

Vowel interaction in Basque: A nearly exhaustive catalogue

JOSÉ IGNACIO HUALDE — IÑAKI GAMINDE
(University of Illinois) — (Euskal Herriko Unibertsitatea)

0. Introduction*

The treatment of vowel sequences in Basque inflectional morphology has played a prominent role in discussions of rule interaction, literally becoming a textbook example of extrinsic rule ordering (cf. de Rijk 1970, Kenstowicz & Kisseberth 1979: 176-77, Kenstowicz 1994: 21-22, 126-127, Lakoff 1993, Kirchner 1997, Trask 1996: 92-93). However, perhaps because of the incomplete sources, the facts are often misrepresented. Thus Kenstowicz & Kisseberth (1979) mix facts from different dialects and Trask's (1996) 'conservative Bizkaian', which he uses to illustrate rule reordering, is purely fictional. In addition, the incompleteness of the data that are presented can be misleading. The reader may conclude that no other possibilities are found (or could be found). This is enough reason to justify the compilation of facts that we undertake in this paper. Another important reason, of course, is that as a consequence of the diffusion of standard Basque much of the existing diversity in the treatment of vowel sequences in Basque can be expected to disappear in the near future. It is thus important to document these facts in an easily available source.

1. Attested patterns

Inflected singular and plural forms arose historically by the affixation of the distal demonstrative $(b)a(r)$: **gizon* $(b)a(r)$ 'that man' > *gizona* 'the man'. This origin is obvious when we compare, for instance, dative forms such as *gizonari* 'to the man' and *gizon* $(b)ari$ 'to that man' (see Michelena 1977: 218, 1981). Other demonstratives have also developed into suffixes. In this paper we will focus on the absolutive singular, which is the citation form. The basic shape of the absolutive singular suffix is *-a*, added to the uninflected stem, as in *gizon* 'man', *gizona* 'the man'.

The vowel sequences resulting from suffixation of the singular determiner to stems ending in different vowels have undergone a great number of different chan-

* We are grateful to Koldo Zuazo for comments and corrections. A version of this paper will appear in *Studies in the Linguistic Sciences* 28.

ges in different areas. Thus, the absolutive singular of, for instance, a stem ending in *-o* such as *beso* 'arm', may be *besoa*, *besua*, *besue*, *besu*, etc. depending on the variety. A nearly exhaustive catalog of the patterns that have been documented for the absolutive singular is given in Table I. Each pattern is identified by a representative variety. The output for each of the historical (or, if one wishes, 'underlying') sequences resulting from affixing the singular determiner *-a* to stems ending in each of the five vowels is listed on a separate column (The sound represented as *-y-* may range from a glide, to a voiced nonstrident palatal fricative [j] to a voiced palatal stop [ɟ], depending on the variety, similarly *-b-* may be a stop [b] or an approximant [β]):

TABLE I: Treatment of vowel sequences in the absolutive singular

	a+a	e+a	o+a	i+a	u+a
1. Standard Basque	a	ea	oa	ia	ua
2. Literary Bizkaian	ea	ea	oa	ia	ua
3. Arratia	ea	ea	oa	ie	ue
4. Getxo	e	e	o	i	u
5. 18th cent Markina	ia	ia	ua	iža	uba
6. Lekeitio/Deba	ia	ia	ua	iža/iša	ua
7. Bermeo	ie	ie	ue	iže	ue
8. Gernika	ie	ie	oa	iže	ue
9. Elantxobe	i	i	u	iže	u
10. Larrauri	ia	ia	oa	iže	ue
11. Errezil	ia	ia	ua	i	u
12. Urdiain	ia	ia	ua	i(y)a	u(b)a
13. Zumaia	aa	ia	ua	iša	ua
14. Zarautz	a	ia	ua	iya	ua
15. Alegia	a	ea	oa	ie	ue
16. Etxarri	a	ie	ue	iyē	ubē
17. Lizarraga	a	je	ɥe	iyē	ubē
18. Ultzama	a	ja	ɥa	ie	ue
19. Basaburua	a	ii	oa	ii	uu
20. Beruete	a	ee	oa	ii	uu
21. Baztan	a	ja	ɥa	je	ɥe
22. Aezkoa	a	ɟa	ɟa	ja	ɥa
23. Zaraitzu	ara	ɟa	ɟa	ja	ɥa
24. Erronkari	á	ɟa	ɟa	ja	ja
25. Zuberoa	á	ia	ua	ia	ia
26. Sara	a	ja	ɥa	ia	ua
27. Beskoitze	a	ja	ɥa	ia	uya (üa, ia)
28. Arbona	a	ja	ua	ia	ua
29. Aiherra	a	ja	ɥa	ja	ja

The patterns in Table I are roughly organized in terms of geographical distribution. On the basis of the treatment of vowel sequences, we can establish the following major dialectal groups:

A. Western dialects (mostly Bizkaian): Types 2-12 (those which present reflects of the dissimilation $a+a > ea$).

B. Central dialects (mostly Gipuzkoan): Types 14-16.

C. Navarrese dialects: Types 17-24 (with rising diphthongs)

D. Northern dialects: Types 25-29

In section 2, we will first consider the main historical processes which have given rise to the alternations that we find in the different dialects. In section 3, the 29 patterns in Table I will be exemplified and discussed as systems of alternations. Some considerations regarding the spread and retraction of vowel alternations through time and space are presented in section 4.

2. Main sound changes resulting in alternations

2.1. Low Vowel Assimilation

Most Bizkaian, as well as some Gipuzkoan and High Navarrese varieties have acquired a process whereby /a/ is raised to /e/ after a high vowel, with or without intervening consonants.¹ This results in the following alternations between -a and -e with consonant-final stems:

<i>uninflected</i>	<i>abs sg</i>		<i>uninflected</i>	<i>abs sg</i>	
gizon	gizona	'man'	lagun	lagune	'friend'
eder	ederra	'beautiful'	mutil	mutile	'boy'
sagar	sagarra		'apple'		

This raising also takes place with stems ending in a high vowel, e.g. *buru/burue* 'head/the head'. In addition, in many dialects this process was acquired after another change raising mid vowels in prevocalic position (Mid Vowel Raising, cf. 2.3.2). In these dialects the effects of Low Vowel Assimilation are also found with stems ending in mid (and even low) vowels: *beso/besue* 'arm/the arm', *seme/semie* 'son/the son'. Nevertheless, there are areas where the order of acquisition of the two processes of Low Vowel Assimilation and Mid Vowel Raising has been the opposite, resulting in more opaque alternations of the type *buru/burue* but *beso/besua*, as in 16 Ultzama and 19 Baztan in Table I.

In rural areas around Azpeitia and Azkoitia in Gipuzkoa, the raising of /a/ by this process produces a distinct vowel [ɛ] or [æ], transcribed as *ä* in dialectological studies, which does not merge with the allophones of /e/ (cf. Yrizar 1991: I, 366).

2.2. a-final stems

As mentioned, the affixation of the determiner to vowel-final stems creates vowel sequences which are altered in a number of different ways. Historically, the first

(1) More precisely, as Zuazo (1998: 213) indicates, this assimilation is found in all of Bizkaia (except for Mundaka, Lekeitio, Ermua and Elorrio), in Araba, in all of southern Gipuzkoa, and in a large area of Navarre west of Aezkoa. On the other hand, there is no trace of this phenomenon in the northern dialects.

change took place in the sequence of identical vowels created by the attachment of the suffix *-a* to *a*-final stems. We find three main developments in the singular of *a*-final stems:

- Dissimilation: *aa* > *ea* *neska* 'girl' vs. *neskea* 'the girl' (western)
 Contraction: *aa* > *a* *neska* 'girl' = 'the girl' (central)
aa > *á* *néska* 'girl' vs. *neská* 'the girl' (easternmost area)

In a few localities on the western *-ea* / central *-a* isogloss (e.g. Zumaia) we find the older *-aa* sequence unmodified:

aa *neska* 'girl' vs. *neskaa* 'the girl'

The sequence *-ea* has been further altered in many western varieties:

Western developments

	<i>uninfl/abs sg</i>
<i>aa</i> > <i>ea</i> > <i>ia</i>	<i>neska</i> / <i>neskia</i> (e.g. Eibar, Lekeitio)
<i>aa</i> > <i>ea</i> > <i>ia</i> > <i>ie</i>	<i>neska</i> / <i>neskie</i> (e.g. Gernika)
<i>aa</i> > <i>ea</i> > <i>ia</i> > <i>ie</i> > <i>i</i>	<i>neska</i> / <i>neski</i> (e.g. Ondarroa)
<i>aa</i> > <i>ea</i> > <i>e</i>	<i>neska</i> / <i>neske</i> (e.g. Getxo)

The dissimilatory change *aa* > *ea* (and further evolutions) is found in all of Bizkaia, in the Basque-speaking area of Araba, in western and southern Gipuzkoa and even in a few towns in the Navarrese Burunda Valley (Zuazo 1995, 1998: 197). This sound change is already present in our first documents for western dialects such as a letter by Fray Juan de Zumarraga dated 1537 (see Sarasola 1990), Landucci's 1562 dictionary and the anonymous *Refranes y Sentencias* of 1596. The identical sequence created in plural forms such as *neskaak* 'the girls' is, however, not affected in the same manner. In 18th century Markina as well as some present-day varieties such as Oñati, this sequence is left unchanged and we do indeed find *neskaak*. But the sequence has subsequently been reduced to *neskak* almost everywhere. The common western pattern is thus *neska* 'girl', *neskea* 'the girl', *neskak* 'the girls' (all forms are for the absolutive case, unless otherwise indicated). As Michelena (1981) points out, the failure of the dissimilation rule to operate in the plural can be taken as evidence for concluding that the plural determiner became a suffix later than the singular. Some additional evidence for this position is provided by the marked accentual behavior of plural suffixes. In what appears to be the most conservative western accentual system (Gernika-Getxo), most words are unaccented and are subject to only phrase-level accentuation on the last syllable; e.g.: *sagarrá* 'the apple', *neskeá* (= *neskié*) 'the girl', *sagar ederrá* 'the beautiful apple', *neska ederrá* 'the beautiful girl', *sagar ederra dá* 'it is the beautiful apple'. Clitics, on the other hand, introduce an accent on the preceding syllable; e.g.: *sagar ederrá be(re)* 'the beautiful apple too'. Plural suffixes behave like clitics in triggering preaccentuation; e.g. *sagárrak* 'the apples', *neskak* 'the girls'. We may thus surmise that at the point the dissimilatory raising of stem-final low vowels took place, the singular determiner was already a

suffix, but the plural was only a clitic, with a less intimate link to the stem (cf. Hualde 1993).

In most of the Basque Country, on the other hand, we find a reduction *aa* > *a* in both singular and plural forms; e.g.: *neska* 'girl; the girl', *neskak* 'the girls'. Interestingly, as mentioned, in some points on the dividing line between the western and the central solution we find the original sequence unchanged.

In the easternmost Zuberoan or Souletin dialect (as well as in the now extinct Roncalese or Erronkari dialect), the contraction of the sequence *-aa* is reflected acccentually. In this area, stress is regularly penultimate, as in *gízun* 'man', *gizúna* 'the man'. The contraction of the *-aa* sequence has created marked oxytonic words: *neskaa* > *neská* 'the girl' (vs. uninflected *néska* 'girl'), *neskaak* > *neskák* 'the girls'.

Finally, in Salazarese (Zaraitzu), a now obsolescent dialect, an epenthetic *-r-* distinguishes absolutive singular forms such as *alabara* 'the daughter' from uninflected *alaba* 'daughter'.

