On the phonemic status of nasalized /h̃/ in Modern Zuberoan Basque

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Abstract: Modern eastern Basque dialects have several conservative features, including the maintenance of historical /h/, which is lost in other dialects. Zuberoan, the easternmost dialect of Basque still spoken today, shows both this /h/ as well as a phonetically nasalized segment [h̃] which is a reflex of intervocalic *n. In this paper I argue that these two segments contrast in Zuberoan. Evidence for the contrast comes from both a newly described process of assimilation of /h/ to /h̃/ in nasal environments which then serves as a basis of the analogical extension of the nasalized aspirate in a context where it cannot be phonologically derived, and from neighboring Mixean Low Navarrese where the nasalized [h̃] has no other obvious source. Since a contrast between oral and nasalized aspirates is rare cross-linguistically, the Zuberoan and Mixean sound patterns discussed here should be of interest to typologists and phonologists alike.

Keywords: laryngeals, nasalized aspirates, rhinoglottophilia, nasalization, Basque, Zuberoan.

1 Introduction

More than half of the world's languages have a phoneme /h/, a voiceless aspirate, often classified as an approximant, glide or voiceless laryngeal.[1] In contrast, few languages if any have a clear contrast between /h/ and its nasalized counterpart /h̃/, though, as argued by Walker and Pullum (1999), [nasal] must be a possible phonological feature of glottals given that /h̃/ has been described to trigger phonological nasal spreading. The phonological spread of nasalization triggered by /h̃/ requires this segment to be phonologically specified for nasality, yet an opposition between /h/ and /h̃/ is scarcely attested in the world's languages. Ohala (1975) suggested early on that cues for aspiration and nasality were similar, attempting to explain the absence of this contrast cross-linguistically in terms of perceptual similarity (see also Ohala 1990). Since then, at least two languages have been argued to have a contrast between oral and nasalized /h/: Kwangali, a Bantu language (Ladefoged and Maddieson 1996) and Seimat, an Austronesian language of the Admiralty Islands (Blust 1997, Blust 1998). At least two other languages, Aguaruna, a Jivaroan language, and Arabela, a Zaparoan language, are analyzable with the oral vs. nasalized /h/ contrast, or with the nasalized aspirate viewed as a predictable allophone of a velar nasal consonant (Walker and Pullum 1999: 768–770; Durvasula 2009: 52–55). Given the typological rarity of a contrast between oral and nasalized /h/, any language showing a possible contrast between these two segment types should be of interest.

[1] 88% of the languages in the UPSID database (279/317) have /h/ (Maddieson 1984). For a detailed discussion of the frequency of /h/ in contrast to voiceless sonorants, see Blevins (to appear). Classification of this sound as an approximant or glide is based on the absence of significant constriction and/or air pressure build-up in the supralaryngeal cavity (cf. the definition of [consonantal] in Halle and Clements 1983).

One language with a possible contrast of this kind is Zuberoan (Souletin) Basque, a modern Basque dialect spoken in the northeasternmost corner of the Basque Country. In this variety of Basque nasalized and non-nasalized aspirates exist, as shown by minimal pairs such as *ehe* ‘wash water’ vs. *ẽh̃ẽ* ‘no’ (Lafon 1958). Hualde (1993: 294) states the hypothesis clearly: “…our proposal is that Souletin has two aspirated phonemes: oral /h/ and nasal /h̃/”. While many adopt Hualde’s analysis, an alternative, first proposed by Larrasquet (1932: 168), views nasalization of aspirates as allophonic, with nasalization spreading from adjacent nasalized vowels to /h/ (Michelena 2011 [1977]). The issue has not been seriously revisited in modern studies of Zuberoan phonology, and the central role of this paper is to fill this gap.[2]

In this paper, I begin with the basic observation of minimal and near-minimal pairs contrasting oral vs. nasal aspirates. In addition, I offer two different kinds of evidence for this as a contrast between oral vs. nasal aspirates, as opposed to allophonic nasalization of the aspirate in nasalized vowel contexts. The first piece of evidence is a newly identified analogical spread of the nasalized aspirate discussed in 2.2, and the second, offered in 2.3, is comparative dialect evidence where vowel nasalization does not appear to be a possible source for aspirate nasalization. In 2.1, I offer an overview of Basque dialect phonology, and of the Zuberoan phoneme inventory. Before turning to this, a brief summary of the diachronic phonology that has given rise to the contrastive aspirates in earlier stages of Basque and in modern Zuberoan is presented. Throughout, transcriptions enclosed in square brackets make use of standard IPA symbols.[3] The IPA

[2] For a recent treatment of rhinoglottophilia in Basque historical phonology, including the evolution of nasalized aspirates, see Igartua (2015).

