{'it is the one of the friend'}
\[ \text{lagúnana ra} \] \quad \text{'it is the one of the friends'}

In all these systems, in the lexically unaccented case the pitch remains high up to the final (in Gernika-Getxo and Lekeitio) or the penultimate syllable (in Markina and Ondarroa) and this is the syllable that is perceived as carrying accentual prominence. In Mallabia, instead, we find a slow fall from the third syllable of the phrase to the end (generally more pronounced in the last two syllables), a fact that has caused the perception of prominence to be transferred to the second syllable:

(20) Mallabia

\[ \text{lagúnana da} \] \quad \text{'it is the one of the friend'}
\[ \text{lagúnena da} \] \quad \text{'it is the one of the friends'}

\[ \text{lagúnana da} \] \quad \text{'it is the one of the friend'}
\[ \text{lagúnena da} \] \quad \text{'it is the one of the friends'}

F0 tracings for these Mallabia examples can be observed in Figure 4:

\[ \text{Figure 4:} \quad (a) \text{lagúnana da 'it is the one of the friend'} \]
\[ \text{(b) lagúnena da 'it is the one of the friends'} \]

Notice that in the (a) example in Figure 4, after the abrupt rise on the second syllable, the peak continues rising and the fall does not begin until the penultimate syllable. There thus seems to be a certain amount of variation on the precise point where the fall starts in grave-accent words/phrases. Although the patterns do not differ greatly from those found in Markina, the location of the fall in unmarked words and phrases is not well-demarcated with respect to the end of the phrase, and this seems to have led to a perceptual reanalysis where now the rise on the second syllable is seen as the locus of the accent.

It is easy to envision how a system of the Mallabia type can be transformed into a much simpler system. It would be enough for some children to fail to acquire the rather subtle acute/grave distinction. The result would be a system where most of the time the accent would be on the second syllable (< former grave and post-initial acute), and exceptionally we would have initial accent. In this reanalyzed system, thus, words accented on the second syllable, whether they used to bear a grave or an acute accent, would fall together in one class, and would contrast only with those words that are accented on the initial. This is indeed what we find in some neighboring areas such as Durango, Elorrio, and Elgoibar.

The accentual system employed by conservative Mallabia speakers (i.e., those with the acute/grave distinction), however, remains very similar to the Northern Bizkaian pitch-accent type, which has a contrast between lexically accented and unaccented words. In particular it is very close to the Markina subtype. In fact, whereas ‘grave accent’ is an appropriate characterization of the pattern that these words show in phrase-final position, we saw above that grave-accent words do not cause downstep of a following accent, unlike acute-accent words (Figure 2). This suggests that grave-accent words are actually lexically unaccented, and that the rise on the second syllable is a phrase-boundary phenomenon. This is confirmed when these words are place phrase-medially, as in, \textit{gure lagúnana da} ‘it is the one of our friend’, \textit{gure lagünan alabie da} ‘it is our friend’s (sg) daughter’. In this medial context we can see that a grave-accent word such as \textit{lagúnana(a)} loses its prominence altogether (since the rise takes place on the second syllable of the
In both examples in Figure 5, the main rise takes place on the second syllable of the phrase, -re. In the Figure 5a example, the rise continues until the antepenultimate syllable -di-, with small intervening dips that can be considered microprosodic effects produced by the voiced consonants /d/ and /d/ (realized as continuant in intervocalic position). In the Figure 5b example, containing the acute plural form abddiek ‘the priests’, the pitch rises up to the lexically accented syllable, where a steep fall starts.

Given these facts, we can analyze Mallabia Basque as possessing the same lexically accented vs. lexically unaccented distinction that we find in the Northern Bizkaian area. The main difference is in the tonal contour of phrases composed of unaccented items. In Leketio, for instance, these phrases clearly have final accent. In Ondarroa and Markina, they have penultimate accent in an equally clear fashion. Here is where we consistently find a fall in pitch. In Mallabia, on the other hand, we have seen that the location of the fall is earlier than in these other dialects and appears to be more variable. This, we have suggested, has produced a shift of the locus of prominence to the second syllable of the phrase, characterized by a close rise.

The other remarkable fact about Mallabia accentuation that we have noted is the leftwards shift of the accent in the plural of words with vowel-final bisyllabic stems.
REFERENCES


RESOLUTION ALGORITHMS FOR THE KOREAN REFLEXIVE cakicasin: A CATEGORICAL GRAMMAR APPROACH*

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The Korean reflexive cakicasin is known to be local, whereas another reflexive form, caki, allows long-distance antecedents. But, in some contexts, cakicasin has an antecedent that is located outside of the minimal S domain. That is, cakicasin is local, i.e., sentence-bound, in most cases, but permits a nonlocal antecedent sometimes. The goal of this paper is to provide more efficient computational algorithms for the Korean reflexive cakicasin, whether its antecedent is located within the minimal S domain or outside of the domain. For this purpose, Chierchia’s (1988) Binding Theory is combined with Steedman’s Combinatory Categorial Grammar (CCG). The combination will be called a CCG-like system. In this system, the [+refl] feature is instantiated as a feature of cakicasin, and it is percolated up until it meets a suitable antecedent. By these kinds of resolution algorithms, the syntactic behaviors of cakicasin are effectively implemented, reducing computational burdens considerably. In addition, we can easily contrast cakicasin with caki, saying that slightly different reflexive-antecedent pairs are responsible for the syntactic differences of these two reflexive forms. In sum, this paper develops more economical and unified algorithms that implement the Korean reflexive cakicasin using Categorial Grammar.

1. Introduction

Some languages have long-distance reflexives in addition to sentence-bound counterparts. Korean is one such language. As sentences from (1) to (4) illustrate, caki is a long-distance reflexive whereas cakicasin is sentence-bound.1,2

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* This is an extended version of Lee 2002b, focusing on cakicasin rather than caki. The system developed in this paper is actually implemented in JAVA as a partial fulfillment of Lee’s forthcoming work.

1 In the examples below, relevant expressions are marked by boldface. Coreference relations between reflexive and its antecedent are represented by subscribed indexes. Superscripted numbers express preference rankings, making ‘1’ the most preferred reading. These notational conventions come from Moons 1996.

2 The preference rankings that are expressed in this paper are based on Moons’s intuition. But, Kong’s (1988) statistical approach supports this preference ranking. He counted occurrences of three reflexive forms, i.e., caki, cakin, and cakicasin, in the KOREA-I corpus, which was built at Korea University. The data includes 5,000,000 tokens, where Case markers are attached to each word. The table in (7) illustrates the result. As this table shows, we have a total of 316 occurrences of caki-I. Here, we have 165 cases of long-distance readings (52%), and 151 cases of sentence-bound readings (48%). Though there is little difference (4%), the long-distance reading is slightly preferred to the sentence-bound reading.