Everywhere with (nonsingular) suffixes starting with a vowel other than /a/ stem-final *-a* is deleted, as in the standard forms *neskek* 'the girls, erg pl', *neskok* 'the girls abs/erg prox pl', *nesken* 'of the girls, gen pl'.

2.3. *e*-final and *o*-final stems

2.3.1. Neutralization of the contrast between *a*-final and *e*-final stems in western dialects

First of all, we must note that the disimilatory change *-aa* > *-ea* in western dialects created a neutralization in the singular between *a*-final and *e*-final stems. All subsequent changes have treated the sequence *-ea* in the same way, regardless of whether the uninflected form ends in *-e* or in *-a*. That is, the absolutive singular of *a*-stems and *e*-stems is always identical in western dialects. The different evolutions of *-ea* in western dialects that were illustrated with *a*-final stems above are also the same for *e*-final stems:

Western developments

	<i>uninfl/abs sg</i>
ea > ia	seme / semia, neska / neskia (e.g. Eibar, Lekeitio)
ea > ia > ie	seme / semie, neska / neskie (e.g. Gernika)
ea > ia > ie > i	seme / semi, neska / neski (e.g. Ondarroa)
ea > e	seme / seme, neska / neske (e.g. Getxo)

Since the change *-aa* > *-ea* only took place in the singular, plural forms of *a*-final and *e*-final stems are different. Thus, for instance in Gernika we find *neska/neskie/néskak* 'girl/the girl/the girls' vs. *seme/semie/semiek* 'son/the son/the sons'. The neutralization between nominal classes is thus found only in the singular (but it has nevertheless triggered the transfer of some words from the *e*-final to the *a*-final class in western varieties; e.g. *lore/lorea* > *loral/lorea* 'flower')

Unlike the change *-ea* > *-aa*, all subsequent changes took place both in the singular and in the plural. Most of these changes are also found outside of the western area.

2.3.2. Mid Vowel Raising *ea > ia, oa > ua*

The most common of the changes affecting mid vowels is the raising *ea > ia*. Alternations of the type *sem/semia* are found from western dialects like Lekeitio to Zuberoan, the easternmost dialect. In most of the area where *ea > ia*, there is a parallel development *oa > ua*; e.g.: *sem/semia* 'son/the son', *beso/besua* 'arm/the arm'. However, in Gernika, where we find *sem/semie*, the sequence *-oa* remains unchanged, *beso/besoa*.

The acquisition of Mid Vowel Raising may or may not result in merger between the sequences corresponding to stems ending in mid and high vowels depending on whether or not other processes affect stems ending in high vowels (cf. Table I).

In many areas we find the further development *ia > ie, ua > ue*, by Low Vowel Assimilation (cf. 2.1).

2.3.3. Gliding: *ea > ɣa, ia, oa > ɣa, ɥa*

In many Navarrese and Labourdin varieties stem-final mid vowels lose their syllabicity before the vowel of a suffix and are realized either as nonsyllabic versions of /e/, /o/ or as true (high) glides, often with both options as variants in the same dialect; e.g.: *seme / semɣa ~ semja*.

In most of this area the same results are found with stems ending in a high vowel. There are, however, some interesting exceptions (patterns 18 and 26 in Table I), where stem-final mid vowels glide but stem-final high vowels do not.

2.4. Stems ending in a high vowel

2.4.1. Epenthesis of homorganic consonant: *ia > iya > iža > iša, ua > uba*

With stems ending in a high front vowel a homorganic transitional glide developed between the stem-final vowel and the initial vowel of a suffix in many Bizkaian, Gipuzkoan and High Navarrese varieties. This glide was hardened, giving rise to several palatal and prepalatal consonants:

<i>ia > iya</i> [iʝa] ~ [iʝa]	<i>mendi / mendiya</i>	(many Gipuzkoan varieties)
<i>ia > iya > iža</i>	<i>mendi / mendiža</i>	(many Bizkaian varieties)
<i>ia > iya > iža > iša</i>	<i>mendi / mendiša</i>	(Deba valley)

A parallel process of epenthesis is found with *u*-final stems, where the resulting epenthetic consonant is generally [-β-], but a stop [-b-] in Arbizu² (which contrasts with all other instances of intervocalic /b/, cf. Hualde 1996a). This process has been steadily losing ground during the last century. Whereas a hundred years ago epenthesis with *u*-final stems appears to have been as general as epenthesis with *i*-final stems in Bizkaia, Gipuzkoa and Navarre and was also found in coastal Labourdin, epenthetic [-β-] has now been lost in most of its former territory or, in some areas, it is found only in the speech of older speakers.

(2) And, less consistently, also in neighboring Lakuntza and Arruazu.

Alternations of the type *mendi/mendiže* 'mountain/the mountain' (as in pattern 7 Bermeo) result from Low Vowel Assimilation.

2.4.2. Epenthesis of non-homorganic consonant: ua > uya

In some Low Navarrese varieties we find epenthesis of a palatal glide with *u*-final stems. This phenomenon is already found in the first book written in Basque, *Linguae Vasconum Primitiae* by the Low Navarrese priest Bernard Etxepare [Dechepare] (1545), e.g.: *munduya* 'the world'.

2.5. Second Vowel Deletion

In a few northern Bizkaian varieties the vowel /e/, and sometimes /a/, has been lost in hiatus after another vowel, e.g. *neskie* > *neski* 'the girl'. This has happened in Ondarroa, where now absolutive singular forms differ from the corresponding uninflected forms in the quality of the final vowel, for stems ending in a vowel other than /i/: *bésol/besú* 'arm/the arm', *séme/semí* 'son/the son', *néska/neskí* 'girl/the girl'. The process is spreading to Markina and neighboring towns where *besúe* ~ *besú* 'the arm', *semíe* ~ *semí* 'the son', *neskíe* ~ *neskí* 'the girl', etc. are found in stylistic variation (cf. Zubiaur et al. 1992). (With stems ending in /i/ there is epenthesis in this area, e.g.: *mendixe* 'the mountain').

Final vowels in hiatus have also been lost in Getxo and surrounding area. Since these varieties did not have Mid Vowel Raising, this has resulted in neutralization between uninflected and absolutive singular forms for stems ending in vowels other than /a/: *beso/beso*, *seme/seme*, *mendi/mendi*, but *neska/neske* (< *neskea*).

A more general process, found in many areas, is this type of deletion but only in closed syllables (i.e. in the plural, e.g. *seme/semie/semik* 'son/the son/the sons').

3. Alternation patterns

The order of presentation follows that of Table I. The data presented here derive for the most part from fieldwork undertaken by one of the authors (Gaminde). Nevertheless, when written sources are available for a given dialect, these are given in footnotes. See also Yrizar (1991, 1992a-d, 1997) and sources therein.

3.1. Standard Basque

In standard Basque (*euskara batua*), with *a*-stems the final vowel of the stem is deleted before vowel-initial suffixes. In the absolutive, where what we have is *alabaa* > *alaba* it is not obvious that the vowel that remains is that of the suffix. But this is apparent in other inflected forms such as the ergative plural *alabek*. Other stem-final vowels do not undergo any changes.

Standard Basque spelling and pronunciation of vowel sequences is based on the literary tradition of central areas of the Basque Country.

*Standard Basque (euskara batua)*³

			<i>uninfl</i>	<i>abs sg</i>	<i>abs pl</i>
C	a	ak	gizon	gizona	gizonak
-a	-a	-ak	alaba	alaba	alabak
-e	-ea	-eak	seme	semea	semeak
-i	-ia	-iak	ogi	ogia	ogiak
-o	-oa	-oak	asto	astoa	astoak
-u	-ua	-uak	esku	eskua	eskuak

Among present-day local dialects, it appears that only some Labourdin varieties have the same results as standard Basque:

Ainhoa (Lapurdi)

C	a	ak	gizon	gizona	gizonak
-a	-a	-ak	alaba	alába	alábak
-e	-ea	-eak	seme	seméa	seméak
-i	-ia	-iak	ogi	ogía	ogíak
-o	-oa	-oak	asto	astóa	astóak
-u	-ua	-uak	esku	eskúa	eskúak

In Goizueta (Navarre) the vowel sequences are the same as in standard Basque in the singular, but Second Vowel Deletion applies in the plural:

Goizueta (western Navarre)

oC	a	ak	gizon	gizoná	gizonák
uC	a	ak	egun	eguná	egunák
-a	-a	-ak	alaba	alabá	alabák
-e	-ea	-ek	seme	seméa	semék
-i	-ia	-ik	ogi	ogía	ogík
-o	-oa	-ok	asto	astóa	astók
-u	-ua	-uk	esku	eskuá	eskúk

3.2. Literary Bizkaian

In western Basque dialects, instead of the reduction *aa* > *a* found in central areas, there was a disimilatory change *aa* > *ea*, which is already attested in the first texts from the western area. This disimilatory change took place in the singular, but not in the plural, where, instead, the sequence *-a+ak* was reduced to *-ak* at a later stage.

Literary Bizkaian

C	a	ak	gizon	gizona	gizonak
-a	-ea	-a(a)k	alaba	alabea	alabaak ~ alabak
-e	-ea	-eak	seme	semea	semeak
-i	-ia	-iak	ogi	ogia	ogiak
-o	-oa	-oak	asto	astoa	astoak
-u	-ua	-uak	esku	eskua	eskuak

(3) In the paradigms in this section, the following examples are used: *gizon* 'man', *lagun* 'friend', *txakur* ~ *zakur* 'dog', *alaba* 'daughter', *neska* 'girl', *taberna* 'tavern', *seme* 'son', *ogi* 'bread', *mendi* 'mountain', (*h*)*erri* 'village, country', *asto* 'donkey', *baso* 'forest', *beso* 'arm', *otso* 'wolf', *esku* 'hand', *buru* 'head'.

The context for the raising of /a/ is morphological (singular inflection). This can be seen by comparing the ergative singular *alabeak* with the absolutive/ergative plural *alabak*, cf. also dat sg *alabeari* vs. dat pl *alabari*, etc.

3.3. Arratia type

Low Vowel Raising: a+a = ea (sg)

Low Vowel Assimilation: a → e / V[+hi] (C) ____

Arratia Valley (Dima, Igorre, Zeanuri, etc., also neighboring Zeberio, Southern Bizkaia). This dialect differs from Literary Bizkaian in presenting a rule of Low Vowel Assimilation (cf. 2.1) by which /a/ becomes /e/ after a high vowel (also with intervening consonants). In the following tables, oC indicates a context where the last vowel of the stem is mid or low (/e/, /o/ or /a/) and is followed by a consonant (or more than one consonant). Similarly to represent consonant-final stems where the last vowel is high (/i/ or /u/), uC is used as an abbreviation:

*Arratia (southwestern Bizkaia)*⁴

oC	a	ak	gison	gisoná (da)	gisónak
uC	e	ek	lagun	laguné	lagúnek
-a	-ea	-ak	alaba	alabeá	alábak
-e	-ea	-eak	seme	semeá	seméak
-i	-ie	-iek	erri	errié	erriék
-o	-oa	-oak	asto	astoá	astóak
-u	-ue	-uek	esku	eskué	eskúek

The accentual pattern given is the one occurring in nonfinal position. In phrase-final position the accent is retracted from the last syllable to the penultimate; e.g. *gisoná da* 'it is the man', *gisoná dator* 'the man is coming', but *gisóna* 'the man'. No accent-shift takes place in the plural. The same forms are found in Mungia, where there is no accent retraction: *alaba*, *alabeá*, *alábak*; *seme*, *semeá*, *seméak*, *idi*, *idié*, *idíek*; *asto*, *astoá*, *astóak*; *katu*, *katué*, *katúek*.