[3] Phonetic nasalization of both /h̃/ and vowels is transcribed throughout, so as not to bias

refers to /h/ as a "glottal fricative"; in this paper, I use the terms "aspirate" and "nasalized aspirate" to refer to these sounds, since intense fricative noise, of the kind associated with Basque sibilants, is typically weak or absent.

Proto-Basque, as reconstructed by Michelena (2011 [1977]: 171–172), has a contrast between intervocalic *h, intervocalic *n, and zero: *zahar 'old', *seni 'boy', *gau 'night'.[4] Intervocalic /h/ and /n/ are both attested in Aquitanian, the oldest attested Euskarian language (Gorrochategi 1984; Martínez-Areta 2013), with /h/ persisting into Michelena's Common Basque (ca. 600 CE), and later lost in western varieties, but preserved in Zuberoan and other eastern dialects. Intervocalic *n was also weakened. While many instances of Proto-Basque *h have been maintained by the modern eastern dialects (compare Aquitanian (*Umme*)*sahar* to modern Basque *zahar* 'old'), evidence for the reconstruction of intervocalic *n can be found in Aquitanian attestations such as *Seni-* (in the names *Senicco, Seniponnis* and *Senitennis*, modern Basque *sehi*, *sei*(*n*) 'boy, servant'), names of Basque origin with early introduction into Romance (cf. *Anuncibai*, formed by modern Basque *ahuntz* 'goat' and (*h*)*ibai* 'river') or old compounds that lost the phonological context that triggered the change (cf. *mingain* 'tongue', formed by the words *mihi* < **bini* 'tongue' and *gain* < **gane* 'top'). Michelena (2011 [1950]: 8–9, Michelena 2011 [1977]: 171) proposes the sound change of *VnV > ṼhṼ; by contrast, evidence from Zuberoan has led Hualde (1993), Igartua (2008, 2015)

interpretation of the source of nasalization.

[4] Trask (1997) does not reconstruct *h for Common Basque. Among problems for his account are the many attested cases of /h/ in Aquitanian, continued faithfully in Medieval Basque, Zuberoan and other northern dialects. For a critique of his proposal for a synchronic /h/ autosegment, see Igartua (2001) or Lakarra (2009); see also papers in Martinez-Areta (2013), which all assume *h for Proto-Basque, and its continuation in Aquitanian, Medieval Basque and northern dialects.

and Egurtzegi (2014) to formulate the weakening as *VnV > Vh̃V, giving rise to a nasalized aspirate phoneme.[5] In (1a) this development is shown for inherited vocabulary, where reconstructions are from Michelena (2011 [1977]; Arbelaiz 1978), and examples in (1b) show the same sound change in Latin loans.

(1) *n > /h̃/ /V_V

(a) Inherited lexicon:

Zuberoan	IPA	Reconstruction	Gloss
ahai	/ãh̃ãĩ/	**anari*	‘ram’
ihi	/ĩh̃ĩ/	**ini*	‘rush, reed’
ihes	/ĩh̃ẽs̻/	**enes*	‘to escape, run away’
sehi	/s̻ẽh̃ĩ/	**seni*	‘servant’ (Bizkaian Basque *sein* /s̻eiṉ/ ‘boy’)
mihi	/mĩh̃ĩ/	**bini*	‘tongue’ (cf. *mingain* ‘tip of the tongue’)

(b) Latin loanwords:

Zuberoan	IPA	Latin	Gloss
uhue	/ũh̃ũẽ/	*honōre*(*m*)	‘honor’ (Standard Basque *ohore*)
ahate	/ãh̃ãte/	*anăte*(*m*)	‘duck’
mahuka	/mãh̃ũka/	*manica*, **manuca*	‘sleeve’