Orozko (Southern Bizkaia). The forms are almost the same as in Arratia, but (a) the accent regularly falls on the second syllable in sg and pl and (b) *u+ak* > *uek* > *uík*:

Orozko (southwestern Bizkaia)

oC	a	ak	gison	gisóna	gisónak
uC	e	ek	lagun	lagúne	lagúnek
-a	-ea	-ak	alaba	alábea	alábak
-e	-ea	-eak	seme	seméa	seméak
-i	-ie	-iek	erri	errié	erriék
-o	-oa	-oak	asto	astóa	astóak
-u	-ue	-uík	esku	eskúe	eskúik

(4) The dialect spoken in Zeberio is described in Etxebarria Ayesta (1991a, 1991b), cf. also Hualde (1992).

Legazpi (Southern Gipuzkoa). Same as in Arratia in the absolutive singular, but with vowel-final stems the vowel of the suffix assimilates completely to the final vowel of the stem in a closed syllable. There is regular post-initial accentuation.

Legazpi (southern Gipuzkoa)

oC	a	ak	gizon	gizóna	gizónak
uC	e	ek	lagun	lagúne	lagúnek
-a	-ea	-a(a)k	alaba	alábea	alábak
			neska	neskéa	neskáak
-e	-ea	-eek	seme	seméa	seméek
-i	-ie	-iik	erri	erríe	erríik
-o	-oa	-ook	asto	astóa	astóok
-u	-ue	-uuk	esku	eskúe	eskúuk

Zegama (Southern Gipuzkoa). Same as Legazpi above, except that there is no assimilation in /e+ak/. In addition, with /-a/-stems, in the singular raising is not consistent. Young speakers tend to reduce the long vowels of plural forms.

*Zegama (southern Gipuzkoa)*⁵

oC	a	ak	gizon	gizóna	gizónak
uC	e	ek	lagun	lagúne	lagúnek
-a	-ea	-aak	neska	neskéa	neskáak
	-aa	-aak	alaba	alábaa	alábaak
-e	-ea	-eak	bide	bidéa	bidéak
-i	-ie	-iik	erri	erríe	erríik
-o	-oa	-ook	asto	astóa	astóok
-u	-ue	-uuk	esku	eskúe	eskúuk

Zaldibia (southern Gipuzkoa). Same as Legazpi, but the long vowels resulting from assimilation in plural forms have been reduced (i.e. the vowel of the suffix /-ak/ is deleted with vowel-final stems)

*Zaldibia (southern Gipuzkoa)*⁶

oC	a	ak	gizon	gizóna	gizónak
uC	e	ek	lagun	lagúne	lagúnek
-a	-ea	-ak	taberna	tabérnea	tabérnak
-e	-ea	-ek	bide	bidéa	bídek
-i	-ie	-ik	erri	erríe	érrik
-o	-oa	-ok	asto	astóa	ástok
-u	-ue	-uk	esku	eskúe	éskuk

(5) On the Zegama dialect, cf. Azurmendi (1995). This source does not give long vowels, which appear to be a receding feature in this dialect. For Ataun, see Azurmendi (1996).

(6) The acoustic features of vowels in the Zaldibia dialect are studied in P. Etxeberria (1990).

3.4. Getxo type

This vowel alternation type is found in an area of northern Bizkaia close to Bilbao: Sopela, Gatika, Getxo, Erandio, Berango, Barrika, Gorliz, Lemoiz, Urduliz. It is the result of a further development in the Arratia system: in all sequences of two vowels the second one has been deleted (Second Vowel Deletion); e.g. *alabéa* > *alabé*, *astóa* > *astó*.

Low Vowel Raising
 Low Vowel Assimilation
 Second Vowel Deletion

*Getxo (northwestern Bizkaia, coast)*⁷

oC	a	ak	gison	gisoná	gisiónak
uC	e	ek	lagun	laguné	lagúnek
-a	-e	-ak	alaba	alabé	alábak
-e	-e	-ek	seme	semé	sémek
-i	-i	-ik	erri	errí	érrik
-o	-o	-ok	asto	astó	ástok
-u	-u	-uk	esku	eskú	éskuk

3.5. 18th century Markina

This is the system found in the writers of the so-called Markina school, including Juan Antonio Moguel, author of *Peru Abarca* (published in 1881 but written around 1800) and also in the translations into the Markina dialect commissioned by L. L. Bonaparte. In Markina there have been important changes since then, but very similar systems are still found in parts of eastern Bizkaia and western Gipuzkoa. This type of alternations is characterized by the following processes: Stem final mid vowels rise to high when followed by another vowel in both singular and plural, and also morpheme-internally (Mid Vowel Raising, 2.3.2). This change also affected the sequence /ea/ produced in singular forms of *a*-final stems: *neskaa* > *neskea* > *neskia*. With /i/-final and /u/-final stems a 'consonantized glide' is inserted (2.4.1). In the case of /i/, the epenthetic segment historically probably was a nonstrident palatal, which is still found as an epenthetic segment in areas of Gipuzkoa and Navarre presenting this rule. This segment later became a strident [ʒ] in western Gipuzkoa and Bizkaia, which finally was devoiced to [ʃ] in a large part of the area (devoicing is still an ongoing process in several towns, including Azkoitia). Epenthesis after /u/ is also found in a large area of Bizkaia, Gipuzkoa, Navarre and Lapurdi in older texts, but this phenomenon has been receding and the epenthetic [β] has been lost almost everywhere (including present-day Markina). The change has been *ua* > *uβa* > *ua* in most of the area where epenthetic [β] is documented in the 18th and 19th centuries. Nowadays too, there are parts of Gipuzkoa where older speakers pronounce *-uβa* and younger speakers *-ua*.

(7) On the Getxo dialect, see Hualde & Bilbao (1992, 1993). For Sopela, see Markaida et al. (1993). For Gatika and Urduliz, see Gaminde (1993, 1994a).

Low Vowel Raising
 Mid Vowel Raising
 Consonant Epenthesis

18th century Markina (northeastern Bizkaia, coast)

-C	a	ak	gizon	gizona	gizonak
			lagun	laguna	lagunak
-a	-ia	-aak	alaba	alabia	alabaak
-e	-ia	-iak	seme	semia	semiak
-i	-iza	-izak	erri	erriža	errižak
-o	-ua	-uak	asto	astua	astuak
-u	-uba	-ubak	esku	eskuba	eskubak (b = [β])

3.6. Lekeitio/Deba type

This system represents an evolution of the pattern given in 3.5 for 18th Century Markina, where the epenthetical consonant has been lost with *u*-final stems, and in the pl of *a*-final stems the long vowel has been reduced.

*Lekeitio (northeastern Bizkaia, coast)*⁸

-C	a	ak	gixon	gixoná	gixonak
			lagun	laguná	lagúnak
-a	-ia	ak	alaba	alabía	alábak
-e	-ia	-iak	seme	semía	semíak
-i	-iza	-izak	erri	errižá	errižak
-o	-oa	-uak	asto	astuá	astúak
-u	-ua	-uak	esku	eskuá	eskúak

The same results but with devoicing of *ž* > *š* (and different accentual systems) are found in the Deba Valley of western Gipuzkoa (Eibar, Bergara, Antzuola, Elgoibar, Oñati).⁹

Oñati. This system differs from Lekeitio in that, (a) [ž] has been devoiced to *x* [š], and (b) the sequence *-aa-* has been preserved in the plural (but is in the process of being lost when unaccented in the speech of younger speakers).

Oñati (southwestern Gipuzkoa)

oC	a	ak	gison	gisóna	gisónak
uC	a	ak	lagun	lagúna	lagúnak
-a	-ia	-aak	alaba	alábia	alábaak
-e	-ia	-iak	seme	semía	semíak
-i	-ixa	-ixak	erri	erríxa	erríxak
-o	-ua	-uak	asto	astúa	astúak
-u	-ua	-uak	esku	eskúa	eskúak

(8) For Lekeitio, see Hualde, Elordieta & Elordieta (1994), Elordieta (1996).

(9) For Eibar, see T. Echebarria (1965-66), Laspiur (1979). For Bergara, see Elexpuru (1988) and other contributions in UNED-Bergara (1988). For Oñati, see Izagirre (1970). For Ermua, Aranberri (1996).

Antzuola. Same as Oñati, without long vowels in the plural of *a*-final stems (and a different accentual system):

Antzuola (southwestern Gipuzkoa)

oC	a	ak	gison	gisóna	gísonak
uC	a	ak	lagun	lagúna	lágúnak
-a	-ia	-ak	alaba	alabía	álabak
-e	-ia	-iak	seme	semía	sémiak
-i	-ixa	-ixak	erri	erríxa	érrixak
-o	-ua	-uak	asto	astúa	ástuak
-u	-ua	-uak	esku	eskúa	éskuak

For the accentual pattern cf. Hualde (1997a). The general rule is penultimate accent, but in plural forms the accent appears two syllables before the suffix.

The same vowel sequences as in *Antzuola* are found in *Bergara*, *Deba*, *Elgoibar*, *Elorrio*, *Itziar*, *Mutriku*. The accentual systems vary considerably within this area.

Elorrio, Elgoibar. In these dialects the vowel patterns are the same as in *Antzuola*, but accent is postinitial in sg and pl.:

*Elorrio (southeastern Bizkaia)*¹⁰

oC	a	ak	gison	gisóna	gísonak
uC	a	ak	lagun	lagúna	lágúnak
-a	-ia	-ak	alaba	alábía	álabak
-e	-ia	-iak	seme	semía	semíak
-i	-ixa	-ixak	erri	erríxa	érrixak
-o	-ua	-uak	asto	astúa	ástuak
-u	-ua	-uak	esku	eskúa	éskuak

Mutriku. Same vowel patterns, accent is final in sg and penultimate in pl.

Mutriku (northwestern Gipuzkoa, coast)

oC	a	ak	gixon	gixoná	gixónak
uC	a	ak	lagun	laguná	lagúnak
-a	-ia	-ak	alaba	alabiá	alábak
-e	-ia	-iak	seme	semiá	semíak
-i	-ixa	-ixak	erri	errixá	erríxak
-o	-ua	-uak	asto	astuá	ástuak
-u	-ua	-uak	esku	eskuá	éskuak

3.7. Bermeo type

This general system of alternations differs from the *Lekeitio* type (3.6) in having added the process of Low Vowel Assimilation.

(10) The accentual system of the *Elorrio* variety is analyzed in Jansen (1992).

Low Vowel Raising
 Consonant Epenthesis
 Mid Vowel Raising
 Low Vowel Assimilation

Bermeo (Bizkaian coast, also Busturia, Murueta)

Bermeo (northcentral Bizkaia, coast)

oC	a	ak	gison	gisoná	gisónak
uC	e	ek	lagun	laguné	lagúnek
-a	-ie	-ak	alaba	alabié	alábak
-e	-ie	-iek	seme	semié	semiék
-i	-ize	-izek	erri	errižé	errižek
-o	-ue	-uek	asto	astué	astúek
-u	-ue	-uek	esku	eskué	eskuék

The same patterns are found in other northern Bizkaian areas, such as Busturia and Murueta.

The translation into the Bermeo dialect of *La doctrina cristiana* commissioned by L. L. Bonaparte published in 1862-64 (reprinted in Bonaparte 1991: II, 45-60) shows that at that time the dialect had not acquired Low Vowel Assimilation. That is, the facts were as in present-day Lekeitio (3.6). This situation is still found in neighboring Mundaka.

In Bermeo, accent is generally phrase-final, but plural suffixes are preaccenting. In the towns of Arteaga and Nabarriz the same system is found as in Bermeo, but in the plural the accent is retracted two syllables: *gixoná, gíxonak; laguné, lágunek; alabié, alábak; semié, semiék; errižé, érrizek; astué, ástuek; eskué, éskuek*.¹¹

Ea. Same system as in Bermeo, but unmarked accent is penultimate instead of final and in the plural it has also been retracted: *gisóna, gíxonak; txakúrre, txákurrek; alaba, alabié, alábak; seme, semié, semiék; ardi, ardiže, árdizek; asto, astúe, ástuek; katu, katúe, kátuek*. Gizaburuaga is also like *Ea* but accent retraction in the plural is less systematic.

Otxandio, Euba, Iurreta, Berriz, Oleta, Nafarrate, Elosu: same as Bermeo but accent falls on the second syllable in sg and pl (unless the 2nd syllable is the final one): *gisóna, gisónak; lagúne, lagúnek; alábie, alábak; semié, semiék; erriže, errižek; astúe, astúek; eskué, eskuék*. Aramaio is also like this but with devoicing of ž: *errixe*.

Aramaio (Araba/Alava). Same as Bermeo, but ž has been devoiced to x [š]. The accent falls on the second syllable unless it is the final syllable of the word.

(11) For the accentual system of coastal Bizkaian, see Hualde (1997b).

*Aramaio (Araba)*¹²

oC	a	ak	gizon	gisóna	gisónak
uC	e	ek	lagun	lagúne	lagúnek
-a	-ie	-ak	alaba	alábie	alábak
-e	-ie	-iek	seme	semíe	semíek
-i	-ixe	-ixek	erri	erríxe	erríxek
-o	-ue	-uek	asto	astúe	astúek
-u	-ue	-uek	esku	eskúe	eskúek

In rural areas of Arrasate we find the same patterns as in Aramaio. In the urban center, forms like *neskía*, *semía*, *erríxa*, etc., without Low Vowel Assimilation are found instead, but it appears that Low Vowel Assimilation is progressively spreading to the Arrasate urban center as well and some speakers produce both assimilated and nonassimilated forms.¹³

Abadiño. Same as Bermeo but accent falls on 2nd in sg and 1st in pl: *gisóna*, *gisónak*; *lagúne*, *lagúnek*; *alábie*, *alábak*; *semíe*, *semíek*; *erríxe*, *erríxek*; *astúe*, *astúek*; *eskúe*, *eskúek*.

Azkoitia. Same as Bermeo, but with optional Second Vowel Deletion in closed syllables. Some speakers of this variety devoice [ʒ] to [ʃ]. Incidentally, a peculiar feature of this dialect is that the distinction between apico-alveolar *s* and laminal *z* has been lost in favor of *z*, whereas all other dialects that have lost the contrast (all Bizkaian and many Gipuzkoan varieties) have only apico-alveolar *s*.¹⁴

Azkoitia (central Gipuzkoa)

oC	a	ak	gizon	gisóna	gisónak
uC	e	ek	lagun	lagúne	lagúnek
-a	-ie	-ak	alaba	alabíe	alábak
-e	-ie	-i(e)k	zeme	zemíe	zémí(e)k
-i	-iže	-ižek	erri	erríže	errížek
-o	-ue	-u(e)k	asto	astúe	ástu(e)k
-u	-ue	-u(e)k	esku	eskúe	ésku(e)k

Azpeitia, Urrestilla. Same as Azkoitia, but the epenthetic segment with *i*-final stems is the nonstrident palatal *-y-* (in the plural the accent is retracted only one syllable).

Azpeitia (central Gipuzkoa)

oC	a	ak	gizon	gisóna	gisónak
uC	e	ek	lagun	lagúne	lagúnek
-a	-ie	-ak	neska	neskíe	néskak
-e	-ie	-i(e)k	seme	semíe	semíek
-i	-iye	-iyek	erri	erríye	erríyek
-o	-ue	-u(e)k	asto	astúe	astúek
-u	-ue	-u(e)k	esku	eskúe	eskúek

(12) For the Basque dialects of Araba/Alava, see Zuazo (1997a), Knörr & Zuazo (1998).

(13) For Arrasate, see Elortza & Ormaetxea (1995).

(14) For accentuation in Azkoitia, see Hualde (1997a).

3.8. Gernika type

The only difference with respect to the Bermeo system is that the etymological sequence /o+a/ remains unaltered as [oa] (instead of becoming [ue]). That is, Mid Vowel Raising affects *e*-final stems but not *o*-final stems.

Low Vowel Raising

Consonant Epenthesis (with *i*-final stems)

Mid Vowel Raising (only with *e*-final stems)

Low Vowel Assimilation

This system is found in towns of the Gernika area such as Arratzu, Muxika, Forua, Errigoitia, Fruiz and Bakio. The accentual system is as in Bermeo (3.7).

*Arratzu (Gernika, northcentral Bizkaia)*¹⁵

oC	a	ak	gixon	gixoná	gixónak
uC	e	ek	lagun	laguné	lagúnek
-a	-ie	-ak	alaba	alabié	alábak
-e	-ie	-iek	seme	semié	semiek
-i	-iže	-ížek	erri	errižé	errížek
-o	-oa	-oak	asto	astoá	astóak
-u	-ue	-uek	esku	eskué	eskúek

Zollo. In this dialect we find the same sequences as in Arratzu but the accentual system is different. The accent falls on the second syllable in sg and pl: *gisóna, gisónak; laguné, lagúnek; alábie, alábak; semie, semiek; errižé, errižek; astoá, astóak; eskué, eskúek*.

3.9. Ondarroa/Elantxobe type

This is an evolution of the Bermeo type (3.7), characterized by the further change represented by the lost of final /e/ when it was in hiatus.

Low Vowel Raising

Glide Insertion-F

Mid Vowel Raising-F

Low Vowel Assimilation

Second Vowel Deletion

*Elantxobe (northcentral Bizkaia, coast)*¹⁶

oC	a	ak	gixon	gixoná	gixónak
uC	e	ek	lagun	laguné	lagúnek
-a	-i	-ak	alaba	alabí	alábak
-e	-i	-ik	seme	semí	sémik
-i	-iže	-ížek	erri	errižé	errížek
-o	-u	-uk	asto	astú	ástuk
-u	-u	-uk	esku	eskú	éskuk

(15) The phonological system of this dialect is analyzed in Hualde (1991).

(16) The accentual system of the Elantxobe dialect is analyzed in Gaminde (1994b).

Munitibar. Same sequences as in Elantxobe. An accentual difference is that in the plural the accent is retracted one more syllable: *gíson, gísóna, gísonak; lagún, lagúne, lágunek; alába, alabí, alábak; seme, semí, sémik; érri, erríže, érrízek; ásto, astú, ástuk; ésku, eskú, éskuk*. In Berriatua we find the same forms as in Munitibar but with devoicing of ž: *erríxe*. The same system as in Elantxobe is also found in Aulestia (with some accentual differences).

Ondarroa. Same as Elantxobe, but (a) with devoicing of ž and (b) Low Vowel Assimilation only affects word-final vowels (and thus it does not apply in the plurals *lagúnak, erríxak*):

*Ondarroa (northeastern Bizkaia, coast)*¹⁷

oC	a	ak	gixon	gixóna	gixónak
uC	e	ak	lagun	lagúne	lagúnak
-a	-i	-ak	alaba	alabí	alábak
-e	-i	-ik	seme	semí	sémik
-i	-ixe	-ixek	erri	erríxe	erríxak
-o	-u	-uk	asto	astú	ástuk
-u	-u	-uk	esku/o	eskú	éskuk

In Ondarroa the distinction between *o*-stems and *u*-stems has been lost to a great extent. Penultimate accent in unmarked singular forms is phrasal, whereas in the plural penultimate accent is word-level; e.g.: *gixoná ra* 'it is the man', *gixona rátor* 'the man is coming' vs. *gixóna(k) tis* 'they are the men', *gixóna(k) tátor* 'the men are coming'.

3.10. Larrauri type

This system differs from the Gernika type (3.8) in that Low Vowel Assimilation does not apply with *e*-final and *a*-final stems, which have singular forms in *-ia*, and not *-ie*. From a synchronic point of view, the interaction between Low Vowel Assimilation and Mid Vowel Raising is opaque in a generative analysis. It must be the case that this dialect acquired Low Vowel Assimilation before Mid Vowel Raising.

Low Vowel Raising

Low Vowel Assimilation

Consonant Epenthesis (*i*-final stems)

Mid Vowel Raising (*e*-final stems)

Larrauri (western Bizkaia)

oC	a	ak	gixon	gixoná	gisónak
uC	e	ek	lagun	laguné	lagúnek
-a	-ia	-ak	neska	neskiá	néskak
-e	-ia	-iak	abade	abadiá	abádiak
-i	-iže	-ižek	idi	idižé	idížek
-o	-oa	-oak	asto	astóa	astóak
-u	-ue	-uek	esku	eskué	eskúek

(17) Studies on the variety of Ondarroa include Rotaerxe (1978), Hualde (1991, 1995a, 1996a).

As indicated, it must be the case that historically Low Vowel Assimilation preceded the raising of /e/:

Stage 1:	abadea	eskua
Stage 2: LVA	abadea	eskue
Stage 3: MVR	abadia	eskue

The same system is also found in neighboring Meñaka.

Lezama. Same as Larrauri but without Consonant Epenthesis.

Lezama (western Bizkaia)

oC	a	ak	gixon	gixóna	gixónak
uC	e	ek	lagun	lagúne	lagúnek
-a	-ia	-ak	alaba	alábia	alábak
-e	-ia	-iak	seme	semía	semíak
-i	-ie	-ie	erri	erríe	erríek
-o	-oa	-oa	asto	astóa	astóak
-u	-ue	-ue	esku	eskúe	eskúek

3.11. Errezil

This system, found in the dialect of Errezil in the Urola valley of central Gipuzkoa, presents a couple of peculiarities with respect to those of other towns of the same valley (Azkoitia, Azpeitia, seen above in 3.7). First of all, it does not have Consonant Epenthesis with *i*-final stems. Secondly, it has acquired a process of Second Vowel Deletion, with all vowel-final stems in the pl, but only with stems ending in a high vowel in the sg:

Errezil (central Gipuzkoa)

oC	a	ak	gizon	gizóna	gizónak
uC	a	ak	txakur	txakúrra	txakúrrak
-a	-ia	-ak	neska	neskía	néskak
-e	-ia	-ek	seme	semía	sémek
-i	-i	-ik	erri	errí	érrik
-o	-ua	-uk	asto	astúa	ástuk
-u	-u	-uak	esku	eskú	éskuk

3.12. Urdiain

Urdiain is one of the very few Navarrese towns where the disimilatory change *aa* > *ea* spread. There is also Mid Vowel Raising, so that, subsequently, *ea* > *ia* and *oa* > *ua*. Consonant Epenthesis with both *i*-final and *u*-final stems applies as an optional process. Low Vowel Assimilation applies in the plural (and, in general, in closed syllables).