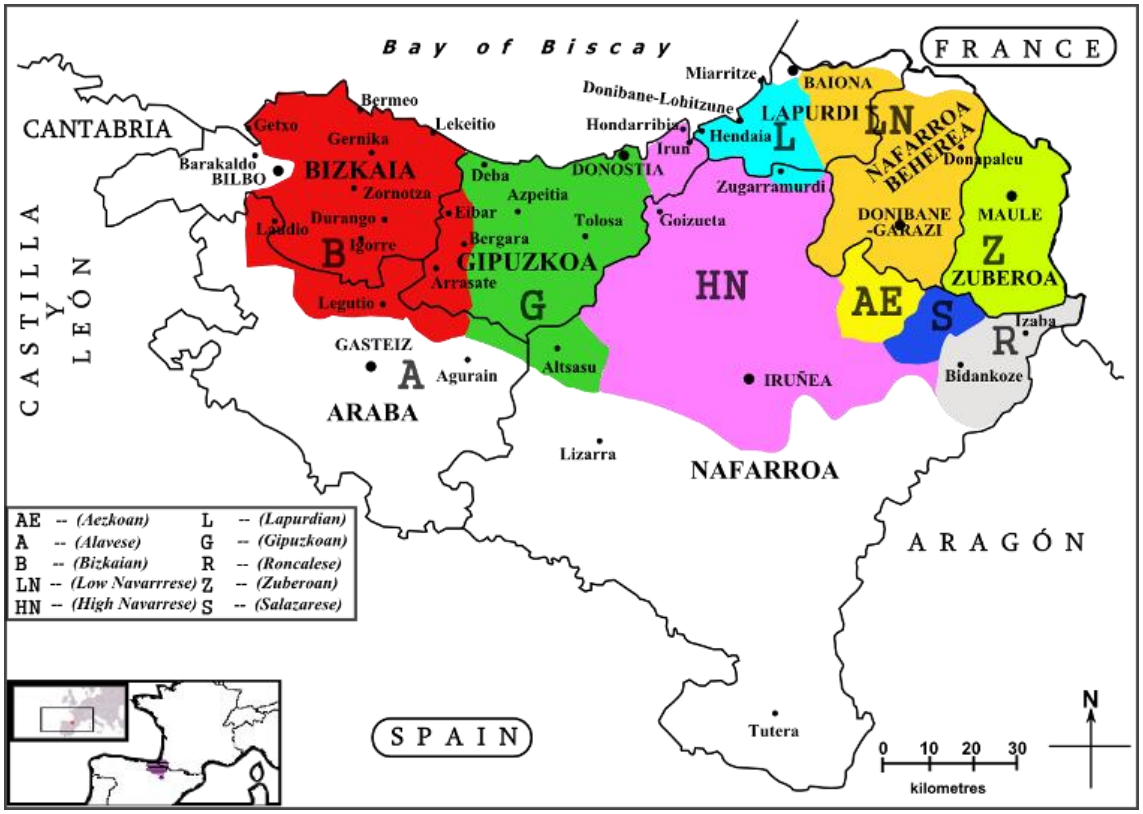
[5] The weakening of a voiced nasal to /h/ may seem phonetically unnatural, but has been analyzed as a case of rhinoglottophilia, recognizing the similar acoustic/perceptual properties shared by nasalization and aspiration. See Igartua (2008, 2015) for general references, and for a detailed treatment of the Basque case.

Since the contrastive status of the synchronic nasalized aspirate in Zuberoan is the subject of this paper, we do not use this diachronic development as evidence for any aspect of the synchronic phonology. It is mentioned only to give the reader an overview of the sound patterns in earlier stages of Basque that are widely agreed to have given rise to the aspirate contrasts discussed in the remainder of this paper.

2. The Zuberoan /h/ vs. /h̃/ contrast

2.1 Segmental contrasts in major Basque dialects

Major dialects of Basque at the end of the 19th century are illustrated in Map 1. Zuberoan, the dialect of central interest in this study, is located at the far northeastern corner of the Basque speaking region, surrounded on its northeastern borders by Romance languages (Gascon and French), and in past centuries, by other dialects of Basque to the south and west, though now, these are regions dominated by Castilian.



Map 1 Historical dialectal division of Basque (Egurtzegi 2014)

Table 1 illustrates the segmental inventory of Standard Basque, and Table 2 illustrates the contrastive segments of Zuberoan as analyzed by Hualde (2003).

		labial		apical		laminal	predorsal	postdorsal	
		bilabial	labio-dental	apico-dental	apico-alveolar		palato-alveolar	palatal	
stop	voiceless	p		t				c	k
	voiced	b		d				ɟ	g
fricative			f		s̻	ʂ̻	ʃ		x
affricate					t̻s̻	ʈ̻ʂ̻	ʧ		
nasal		m			n			ɲ	
lateral					l			ʎ	
tap					ɾ				
trill					r				

	front	central	back
high	i		u
mid	e		o

		labial		**apical**		**laminal**	**predorsal**				
						(alveolar)			**postdorsal**	**laryngeal**	
		bilabial	**labio-dental**	**apico-dental**	**apico-alveolar**		**palato-alveolar**	**palatal**			
	voiceless	p		t				c	k		
stop	**aspirated**	p^h		t^h				c^h	k^h		
	voiced	b		d				ɟ	ɡ		
Fricative	**voiceless**		f		s̪	ʂ̪	ʃ				h/h̃
	voiced				z̪	ʐ̪	ʒ				
affricate	**voiceless**				t̪s̪	ʈ̪ʂ̪	ʧ				
	voiced				d̪z̪						
nasal		m			n			ɲ			
lateral					l			ʎ			
tap					ɾ						
trill					r						
glides								j	w		

	front		**central**	**back**
high	i/ĩ	y/ỹ		u/ũ
mid	e			o
low			a/ã	

Table 1 Segment inventory of Standard Basque (after Hualde 2003)

Table 2 Segment inventory of Zuberoan (after Hualde 2003; Egurtzegi 2014)

Zuberoan has a range of contrasts that are absent in Standard Basque (and the central and western varieties on which this standard is based), including: /h/ vs. /h̃/; oral vs. nasalized vowels, and an /u/ vs. /y/ contrast.[6] While the latter two features, namely vowel nasalization and presence of a front rounded vowel, can be attributed to Romance influence (Egurtzegi 2014, Egurtzegi to appear), the aspirate contrast under investigation here cannot be attributed to external influence, and, indeed, is

[6] Some spectrograms illustrating the /h/ vs. /h̃/ contrast can be found in Egurtzegi (2014).

typologically unusual, as noted earlier.

In Table 3, the presence (✓) or absence (**X**) of these three features is tabulated for selected dialects and earlier stages of Basque, following Michelena (2011 [1977]), Hualde (2003) and Egurtzegi (2013, 2014).

	h	h̃	Ṽ	y
Aquitanian	✓	**X**	**X**	**X**
Old Common Basque	✓	✓[7]	**X**	**X**
Bizkaian	**X**	**X**	**X**	**X**
Gipuzkoan	**X**	**X**	**X**	**X**
High Navarrese	**X**	**X**	**X**	**X**
Roncalese	**X**	**X**	✓	**X**
Lapurdian	✓	**X**	**X**	**X**
Low Navarrese	✓	**X**	**X**	**X**
Mixean (LN)	✓	✓	**X**	✓
Zuberoan	✓	✓	✓	✓

Table 3 Contrastive aspirates and nasalization in Basque, past and present

Today, /h/ is contrastive in the three northern dialects of the French territory, Lapurdian, Low Navarrese and Zuberoan (L, LN and Z in the map), while /h̃/ has been claimed to be contrastive only in Zuberoan. Nasalized vowels were present in Archaic Bizkaian

[7] There is no evidence that contradicts this.

and Roncalese, but today are found only in Zuberoan. Front rounded /y/ is found in Zuberoan and Mixean Low Navarrese.

Note that the earliest stages of Basque, represented here by Aquitanian, show intervocalic and word-initial /h/ vs. /n/ vs. zero, while later stages of the language appear to show a shift of intervocalic /n/ to nasalized /h̃/ or /h/, and western dialects show a loss of /h/ altogether. Some common lexical items illustrating dialect correspondences for historical initial and intervocalic /h/ and /n/ are provided in Table 4.

Pre-Basque	Zuberoan	Low Navarrese	Western	Gloss
*#hV	[hari]	[hari]	[ari]	‘stone’
	[hil]	[hil]	[il]	‘dead’
*#nV	[naɣ̟u̯s̻i]	[naɣ̟u̯s̻i]	[naɣ̟u̯s̻i]	‘chief’
	[ni]	[ni]	[ni]	‘I’ (1sg.abs)
*VhV	[s̻ahar]	[s̻ahar]	[s̻aar], [s̻ar]	‘old’
	[bihi]	[bihi]	[bii], [bi]	‘grain’
*VnV	[ãh̃ãrdi]	[ahardi]	[aardi]	‘sow’
	[ĩh̃ẽs̻i]	[ihes̻i]	[ies̻i], [iɲes̻i]	‘to flee’

Table 4 Dialect correspondences for Proto-Basque *h and *n

Throughout this paper, we use the voiceless symbols [h] and [h̃] for the two sounds in question, though in intervocalic contexts, both aspirates are typically voiced.