Low Vowel Raising

(Consonant Epenthesis)

Mid Vowel Raising

Low Vowel Assimilation (only in closed syllables)

*Urdiain (western Navarre)*¹⁸

oC	a	ak	gizon	gizona	gizónak
uC	a	ek	lagun	lagúna	lagúnek
-a	-ia	-ak	alaba	alábia	alábak
-e	-ia	-iek	seme	semía	semíek
-i	-ia	-iek	erri	errí(y)a	errí(y)ek
-o	-ua	-uek	asto	astúa	astúek
-u	-ua	-uek	esku	eskú(b)a	eskú(b)ek

3.13. Zumaia type

In a few towns between the western area where *aa* > *ea* and the central area where *aa* > *a*, the original *-aa* sequence is preserved unchanged. In Zumaia the double *-aa* is maintained when accented as in *neskáa*, but it is usually shortened if unaccented. This is the only peculiarity of this system. Other than that, there is Consonant Epenthesis with *i*-final stems and Mid Vowel Raising, as in other western Gipuzkoan varieties.

*Zumaia (northcentral Gipuzkoa, coast)*¹⁹

oC	a	ak	gison	gisóna	gisónak
uC	a	ak	lagun	lagúna	lagúnak
-a	-aa	-aak	neska	neskáa	neskáak
			alaba	alába	alábak
-e	-ia	-iak	seme	semía	semíak
-i	-ixa	-ixak	erri	erríxa	erríxak
-o	-ua	-uak	asto	astúa	astúak
-u	-ua	-uak	esku	eskúa	eskúak

The same situation is also found in Getaria (where the epenthetic segment with *i*-final stems has not been devoiced: *erríza*, *errízak*).

3.14. Zarautz type

This is the typical northern Gipuzkoan system. As in the Lekeitio/Deba type (3.6), found to its west, there is Mid Vowel Raising and Consonant Epenthesis with *i*-final stems. There are, however, two differences that serve to separate this northern Gipuzkoan system from western types: (a) with *a*-final stems we don't find the western disimilation *ea* > *aa*, but simple reduction *aa* > *a* (although in Zarautz the oldest speakers maintain the etymological geminate vowel *-aa* when stressed, as in Zumaia; e.g. *neskáa* ~ *neská*) (b) the epenthetic consonant with *i*-final stems is a nonstrident palatal, written *-y-*, and not the strident prepalatal *-ž-* ~ *-š-*. As was already mentioned, in at least a large part of this territory there used to be epenthesis with *u*-final stems as well. This is still found as a receding feature in some areas.

(18) On the varieties of this area of Navarre, see Zuazo (1995).

(19) For Zumaia, see Gaminde & Hazas (1998).

Low Vowel Contraction: aa > a
 Consonant Epenthesis: ia > iya
 Mid Vowel Raising: ea > ia, oa > ua

Zarautz (northcentral Gipuzkoa, coast)

oC	a	ak	gizon	gizóna	gízonak
uC	a	ak	lagun	lagúna	lágunak
-a	-a	-ak	alaba	alába	álabak
-e	-ia	-iak	seme	semía	sémiak
-i	-iya	-iyak	erri	erríya	érriyak
-o	-ua	-uak	asto	astúa	ástuak
-u	-ua	-uak	esku	eskúa	éskuak

In Zestoa the same patterns are found, with the difference that the accent is not consistently retracted in the pl.

Usurbil provides an example of a variety with the same vowel sequences as in Zarautz but where the general accentual pattern is post-initial both in the singular and in the plural:

*Usurbil (northeastern Gipuzkoa)*²⁰

oC	a	ak	gizon	gizóna	gízonak
uC	a	ak	lagun	lagúna	lágunak
-a	-a	-ak	alaba	alába	álabak
-e	-ia	-iak	seme	semía	semíak
-i	-iya	-iyak	erri	erríya	erríyak
-o	-ua	-uak	asto	astúa	ástuak
-u	-ua	-uak	esku	eskúa	éskuak

The same patterns are also found in Hondarribia, for instance.²¹

Larraul, Urnieta. Same patterns as in Zarautz, with the only difference that in the plural of *i*-stems there is no Consonant Epenthesis; rather, with stems ending in a high vowel, the vowel sequence is reduced by Second Vowel Deletion in the plural.

Larraul (east-central Gipuzkoa)

oC	a	ak	gizon	gizóna	gízonak
uC	a	ak	lagun	lagúna	lágunak
-a	-a	-ak	alaba	alába	álabak
-e	-ia	-iak	seme	semía	sémiak
-i	-iya	-ik	erri	erríya	érrik
-o	-ua	-uak	asto	astúa	ástuak
-u	-ua	-uk	esku	eskúa	éskuk

(20) For Lasarte-Oria, see Labaka et al. (1996).

(21) For the Hondarribia dialect, see Hualde & Sagarzazu (1991), Sagarzazu (1994). See also Holmer (1964), Fraile & Fraile (1996) and Zuazo (1997b) on the dialects on the Gipuzkoan/Navarrese boundary.

Orio. In this variety, the treatment of sequences in the singular and the plural differs even more radically than in Larraul and Urnieta. Neither Consonant Epenthesis nor Mid Vowel Raising applies in the plural (although both rules apply in the singular). Instead all vowel sequences are reduced by Second Vowel Deletion in the plural.

*Orio (northcentral Gipuzkoa, coast)*²²

oC	a	ak	gizon	gizóna	gízonak
uC	a	ak	lagun	lagúna	lágunak
-a	-a	-ak	alaba	alába	álabak
-e	-ia	-ek	seme	semía	sémek
-i	-iya	-ik	erri	erríya	érrik
-o	-ua	-ok	asto	astúa	ástok
-u	-ua	-uk	esku	eskúa	éskuk

Arano. In this Navarrese town on the Gipuzkoan border we find the Zarautz-type pattern in the singular. In the plural, sequences are reduced by Second Vowel Deletion, as in *Orio* immediately above, but Mid Vowel Raising applies: *-eak* > *-iak* > *-ik*. (In a generative description, Mid Vowel Raising would be ordered before Second Vowel Deletion):

Arano (western Navarre)

oC	a	ak	gizon	gizoná	gizonák
uC	a	ak	egun	eguná	egunák
-a	-a	-ak	alaba	alabá	alabák
-e	-ia	-ik	seme	semía	semík
-i	-iya	-ik	ogi	ogíya	ogík
-o	-ua	-uk	asto	astúa	astúk
-u	-ua	-uk	esku	eskuá	eskúk

3.15. Alegia type

This is the Gipuzkoan counterpart of the western Arratia type (3.3). As in Arratia there is Low Vowel Assimilation but no Mid Vowel Raising or Consonant Epenthesis. The difference between both systems is found in *a*-final stems:²³

Low Vowel Contraction

Low Vowel Assimilation

In addition, in Alegia Second Vowel Deletion applies in the plural.

(22) On the *Orio* dialect, see Iturain & Loidi (1995).

(23) This pattern is also described by Jose M. Etxebarria (1985) for the Gaintza neighborhood of Arribe in Navarre.

Alegia (east-central Gipuzkoa)

oC	a	ak	gizon	gizóna	gizónak
uC	e	ek	txakur	txakúrre	txakúrrek
-a	-ea	-ak	alaba	alába	alábak
-e	-ea	-ek	seme	seméa	sémek
-i	-ie	-ik	erri	erríe	érrik
-o	-oa	-ok	asto	astóa	ástok
-u	-ue	-uk	esku	eskúe	éskuk

Lizartza. The same patterns are also found in this dialect, with the difference that Second Vowel Deletion applies in the plural of stems ending in a high vowel, but not with stems ending in a mid vowel; that is: *-iek* > *-ik*, *-uek* > *-uk*, but *-eak*, *-oak* are left unchanged.

Lizartza (east-central Gipuzkoa)

oC	a	ak	gizon	gizóna	gizónak
uC	e	ek	txakur	txakúrre	txakúrrek
-a	-a	-ak	alaba	alába	alábak
-e	-ea	-eak	seme	seméa	seméak
-i	-ie	-ik	erri	erríe	érrik
-o	-oa	-oak	asto	astóa	astóak
-u	-ue	-uk	esku	eskúe	éskuk

3.16. *Etxarri* type

This system shows Consonant Epenthesis with stems ending in both high vowels, Mid Vowel Raising and Low Vowel Assimilation.

Low Vowel Contraction
 Consonant Epenthesis
 Mid Vowel Raising
 Low Vowel Assimilation

Etxarri (western Navarre)²⁴

oC	a	ak	gizon	gizóna	gizónak
uC	e	ek	lagun	lagúne	lagúnek
-a	-a	-ak	alaba	alába	alábak
-e	-ie	-iek	seme	semíe	semíek
-i	-iye	-iyek	erri	erríye	erríyek
-o	-ue	-uek	asto	astúe	astúek
-u	-ube	-ubek	esku	eskúbe	eskúbek

(24) On the dialect of Etxarri-Aranatz, see Karasatorre et al. (1991). The neighboring variety of Arbizu is studied in Hualde (1991, 1996b). See Pagola (1992, 1995) and Camino (1998) for an overview of the dialects of Navarre.

3.17. Lizarraga type

Perhaps the most important High Navarrese innovation, which allows us to characterize most of the varieties of this territory (excluding the westernmost Navarrese area) is the realization in a diphthong of sequences that are realized in hiatus in other dialects. Generally speaking, in High Navarrese varieties stem-final mid vowels become glides in inflected forms. In some varieties (but not all) stem-final high vowels also glide. The Lizarraga type is a subtype of this general High Navarrese type.

In Lizarraga there is a maximal distinction between inflected forms of stems ending in mid vowel and in high vowels: whereas stem-final mid vowels are realized as glides before vowel-initial suffixes, with stems ending in a high vowel there is Consonant Epenthesis. It must be the case that historically Consonant Insertion was acquired before Gliding. In addition, Low Vowel Assimilation applies in this dialect.

Low Vowel Contraction

Consonant Epenthesis

Gliding

Low Vowel Assimilation

Lizarraga (western Navarre)

oC	a	ak	gizon	gízoná	gízonák
uC	e	ek	lagun	láguné	lágunék
-a	-a	-ak	alaba	álabá	álabák
-e	-je	-jek	seme	sémje	sémjek
-i	-iye	-iyek	erri	érriyé	érriyék
-o	-ue	-uek	asto	ástué	ástuék
-u	-ube	-ubek	esku	éskubé	éskubék

3.18. Ultzama type

In the dialect spoken in the Ultzama valley of the central Navarrese area stems ending in mid vowels and high vowels also show very different sequences in inflected forms. The patterns are different from those of Lizarraga (immediately above). There is Gliding with stems ending in a mid vowel, but stem-final high vowels are syllabic in inflected forms. Unlike in Lizarraga, there is no Consonant Epenthesis. On the other hand, Low Vowel Assimilation applies with stems ending in a high vowel, but with not with stems ending in a mid-vowel, even if these mid vowels are realized as high glides (thus creating surface opacity in a generative analysis).