Though /h/ is phonemic in Zuberoan, Low Navarrese and Lapurdian, it has different lexical frequencies in these varieties, decreasing significantly as one moves

from east to west. Zuberoan, the easternmost dialect, appears to represent the most conservative stage, where /h/ has the highest functional load. Loss of /h/ has moved areally from western varieties into Lapurdi, and is now complete on the Lapurdian coast, extending into Low Navarre.[8] In Zuberoan, however, /h/ has been preserved in most of its historic contexts. In sum, Zuberoan appears to be the only modern variety of Basque in which /h/ does not show any critical trace of recession, and, apart from one variety of Low Navarrese discussed in 2.3, it is also the only dialect that maintains the distinction between oral /h/ and nasalized intervocalic /h̃/ (from *VnV).

In Modern Zuberoan, /h̃/ also appears to contrast with /n/ intervocalically. Intervocalic /n/ derived from geminate *nn, which was simplified to /n/ after the *n > /h̃/ process was already complete. In addition, many late borrowings introduced new instances of intervocalic /n/. Examples of intervocalic /n/ include *anai* 'brother (of a brother)', *arrano* 'eagle', *bena* 'but', *ene* 'my' or the recent loanwords *animal* 'huge', *anuntza* 'announce', *ganibet* 'knife' and *unest* 'honest'. With this as background, we turn to arguments for the contrastive status of /h̃/ in Zuberoan.

2.2 New evidence for Zuberoan /h/ vs. /h̃/: analogical extension of /h̃/

Hualde's (1993) proposal for an /h/ vs. /h̃/ contrast in Zuberoan is based on minimal and near-minimal pairs like those shown in (2).

(2) Surface /h/ vs. /h̃/ in Zuberoan

[8] Bonaparte's (1991 [1869]) dialect descriptions allow us to see that /h/ was already lost in coastal areas of Lapurdi, and was being lost in the eastern varieties of the Lapurdian dialect in the 19th century. The first context where /h/ was lost in Lapurdian is in post-sonorant position: compare Lapurdian *alaba* 'daughter', *alargun* 'widow', *eraztun* 'ring vs. Zuberoan *alhaba, alhargun, erhaztun*.

1	*zahar*	[s̪ahar]	‘old’	vs.	*ahardi*	[ãh̃ãrdi]	‘sow’
2	*ehe*	[ehe]	‘wash water’	vs.	*ehe*	[ẽh̃ẽ]	‘no! (emphatic)’
3	*bihi*	[bihi]	‘grain’	vs.	*mihi*	[mĩh̃ĩ]	‘tongue’
4	*bühürt*	[byhyrt]	‘twisted’	vs.	*zühür*	[s̪ỹh̃ỹr]	‘wise’

There is also a modern minimal quadruplet contrast intervocallically in Modern Zuberoan between /h/, /h̃/, /n/ and zero: *ehi* ['ehi] ‘finger’ (< Literary Zuberoan *erhi*) vs. *ehi* ['ẽh̃ĩ] ‘easy’ vs. *eni* ['eni] ‘to me’ vs. *ei* [e̪i̪] (< Literary Zuberoan *eri*) ‘ill’ (cf. Lafon 1958).

Under Hualde’s analysis, surface nasalized vowels are created when nasalization of the underlying nasalized aspirate spreads to adjacent segments (Hualde 1993: 294–295). The alternative analysis, originally proposed by Larrasquet (1932: 168), and later adopted by Michelena (2011 [1977]), is that nasalization of aspirates is allophonic, with nasalization spreading from adjacent nasalized vowels to /h/. Since contrastive nasalized vowels are independently necessary in all analyses of Zuberoan based on data like that in (3), the analysis where nasalization of /h/ is allophonic appears simpler. In addition, given the rarity of /h/ vs. /h̃/ contrasts cross-linguistically, Hualde’s proposal could be questioned on typological grounds.

(3) Contrastive vowel nasalization in Zuberoan

Oral vowel		Nasalized vowel	
biga	‘two’	*bigã*	‘two-year heifer’
dügü	‘we have’	*hügũ̃*	‘repugnance’
hi	‘you’	*fĩ*	‘fine, prudent’

lili ‘flower’ *lĩ* ‘linen’

However, as shown below, there is additional evidence that nasalized /h̃/ is a contrastive segment in Zuberoan. Following Hualde (1993: 294–295, 2003: 31), I will argue that /h̃/ is a contrastive nasalized segment which induces phonetic nasalization in neighboring vowels. Contextual nasalization is a consequence of these vowels being in a nasal environment similar to that found in sequences such as *ona* [õnã] ‘the good’ or *ama* [ãmã] ‘mother’ (cf. Hualde 1993: 294).

One argument against the spread of nasalization from vowels to /h/ involves the distribution of vowel nasalization in Zuberoan. As illustrated in (3) above, contrastively nasalized vowels in modern Zuberoan are (i) limited to /ĩ ỹ ũ ã/; and (ii) found only in word-final stressed syllables (Hualde 1993: 295; Egurtzegi 2014: 151–152). If we follow Michelena (2011 [1977]) in deriving /h/ nasalization from surrounding vowels, the vowels in question would be the only unstressed contrastively nasalized vowels in Zuberoan. In addition, adopting the /Ṽh Ṽ/ analysis with spread of nasalization to /h/ would require adding more nasalized vowels to the phonemic inventory of the language. Words like *ehe* [ẽh̃ẽ] ‘no! (emphatic)’, *mehe* [mẽh̃ẽ] ‘thin’ and *Johanne* [ʒõ'h̃ãɲe] ‘John’ require adding at least /ẽ/, and possibly /õ/ as well. Thus, the general distribution of nasalized vowels in Zuberoan must be unnecessarily complicated for nasalization to spread from vowels to /h/. There is on the other hand a more general principle based on contrastive /h̃/ by which allophonically nasalized unstressed vowels, and allophonically nasalized mid vowels like [ẽ] and [õ] can be derived as a consequence of nasal coarticulation. If this were the only argument in favor of the contrastive nasalized

aspirate, one might still lean towards the alternative due to the extreme rarity of the /h/ vs. /h̃/ contrast cross-linguistically, but other evidence exists.

In Zuberoan, /h/ is assimilated to [h̃] in the context of a nasal consonant (Egurtzegi 2014: 79–81). Zuberoan examples of /h/ surfacing as [h̃] include: *nihau*(*r*) [nĩˈh̃ãũ̯] ‘me myself’ from *ni* ‘me’ and *hau*(*r*) ‘this’; *Johanne* [ʒõˈh̃ãɲe] ‘John’, with a known Biblical origin; *ahin* [ãh̃ĩn] ‘light’ and *ahan* [ãh̃ãn] ‘plum’ (< Literary Zuberoan *arhin* and *arhan*). All of these examples involve etymological /h/. In these cases, nasalization in the aspirate is due to assimilation to a nasal consonant elsewhere in the word, and not a consequence of intervocalic *VnV > Vh̃V. This local assimilation in and of itself has little bearing on the status of /h̃/ in words like those in (2). However, a subsequent development strongly suggests that at the time this local assimilation occurred, nasalized /h̃/ was a contrastive segment in Zuberoan.

The subsequent development in question is an analogical change within the intensive pronominal paradigm. As illustrated above, secondary [h̃] in *nihau* [nĩˈh̃ãũ̯] ‘me myself’ is a consequence of a local assimilation of nasality from the initial /n/ of /ni/ ‘I’ to the second element of the compound *hau* /hau̯/ ‘this’ (< Literary Zuberoan *haur* /hau̯ɾ/). The facts of interest involve analogical extension of this second compound element with initial nasalized [h̃] to the rest of the paradigm, despite the absence of a nasal consonant that could trigger /h/ nasalization. The full paradigm is shown in (3). On the left are the early Zuberoan forms, where nasalization of the initial segment of /hau(ɾ)/ was found only in the first person singular, triggered by the /n/ of /ni/. In the second column are the modern Zuberoan forms showing the extension of the phonological form /h̃aũ̯(ɾ)/ ‘self’ to the entire pronominal paradigm.

(4) Analogical extension of /h̃au̯(ɾ)/ ‘self’ within the pronominal paradigm

Early Zuberoan	Later Zuberoan	
ni-haur [nĩˈh̃ãũ̯ɾ]	/nih̃au̯/ [nĩˈh̃ãũ̯]	‘me myself’
hi-haur [iˈhau̯ɾ]	/hih̃au̯/ [ĩˈh̃ãũ̯]	‘you yourself’
zi-haur [s̻iˈhau̯ɾ]	/s̻ih̃au̯/ [s̻ĩˈh̃ãũ̯]	‘you yourself’ (formal)
gi-haur [giˈhau̯ɾ]	/gih̃au̯/ [gĩh̃ãũ̯]	‘we ourselves’

In all but the first person singular, there is no historical or synchronic contextual source for the nasalization of /h/. In order for the [h̃] in [nĩˈh̃ãũ̯] to extend to the rest of the paradigm, the contextually conditioned phonetic variant [h̃] must have been phonologized (i.e. form part of the phonologically contrastive inventory in speech communication; cf. Janda 2003: 409). We conclude that at the time of this analogical extension, the opposition between /h/ and /h̃/ was contrastive in Zuberoan, and has remained so to this day. At the same time, these examples cannot be easily accounted for under an analysis where /h/ nasalization is allophonic due to spread from adjacent nasalized vowels. Under such an account, an abstract nasalized vowel would need to be posited for the morpheme /hau/, though the vowel would only trigger nasalization within this pronominal subparadigm and not in the bare demonstrative *hau* [hau]. In sum, analogical extension of a pronominal form beginning with /h̃/ suggests that this segment was contrastive at the time the paradigmatic shift took place.