Low Vowel Contraction

Low Vowel Assimilation

Gliding

*Ultzama (central Navarre)*²⁵

oC	a	ak	gizon	gizóna	gizónak
uC	e	ek	egun	egúne	egúnek
-a	-a	-ak	alaba	alába	alábak
-e	-ja	-jak	seme	sémja	sémjak
-i	-ie	-iek	ogi	ogíe	ogíek
-o	-ue	-uek	otso	ótsua	ótsuak
-u	-ue	-uek	esku	eskúe	eskúek

The fact that mid vowels glide but high vowels do not is remarkable. The explanation may be that at the point the Gliding process was adopted, stem-final high vowels triggered Consonant Epenthesis (as in Lizarraga), which prevented their gliding. These epenthetic consonants were later lost. A possible historical evolution is the following:

Stage 1:	semea	ogia
Stage 2: IVA	semea	ogie
Stage 3: C Ep	semea	ogiye
Stage 4: Gliding	seməa	ogiye
Stage 5: loss of CEp	seməa	ogie
	~ semja	

Etxaleku. In this neighboring variety, the patterns are similar to those of the Ultzama dialect, with some minor differences: (a) in the plural Second Vowel Deletion applies with stems ending in a high vowel; (b) the result of Gliding is normally a nonsyllabic mid vocoid [ɛ], [ɔ]:

Etxaleku

oC	a	ak	gizon	gízonà	gízonàk
uC	e	ek	egun	égunè	égunèk
-a	-a	-ak	alaba	álabàk	álabàk
-e	-əa	-əak	seme	séməà	séməàk
-i	-ie	-ik	obi	óbiè	óbik
-o	-əa	-əak	otso	ótsəà	ótsəàk
-u	-ue	-uk	esku	éskuè	éskuk

3.19. Basaburua type

In this Navarrese system the vowel of the suffix completely assimilates to the preceding vowel with *e*-final, *i*-final and *u*-final stems (Total Progressive Assimilation). With *e*-final stems the evolution has been *ea* > *ia* (> *ie*) > *ii*. On the other hand, the sequence *-oa* remains unchanged. This is reminiscent of the Gernika type situation. This dialect also shows the effects of Low Vowel Assimilation, but only with consonant-final stems.

(25) On the varieties of Ultzama and Basaburua, see Ibarra (1995a, 1995b, 1998), Izagirre (1966).

Low Vowel Contraction
 Low Vowel Assimilation
 Mid Vowel Raising (only *e*-final stems)
 Total Progressive Assimilation

Basaburua Valley (central Navarre)

oC	a	ak	gizon	gízonà	gízonàk
uC	e	ek	egun	égunè	égunèk
-a	-a	-ak	alaba	álabà	álabàk
-e	-ii	-ik	seme	sémiì	sémik
-i	-ii	-ik	obi	óbiì	óbik
-o	-oa	-oak	otso	ótsoà	ótsoàk
-u	-uu	-uk	esku	éskuù	éskùk

In part of Basaburua (Arrarats), some stems in *-a* optionally end in *-ii* in the absolutive singular and in *-ik* in the absolutive plural. An *-i* ending instead of *-a* is also used optionally with some consonant-final nouns, mostly borrowings:

-a	-ii	-iik	karta	kartii	kartik	'letter'
(-a	-ak)			~ karta	~ kartak	
			pastilla	pastillii	pastillik	'pill'
				~ pastilla	~ pastillak	
aC	-i	-ik	ospital	ospitali	ospitalik	'hospital'
				~ ospitala	~ ospitalak	

It appears that *-i* (the result of Total Progressive Assimilation with stems ending in a front vowel) is starting to compete with *-a* as the unmarked form of the determiner suffix in this dialect.

3.20. Beruete

This is essentially the same system as in Basaburua (Beruete is a town in the Basaburua Valley), with the only difference that this dialect does not have Mid Vowel Raising in the singular and, consequently, with *e*-final stems Total Progressive Assimilation produces *-ee*. The only difference with respect to the Basaburua system (3.19) is thus in the behavior of *e*-final stems.

Low Vowel Contraction
 Low Vowel Assimilation
 Total Progressive Assimilation

Beruete (central Navarre)

oC	a	ak	gizon	gízonà	gízonàk
uC	e	ek	egun	égunè	égunèk
-a	-a	-ak	alaba	álabà	álabàk
-e	-ee	-ik	seme	sémeè	sémik
-i	-ii	-ik	obi	óbiì	óbik
-o	-oa	-oak	otso	ótsoà	ótsoàk
-u	-uu	-uk	esku	éskuù	éskùk

3.21. Baztan type

In this system both high and mid stem-final vowel lose their syllabicity in vowel sequences. In careful speech, nonsyllabic mid vowels may not rise: *sémja* ~ *sémɛa*, *ótsɥa* ~ *ótsɔa*. As in Ultzama (3.18) Low Vowel Assimilation applies with stems ending in a high vowel but not with those ending in a mid vowel.

Low Vowel Contraction
 Low Vowel Assimilation
 Gliding (both mid and high vowels)

*Baztan Valley (northern Navarre)*²⁶

oC	a	ak	gizon	gizóna	gizónak
uC	e	ek	egun	egúne	egúnek
-a	-a	-ak	alaba	alába	alábak
-e	-ja	-jak	seme	sémja	sémjak
-i	-je	-jek	ogi	ógie	ógiek
-o	-ɥa	-ɥak	otso	ótsɥa	ótsɥak
-u	-ɥe	-ɥek	esku	éskɥe	éskɥek

The same system is found in the Esteribar Valley, to the east of Baztan.

3.22. Aezkoa type

In Aezkoa vowel sequences are for the most part left unmodified. Unlike in Baztan (3.21), there is no Low Vowel Assimilation. As in Baztan, hiatus is avoided by gliding.

Low Vowel Contraction
 Gliding (both mid and high vowels)

*Aezkoa (northeastern Navarre)*²⁷

oC	a	ak	gizon	gizóna	gizónak
uC	a	ak	egun	egúna	egúnak
-a	-a	-ak	alaba	alába	alábak
-e	-ɛa	-ɛak	seme	sémɛa	sémɛak
-i	-ja	-jak	ogi	ógja	ógjak
-o	-ɔa	-ɔak	otso	ótsɔa	ótsɔak
-u	-ɥa	-ɥak	esku	éskɥa	éskɥak

3.23. Zaraitzu (Salazar)

What characterizes the resolution of vowel sequences in the dialect of Salazar or Zaraitzu is that in the absolutive singular of *a*-final stems instead of contraction there is an epenthetic segment *-r-*: *alabaa* > *alabara*. Otherwise, we find the same results as in Aezkoa. The gliding of mid vowels may result in mid or high glides.

(26) The Baztan dialect has been analyzed in N'Diaye (1970) and Salaburu (1984). For Esteribar, see Gaminde (1996).

(27) Camino (1997) provides a detailed description of the Aezkoa dialect.

Epenthesis a+a > ara

Gliding (both mid and high vowels)

*Zaraitzu (Salazar, northeastern Navarre)*²⁸

oC	a	ak	gizon	gizóna	gizónak
uC	a	ak	egun	egúna	egúnak
-a	-ara	-ak	alaba	alábara	alábak
-e	-e̞a	-e̞ak	seme	sém̃e̞a	sém̃e̞ak
	-ja	-jak		sém̃ja	sém̃jak
-i	-ja	-jak	ogi	ógja	ógjak
-o	-o̞a	-o̞ak	otso	óts̃o̞a	óts̃o̞ak
	-ua	-uak		óts̃ua	óts̃uak
-u	-ua	-uak	esku	éskua	éskuak

3.24. Erronkari (Roncal)

The extinct dialect spoken until recently in the Roncal Valley (in the northeastern corner of Navarre) was characterized by two features regarding vowel sequences which set it apart from the dialects of Aezkoa and Zaraitzu/Salazar: (a) with *a*-final stems there is contraction, but uninflected and absolutive singular forms are not identical because contraction produces contrastive oxytonic stress: *alabaa* > *alabá* (vs. *alába*, uninflected); (b) *u* fronts and unrounds in prevocalic position.

Low Vowel Contraction: *-aa* > *-á*

Unrounding: *ua* > *ia*

Gliding (both mid and high vowels)

The first of these to changes are shared with its northern neighbor Zuberoan (3.25), whereas Gliding (the change from hiatus to diphthong), which Zuberoan does not share, is a feature shared with other Navarrese varieties (Zaraitzu, Aezkoa, Baztan). It is likely that the last change is more recent in Roncalese and reflects a change in patterns of interaction with speakers of other varieties.

*Erronkari (Roncal, northeastern Navarre)*²⁹

oC	a	ak	gizon	gízona	gízónak
uC	a	ak	egun	éguna	égunak
-a	-á	-ák	alaba	alabá	alabák
-e	-ja	-jak	seme	sém̃ja	sém̃jak
	-e̞a	-e̞ak		sém̃e̞a	sém̃e̞ak
-i	-ja	-jak	ogi	ógja	ógjak
-o	-ua	-uak	otso	óts̃ua	óts̃uak
	-o̞a	-o̞ak		óts̃o̞a	óts̃o̞ak
-u	-ja	-jak	esku	éskja	éskjak

In southern Erronkari, stems in *-u* gave rise to a complex triphthong [-jwa]: *ésku*, *éskjua* and a variant *-ioa* is also attested.

(28) On the now moribund Salazarese or Zaraitzu dialect, see Michelena (1967).

(29) For the Roncal or Erronkari dialect, see Azkue (1931), Beloqui et al. (1953), Michelena (1954), Izaguirre (1959-61), Gómez (1991), Hualde (1995b).

3.25. Zuberoa (Soule)

The northeastern Zuberoan dialect underwent a change by which *u* > *ü* in most positions.³⁰ This *ü* is unrounded to *i* in prevocalic position: *üa* > *ia*. This dialect also has Mid Vowel Raising. A result of this combination of changes is that *i*-final, *ü*-final and *e*-final stems all produce a sequence *-ia* in the singular and plural. Stem-final vowels maintain their syllabicity in vowel sequences in Zuberoan, unlike in its neighbors south of the Pyrenees. As in Roncal/Erronkari Low Vowel Contraction produces oxytonic stress, against the regular paroxytonic pattern of this dialect.

Low Vowel Contraction: *-aa* > *-á*

Unrounding: *-üa* > *-ia*

Mid Vowel Raising

*Zuberoa (Soule)*³¹

C	a	ak	gízun	gizúna	gizúnak
-a	-á	-ák	alhába	alhabá	alhabák
-e	-ia	-iak	séme	semía	semíak
-i	-ia	-iak	méndi	mendía	mendíak
-o	-ua	-uak	ásto	astúa	astúa
-ü	-ia	-iak	éskü	eskía	eskíak

Plural forms other than the absolutive have final stress: *gizunék*, *gizunér*, *semiék*, *semiér*.

3.26. Sara type

In this dialect area of the Labourdin inland region, as in Ultzama (3.18), mid vowels lose their syllabicity in prevocalic inflectional contexts but high vowels do not. Nonsyllabic vocoids may be realized as mid or high glides: *ɛa* ~ *ja*, *ɔa* ~ *ua*.

Low Vowel Contraction

Gliding (only mid vowels)

*Sara (Lapurdi inland region)*³²

C	a	ak	gizon	gizóna	gizónak
-a	-á	-ák	alaba	alába	alábak
-e	-ɛa	-ɛak	seme	sémɛa	sémɛak
	-ja	-jak		sémja	sémjak
-i	-ia	-iak	mendi	mendía	mendíak
-o	-ɔa	-ɔak	asto	ástɔa	ástɔak
	-ua	-uak		ástua	ástuak
-u	-ua	-uak	esku	eskúa	eskúak

(30) On this historical change, see Lafon (1937).

(31) On Zuberoan or Souletin, see Larrasquet (1934, 1939), Lafon (1958), Hualde (1993), Gaminde (1995).

(32) The dialect of Sara was the subject of a monographic study by Schuchardt (1922). For several other varieties in the same geographical area, see Gaminde & Salaberria (1997).