2.3 Comparative evidence for Zuberoan /h̃/: Mixean Low Navarrese /h̃/

Beyond Zuberoan, one other modern dialect appears to preserve and extend a contrast involving /h/ (from historical /h/) versus nasalized /h̃/ from historical intervocalic *n. The variety in question is Mixean Low Navarrese as spoken in the region of Mixe (Basque Amiküze) and described by Camino (2016). Unlike Zuberoan, where contrastive nasalized vowels occur in final stressed syllables (3), there is no evidence in modern Low Navarrese for contrastively nasalized vowels. Nasalized vowels are found only in words containing an aspirate, and, for the most part, these words are cognate with Zuberoan words with nasalized /h̃/. Cognate words in the two eastern varieties involving both aspirates are shown in (5) with Standard Basque forms for comparison.

(5) Contrastive /h̃/ in Mixean Low Navarrese

Mixean	Zuberoan	Standard Basque	Gloss
hasi	*hasi*	*hasi*	‘begin’
hirü/*hiü*	*hiü*	*hiru*	‘three’
ahür	*ahür*	*ahur*	‘palm (of the hand)’
behi	*behi*	*behi*	‘cow’
zahar	*zahar*	*zahar*	‘old’
ãh̃ãrdi	*ãh̃ãrdi*	*ahardi*	‘sow’
ãh̃ãtiak	*ãh̃ãtiak*	*ahateak*	‘ducks’
lẽh̃ẽn	*lẽh̃ẽn*	*lehen*	‘first’
ĩh̃ĩzin	*ĩh̃ĩzin*	*ehizan*	‘hunting’
ũh̃ũre	*ũh̃ũe*	*ohore*	‘honor’

Since there is general agreement on the sound change of *VnV > VhV in the history of Basque, and good evidence for this in Latin loans (e.g. Zuberoan *ũh̃ũe* ‘honor’ < **onore* << Lat. *honore*), Mixean Low Navarrese appears to be conservative in retaining nasalized /h̃/ in these contexts. However, in Mixean, one cannot derive synchronic nasalization of aspirates from nasalized vowels, since contrastively nasalized vowels do not exist. The Mixean data in (5), then, not only lends further support to a contrast between /h/ and /h̃/ in Zuberoan, but also argues for the same contrast in Mixean Low Navarrese, and, more generally, for this as a conservative inherited feature continued from an earlier stage of Basque.

3 Conclusions

In addition to languages such as Kwangali, Seimat, Aguaruna and Arabela, there is an arguable contrast between oral and nasalized /h/ in two modern varieties of Basque: Zuberoan and Mixean Low Navarrese. Where earlier authors suggest that the nasalization of h in Zuberoan be derived from spread of nasalization in adjacent nasalized vowels, Hualde (1993) suggests an alternative where nasalization of the aspirate is contrastive, and spreads to neighboring vowels. Building on Hualde’s analysis, I argue above that the distribution of nasalized aspirates in Zuberoan cannot be adequately handled via assimilation from neighboring nasalized vowels without increasing the complexity of the nasalized vowel system. A stronger argument for a contrastively nasalized /h̃/ is the analogical extension of this segment in initial position of a morpheme, /h̃au̯(ɾ)/, within a subpart of the pronominal paradigm. Since no nasalized vowels are present where this form has been extended, there is no

phonological source of nasalization, and nasalized /h/ should be analyzed as basic and contrastive. Finally, comparative evidence from the Mixean variety of Low Navarrese shows cognate words with nasalized aspirates to those found in Zuberoan. However, Low Navarrese lacks contrastively nasalized vowels. Therefore, the alternative analysis, where nasalization spreads from vowels to /h/ is not possible in this variety. I conclude that /h̃/ is contrastive in both Zuberoan and Mixean Low Navarrese, and that this is a conservative feature of these dialects, directly inherited from earlier stages of Basque. Contrastive /h̃/ evolved from *n intervocalically, and the category was apparently strengthened by contextual nasalization of /h/ in nasal domains.