As mentioned for Ultzama the explanation for the lack of gliding with stems ending in a high vowel may be that at the relevant historical point when Gliding was introduced there was Consonant Epenthesis in inflected forms of stems ending in a high vowel.

The same results are also found in Biriatu and Ahetze.

3.27. Beskoitze type

Here we group a number of Labourdin systems of alternations that only differ from the Sara type in that the sequence $u+a$ is modified in one of several ways:

u+a	ua	Sara	esku/eskúa
	üa	Lekorne	esku/esküa
	ia	Urepel	esku/eskía
	uya	Beskoitze	esku/eskúya

Urepel. Like Sara but $u+a = ia$

Urepel (Low Navarre)

C	a	ak	gizon	gizóna	gizónak
-a	-á	-ák	alaba	alába	alábak
-e	-ẽa	-ẽak	seme	sém̃ẽa	sém̃ẽak
-i	-ia	-iak	mendi	mendía	mendíak
-o	-õa	-õak	asto	ást̃õa	ást̃õak
-u	-ia	-iak	esku	eskía	eskíak

Beskoitze. Like Sara but $u+a = uya$. The same forms are also found in Milafranga and Mugerre, but greater tendency for $o+a = õa$.

Beskoitze (Lapurdi)

C	a	ak	gizon	gizóna	gizónak
-a	-á	-ák	alaba	alába	alábak
-e	-ja	-jak	seme	sém̃ja	sém̃jak
-i	-ia	-iak	mendi	mendía	mendíak
-o	-õa	-õak	asto	ást̃õa	ást̃õak
-u	-ua	-uak	esku	eskúya	eskúyak

3.28. Arbona

This system differs from Sara in that there Gliding only in $e+a = ja$, but $o+a = ua$.

Arbona (Lapurdi)

C	a	ak	gizon	gizóna	gizónak
-a	-á	-ák	alaba	alába	alábak
-e	-ja	-jak	seme	sém̃ja	sém̃jak
-i	-ia	-iak	ogi	ogía	ogíak
-o	-ua	-uak	asto	astúa	astúak
-u	-ua	-uak	esku	eskúa	eskúak

3.29. Aiherra (Low Navarre)

This is a common system in the Low Navarrese area. It is found in Aiherra, Arboti, Armendaritze, Gabadi, Ilharre and Oragarre. As in Aezkoa (3.22), all stem-final vowels glide in vowel-initial inflected forms. In addition, stem-final *-u* gives *-ia*.

Low Vowel Contraction

Gliding (both high and mid vowels)

Unrounding: *-ua* > *-ia*

Aiherra (Low Navarre)

C	a	ak	gizon	gizona	gizonak
-a	-a	-ak	alaba	alába	alábak
-e	-ja	-jak	seme	sémja	sémjak
-i	-ja	-jak	ogi	ógja	ógjak
-o	- <u>ya</u>	- <u>yak</u>	otso	óts <u>ya</u>	óts <u>yak</u>
	- <u>ya</u>	- <u>yak</u>		óts <u>ya</u>	óts <u>yak</u>
-u	-ja	-jak	esku	éskja	éskjak

In some towns of this area, *e+a = ja*, *o+a = ya* appear to be systematic. In other towns the raising on nonsyllabic mid vowels is less consistent. In Arboti *e+a = ja*, but *o+a = ya*.

4. A note on the spread of sound changes

The historical record shows that whereas some of the processes affecting vowel sequences have spread considerably during the last few centuries, some others have been lost in much of their former territory. A process that has lost much ground is Consonant Epenthesis in *u + V* sequences. When L. L. Bonaparte began the systematic study of Basque dialects this process was found over much of Bizkaia and Gipuzkoa and also in areas of Navarre and Lapurdi. Nowadays it is only found in a small area of Navarre and, as a receding process, in some northern Gipuzkoan towns. On the other hand, the process of Low Vowel Assimilation has spread noticeably during this same period.

One of the best documented varieties is that of Markina, for which, besides present-day data, we have Rollo's (1925) description, and several earlier literary works, including J. A. Moguel's *Peru Abarca*, written around 1800. The treatment of vowel sequences in this variety has changed rather strikingly in the time for which we possess a historical record. The system found in *Peru Abarca* is the following:

Markina around 1800

-C	a	ak	gizon	gizona	gizonak
			lagun	laguna	lagunak
-a	-ia	-aak	alaba	alabia	alabaak
-e	-ia	-iak	seme	semia	semiak
-i	-iža	-ižak	erri	erriža	errižak
-o	-ua	-uak	asto	astua	astuak
-u	-uba	-ubak	esku	eskuba	eskubak

Some fifty years later the sequence *-aak* of the plural forms of *a*-final stems had been reduced, if we are to trust J. A. Uriarte's translation of Salomon's Song into the Markina dialect.

Bonaparte (1869: xxxi, fn. 9 [1991, I: 259]) informs us that in forms such as *esku-ba* the *-b-* could be deleted ("quoque plus rarement") in the variety of Markina at the time.

Rollo's (1925) study shows that by the beginning of the 20th century the following changes have taken place:

- (a) Epenthetic *-b-* has been lost.
- (b) Epenthetic *-ž-* has been devoiced to *-x-* [š].
- (c) The dialect has acquired Low Vowel Assimilation.

Markina around 1900

oC	a	ak	gixon	gixona	gixonak
uC	e	ek	lagun	lagune	lagunek
-a	-ie	-ak	alaba	alabie	alabak
-e	-ie	-iek	seme	semie	semiek
-i	-ixe	-ixek	erri	errixe	errixek
-o	-ue	-uek	asto	astue	astuek
-u	-ue	-uek	esku	eskue	eskuek

Since then, a new change has been acquired: Second Vowel Deletion. This is still an optional process, which is favored by younger speakers. The forms found in present-day Markina are the following, where vowels in parenthesis are optionally (but frequently) deleted:

*Markina, present day*³³

oC	a	ak	gixon	gixóna,	gíxonak
uC	e	ek	lagun	lagúne	lágunek
-a	-ie	-ak	alaba	alabí(e)	alábak
-e	-i(e)	-i(e)k	seme	semí(e)	sémi(e)k
-i	-ixe	-ixek	erri	erríxe	érrixek
-o	-u(e)	-u(e)k	asto	astú(e)	ástu(e)k
-u	-u(e)	-u(e)k	esku	eskú(e)	ésku(e)k

A related phenomenon is the partial loss of the etymological distinction between *o*-final and *u*-final stems, so that in the uninflected form, variants such as *esko*, *buro*, etc. are heard. This has obviously been caused by the lack of differentiation that these stems show in inflected forms.

To give another interesting example, it appears that in the 19th century in the dialect spoken in rural areas of Orozko, Bizkaia, a bilabial nasal *-m-* was epenthesized with stems ending in */-o/*; e.g.: *ollo* 'chicken', *olloma* 'the chicken', *arto* 'corn', *arto-*

(33) For Munitibar and other neighboring varieties, see Gaminde (1994c).

ma 'the corn' (Bonaparte 1862: 33-34, 1869: xxxi, fn. 9 [1991, I: 259], cf. also Elordui 1994). Nowadays there is no trace of this phenomenon, which, apparently, was already stigmatized and receding at the time.

From all of this, it could be concluded that there is considerable instability in the treatment of vowel sequences. However, there are also signs of conservatism. The *u* + *a* = *uya* rule employed by the first book written in Basque, *Linguae Vasconum Primitiae* 1545, by the Low Navarrese writer Bernard Dechepare, is still used in Low Navarre, four centuries later.

References

- Anonymous, 1596, *Refranes y Sentencias*. Pamplona: Pedro Porrallis de Amberes. [Critical edition by Joseba A. Lakarra, 1996. Bilbao: Euskaltzaindia].
- Aranberri, Fernando, 1996, *Ermua eta Eitzako euskara*. Ermuko Udala.
- Arantzadi Zientzia Elkarte, 1984-1990, *Euskalerriko atlas etnolinguistikoa* (2 vol.). Donostia.
- Azkue, Resurrección María de, 1931, "Particularidades del dialecto roncalés", *Euskera* 2/4: 207-406.
- Azurmendi, Jose Migel, 1995, *Zegamako euskara*. VII Gerriko ikerlan sariketa.
- _____, 1996, *Ataungo euskara*. Lazkao: Goiherriko Euskal Eskola Kultur Elkarte, Maizpide Euskaltegia & Lazkaoko Udaleko Kultur Batzordea.
- Bonaparte, Louis Lucien, 1869, *Le verbe basque en tableaux*. London [Repr. in Bonaparte 1991, vol I: 175-442].
- _____, 1991, *Opera Omnia Vasconice* (4 vol.). Bilbao: Euskaltzaindia.
- Beloqui, Juan José, Jesús Elósegui, Luis Michelena & Pilar Sansinenea de Elósegui, 1953, "Contribución al conocimiento del dialecto roncalés", *BAP* 9: 499-536. [Repr. in Michelena 1988: I, 246-272.]
- Camino, Iñaki, 1997, *Aezkoako euskararen azterketa dialektologikoa*. Iruñea: Nafarroako Gobernua.
- _____, (ed.), 1998, *Nafarroako hizkerak*. Bilbo: Udako Euskal Unibertsitatea.
- Dechepare, Bernard, 1545, *Linguae Vasconum Primitiae*. Bordeaux. (Critical edition by Patxi Altuna, Bilbao: Mensajero, 1987).
- Echebarria, Toribio, 1965-66, *Lexicón del euskera dialectal de Eibar (Arrate'tikuen izketia)*. *Euskera* 10-11. Bilbao: Euskaltzaindia.
- Elxepuru, Juan Martin, 1988, "Bergarako eta batua. Fonetika diferentzia nabarmenak". In UNED-Bergara, *Bergarako Euskera*, 71-86. Bergara.
- Elordui, Agurtzane, 1994, "Bonapartek osaturiko bizkaieraren sailkapenak: iturriak eta erizpideak". In Ricardo Gómez & Joseba Lakarra, eds., 433-464.
- Elordieta, Gorka, 1996, "Accent, tone and intonation in Lekeitio Basque". In Fernando Martínez-Gil & Alfonso Morales-Front. *Issues in the phonology and morphology of the major Iberian languages*, 1-78. Washington, DC: Georgetown Univ. Press.
- Elortza, Jenaro & Jose Luis Ormaetxea, 1994, "EAEL eta Arrasateko hizkera". In Ricardo Gómez & Joseba A. Lakarra (eds.), 479-523.
- Etxebarria, José María, 1985, "Gaintzako euskararen alderdi fonetiko batzuk", *Eusko-Ikaskuntza. Cuadernos de sección, Hizkuntza eta literatura* 4: 127-142.
- Etxebarria Ayesta, Juan Manuel, 1991a, *Zeberio haraneko euskararen azterketa etno-linguistikoa*. Euba: Ibaizabal.
- _____, 1991b, "Zeberio euskararen azentuaz". In Joseba A. Lakarra, ed., 677-708.
- Etxebarria, Pilartxo, 1990, *Zaldibiako bokalen azterketa akustikoa*. Bilbao: Univ. of Deusto.
- Fraile, Idoia & Ainhoa Fraile, 1996, *Oiartzungo hizkera*. Oiartzungo Udala.

- Gaminde, Iñaki, 1993, *Urduliz eta Gatikako herri hizkeren azterketa linguistikoa*. Doctoral dissertation. Univ. of Deusto.
- _____, 1994a, "Urduliz eta Gatikako azentu ereduz", *Uztaro* 11: 55-110.
- _____, 1994b, "Elantxobeko azentuaz", *Ele* 14: 7-41.
- _____, 1994c, "Munitibar eta inguruko azentuaz", *FLV* 65: 81-120.
- _____, 1995, "Zubereraren azentuaz", *Uztaro* 13: 107-128.
- _____, 1996, "Esteribarko euskararen azentuaz", *Uztaro* 16: 109-123.
- _____ & Amike Hazas, 1998, "Zumaiako azentuaz eta intonazioaz", *Uztaro* 24: 59-76.
- _____ & J. Salaberria, 1997, "Ezpeleta, Lekorne eta Makeako azentu ereduez", *Uztaro* 20: 93-103.
- Gómez, Ricardo, 1991, "Erronkarierazko dotrina argitaragabe bat: edizioa eta azterketa". In Joseba A. Lakarra (ed.), I, 375-426.
- _____ & Joseba Lakarra, eds., 1994, *Euskal Dialektologiako Kongresua*, Supplements of *ASJU* 28.
- Holmer, Nils, 1964, *El idioma vasco hablado*. Donostia: Gipuzkoako Foru Aldundia. (Supplements of *ASJU* 5).
- Hualde, José Ignacio, 1991, *Basque phonology*. London: Routledge.
- _____, 1992, "Notas sobre el sistema acentual de Zeberio". *ASJU* 26: 767-776.
- _____, 1993, "Topics in Souletin phonology". In José Ignacio Hualde & Jon Ortiz de Urbina, eds., *Generative studies in Basque linguistics*, 289-327. Amsterdam: Benjamins.
- _____, 1995a, "Análisis del sistema acentual de Ondarroa", *ASJU* 29: 319-344.
- _____, 1995b, "Sobre el acento roncalés", *ASJU* 29: 499-525.
- _____, 1996a, "Accentuation and empty vowels in Ondarroa Basque: Against the concept of phonological derivation", *Lingua* 99: 197-206.
- _____, 1996b, "Arbizuko hizkeraren zenbait soinu bereizgarriak", *Uztaro* 18: 49-60.
- _____, 1997a, "A gap filled: Postpostinitial accent in Azkoitia Basque", *Linguistics* 36: 99-117.
- _____, 1997b, *Euskararen azentuakerak*. Donostia & Bilbo: Gipuzkoako Foru Aldundia & Euskal Herriko Unibertsitatea (Supplements of *ASJU* 42).
- _____ & Xabier Bilbao, 1992, "A phonological study of the Basque dialect of Getxo", *ASJU* 26: 1-117.
- _____ & _____, 1993, "The prosodic system of the Basque dialect of Getxo: a metrical analysis", *Linguistics* 31: 59-85.
- _____, Gorka Elordieta & Arantzazu Elordieta, 1994, *The Basque Dialect of Lekeitio*. Bilbo & Donostia: Euskal Herriko Unibertsitatea & Gipuzkoako Foru Aldundia (Supplements of *ASJU* 34).
- _____ & Txomin Sagarzazu, 1991, "Acentos del Bidasoa: Hondarribia", *ASJU* 25: 139-152.
- Ibarra, Orreaga, 1994, "Ultzamera". In Ricardo Gómez & Joseba A. Lakarra, eds., 553-578.
- _____, 1995, *Ultzamako hizkera*. Iruñea/Pamplona: Nafarroako Gobernua.
- _____, 1998, "Ultzamako hizkeraren deskribapena". In Camino, Iñaki, ed., 89-110.
- Iturain, Iñaki & Loren Loidi, 1995, *Orioko euskara*. Orioko Udala.
- Izagirre, Kandido, 1959-61, "Erronkariko euskal-ondakin batzuk". *BAP* 15:280-314 & 17: 391-407.
- _____, 1966, "Ultzamako euskeraren gai batzuk", *BAP* 22: 403-467.
- _____, 1968, "Notas lexicográficas", *ASJU* 2: 49-72.
- _____, 1970, *El vocabulario vasco de Aránzazu-Oñate y zonas colindantes*. (= *ASJU* 4).
- Jansen, Wim, 1992, "Acento y entonación en Elorrio". *ASJU* 26: 391-440.
- Karasatorre, Rafael, Jose Luis Erdozia & Eugenio Ulaia, *Etxarri-Aranatzko euskara eta Arañaz elkarteko hiztegia*. Tafalla: Altaffaylla Kultur Taldea.
- Kenstowicz, Michael, 1994, *Phonology in Generative grammar*. Cambridge, MA & Oxford: Blackwell.
- _____ & Charles Kisseberth, 1979, *Generative phonology*. San Diego: Academic Press.

- Kirchner, Robert, 1997, "Contrastiveness and faithfulness", *Phonology* 14: 83-112.
- Knörr, Henrike & Koldo Zuazo, (eds.), 1998, *Arabako euskararen lekukoak: Ikerketak eta testuak*. Vitoria-Gasteiz: Eusko Legebiltzarra.
- Labaka, Ana, Maria Eugenia Azurza & Juan Inazio Bereziartua, 1996, *Lasarte-Oriako euskararen azterketa*. Lasarte-Oriako Udala.
- Lafon, René, 1937, "Tendance à la palatalisation de la sonante *u* dans les parlers basques du nord-est", *Revue de Linguistique Romane* 13: 73-82.
- , 1958, "Contribution à l'étude phonologique du parler basque de Larrau (Haute-Soule)". In Diego Catalán, ed., *Estructuralismo e historia: Miscelánea homenaje a André Martinet*, II, 77-106. Tenerife: Univ. de La Laguna.
- Lakarra, Joseba A., ed., 1991, *Memoriae L. Mitxelena magistri sacrum*, Donostia: Gipuzkoako Foru Aldundia. (Supplements of *ASJU* 14).
- Lakoff, George, 1993, "Cognitive phonology". In John Goldsmith, ed., *The last phonological rule*, 177-145. Chicago: Univ. of Chicago Press.
- Landucci, Niccolò, 1958 [1562], *Dictionarium Linguae Cantabrigiae* ed. by Manuel Agud & Luis Michelena. San Sebastián: Diputación de Guipúzcoa. (Supplements of *ASJU*).
- Larrasquet, Jean, 1934, *Le basque souletin nord-oriental*. Paris: Maisonneuve.
- , 1939, *Le basque de la Basse-Soule orientale*. (Collection Linguistique, 46). Paris: Société de Linguistique de Paris.
- Laspiur, Imanol, 1979, "Azentu diakritikoa Eibarko euskarari", *Euskera* 24: 175-268.
- Markaida, Bene, Iñaki Gaminde & Eukene Markaida, 1993, *Sopelako euskaraz*. Bilbao: Gertu.
- Michelena, Luis, 1954, "La posición fonética del dialecto vasco del Roncal", *Via Domitia* 1: 123-157. (Repr. in Michelena 1988: I, 273-297).
- , 1967, "Notas fonológicas sobre el salacenco", *ASJU* 1: 163-177. (Repr. in Michelena 1987, 221-234).
- , 1977, *Fonética histórica vasca*, 2nd ed. San Sebastián: Diputación de Guipúzcoa. (Supplements of *ASJU*).
- , 1981, "Lengua común y dialectos vascos", *ASJU* 15: 291-313.
- , 1987, *Palabras y textos*. Leioa: Univ. del País Vasco.
- , 1988, *Sobre historia de la lengua vasca* (2 vol.). Donostia-San Sebastián: Diputación de Gipuzkoa.
- Moguel, Juan Antonio, 1881 [1804], *El doctor Peru Abarca*. Durango.
- N'Diaye, Geneviève, 1970, *Structure du dialecte basque de Maya*. The Hague & Paris: Mouton.
- Pagola, Rosa Miren, 1992, *Euskal fonetika Nafarroan*, 2 vol. Iruñea: Nafarroako Gobernua.
- , 1994, "Nafarroako hizkerak". In Ricardo Gómez & Joseba A. Lakarra (eds.), 255-296.
- Rijk, Rudolf P. G. de, 1970, "Vowel interaction in Bizcayan Basque", *FLV* 2: 5.149-67.
- Rollo, William, 1925, *The Basque dialect of Marquina*. Amsterdam: H. J. Paris.
- Rotaetxe, Karmele, 1978, *Estudio estructural del euskara de Ondarroa*. Durango: L. Zugaza.
- Sagarzazu, Txomin, 1994, "Hondarribiko mintzairazko ikuspegiak: Larramendi, Bonaparte, Azkue". In Ricardo Gómez & Joseba A. Lakarra (eds.), 589-631.
- Salaburu, Pello, 1984, *Hizkuntz teoria eta Baztango euskalkia: fonetika eta fonologia* (2 vol.). Leioa: Euskal Herriko Unibertsitatea.
- Sarasola, Ibon, 1990, *Contribución al estudio y edición de textos antiguos vascos*. (Supplements of *ASJU* 11, printed in a vol. with a facsimile ed. of Luis Michelena, *Textos arcaicos vascos*).
- Schuchardt, Hugo, 1922, *Zur Kenntnis der Baskischen von Sara (Labourd)*. *Abhandlungen der Preussischen Akademie der Wissenschaften, Philosophisch-historische Klasse, Nr. 1*. Berlin: Akademie der Wissenschaften.
- Trask, R. L., 1996, *Historical Linguistics*. London: Arnold.
- UNED-Bergara, 1988, *Bergarako Euskera*. Bergara.

- Uriarte, José Antonio, 1862, *Le Cantique des Cantiques de Salomon, traduit en basque biscayen central tel qu'il est communément parlé aux environs de Bilbao, et accompagné d'une traduction en basque biscayen littéraire de Marquina*. London: Strangeways & Walden. (Repr. in Bonaparte 1991, vol. IV: 439-452).
- Yrizar, Pedro de, 1981, *Contribución a la dialectología de la lengua vasca* (2 vol.). Donostia-San Sebastián: Caja de Ahorros Provincial de Guipúzcoa / Gipuzkoako Aurrezki Kutxa Probintziala.
- _____, 1991, *Morfología del verbo auxiliar guipuzcoano. Estudio dialectológico*, 2 vol. Zarautz: Euskaltzaindia.
- _____, 1992a, *Morfología del verbo auxiliar vizcaíno. Estudio dialectológico*, 2 vol. Zarautz: Euskaltzaindia.
- _____, 1992b, *Morfología del verbo auxiliar alto navarro septentrional* (2vol.). Pamplona: Euskaltzaindia & Nafarroako Gobernua.
- _____, 1992c, *Morfología del verbo auxiliar alto navarro meridional* (2 vol.). Pamplona: Euskaltzaindia & Nafarroako Gobernua.
- _____, 1992d, *Morfología del verbo auxiliar roncalés*. Pamplona: Euskaltzaindia & Nafarroako Gobernua.
- _____, 1997, *Morfología del verbo auxiliar labortano*. Pamplona: Euskaltzaindia & Euskal Herriko Unibertsitatea.
- Zuazo, Koldo, 1994, "Burundako hizkera". In Ricardo Gómez & Joseba A. Lakarra (eds.), 297-366.
- _____, 1997a, "Euskara Araban", *Uztaro* 21: 79-95.
- _____, 1997b, "Oiartzungo hizkeraren kokagunea", *FLV* 76: 397-425.
- _____, 1998, "Euskalkiak, gaur", *FLV* 78: 191-233.
- Zubiaur, Estibaliz, Goizalde Gezuraga, Nere Kaltzakorta & Aloña Arronategi, 1992, "Armonia bokalikoa: Markina", *Enseiucarrean* 8: 55-93.