While the study of Basque phonology has not yielded many typological rarities, this detailed reconsideration of Zuberoan aspirates demonstrates the importance of holistic approaches to grammar incorporating phonetic, phonological and morphological detail. Without evidence from the pronominal paradigm, the arguments for a nasalized aspirate would be equivocal. At the same time, this study also illustrates how small endangered varieties of languages can be the repository of linguistic information of great value. In this case, the Mixean Low Navarrese words with nasalized aspirates allow us to confirm an analysis where the /h/ vs. /h̃/ contrast is basic, and not derived through vowel nasalization. At the same time, Zuberoan itself, a small and endangered variety of Basque, reveals what, phonetically, was thought to be a difficult or impossible contrast (Ohala 1975), instantiates the predictions of phonological theory (Walker and Pullum 1999).

References

Arbelaiz, Juan José. 1978. *Las etimologías vascas en la obra de Luis Michelena*. Tolosa: Kardaberaz.

Blevins, Juliette. To appear. Evolutionary phonology and the life cycle of voiceless sonorants. In Sonia Cristofaro & Fernando Zúñiga (eds.), *Typological hierarchies in synchrony and diachrony*.

Blust, Robert. 1997. Nasals and nasalization in Borneo. *Oceanic Linguistics* 36(1). 149–179.

Blust, Robert. 1998. Semiat vowel nasality: A typological anomaly. *Oceanic Linguistics* 37(2). 298–322.

Bonaparte, Louis-Lucien. 1991 [1869]. *Le verbe basque en tableaux*. London: Strangeways and Walden. [Reissued in *Opera omnia vasconice*, vol. 1, 175–442. Bilbao: Euskaltzaindia].

Camino, Iñaki. 2016. *Amiküze eskualdeko heskuara* [The Basque of the region of Amiküze (Mixe)] (Mendaur 11). Bilbao: Euskaltzaindia.

Durvasula, Karthik. 2009. *Understanding nasality*. Newark, DE: University of Delaware dissertation.

Egurtzegi, Ander. 2013. Phonetics and phonology. In Mikel Martínez-Areta (ed.), *Basque and Proto-Basque. Language-internal and typological approaches to linguistic reconstruction* (Mikroglottika 5), 119–172. Frankfurt am Main: Peter Lang.

Egurtzegi, Ander. 2014. *Towards a phonetically grounded diachronic phonology of Basque*. Vitoria-Gasteiz: University of the Basque Country dissertation.

Egurtzegi, Ander. To appear. *Phonetically conditioned sound change: Contact induced /u/-fronting in Zuberoan Basque*. To appear in *Diachronica* 34(3).

Gorrochategui, Joaquín. 1984. *Estudio sobre la onomástica indígena aquitana*. Bilbao: University of the Basque Country, University of Salamanca.

Halle, Morris & George N. Clements. 1983. *Problem book in phonology: A workbook for introductory courses in linguistics and in modern phonology*. Cambridge: MIT Press.

Hualde, José Ignacio. 1993. Topics in Souletin phonology. In José Ignacio Hualde & Jon Ortiz de Urbina (eds.), *Generative studies in Basque linguistics*, 289–327. Amsterdam: John Benjamins.

Hualde, José Ignacio. 2003. Segmental phonology. In José Ignacio Hualde & Jon Ortiz de Urbina (eds.), *A grammar of Basque*, 15–65. Berlin & New York: Mouton de Gruyter.

Igartua, Iván. 2001. La aspiración en vasco: Ensayo tipológico y diacrónico. *International Journal of Basque Linguistics and Philology/Anuario del Seminario de Filología Vasca "Julio de Urquijo"* 35(1). 185–213.

Igartua, Iván. 2008. La aspiración de origen nasal en la evolución fonética del euskera: Un caso de rhinoglottophilia. *International Journal of Basque Linguistics and Philology/Anuario del Seminario de Filología Vasca "Julio de Urquijo"* 42(1). 171–189.

Igartua, Iván. 2015. "Diachronic effects of rhinoglottophilia, symmetries in sound change, and the curious case of Basque". *Studies in Language* 39(3). 635–663.

Janda, Richard D. 2003. "Phonologization" as the start of dephoneticization – Or, on sound-change and its aftermath: of extension, generalization, lexicalization, and morphologization. In Brian D. Joseph & Richard D. Janda (eds.), *The handbook of*

historical linguistics, 401-422. Oxford: Blackwell.

Ladefoged, Peter & Ian Maddieson. 1996. *The sounds of the world's languages*. Oxford: Blackwell.

Lafon, René. 1958. Contribution a l'étude phonologique du parler basque de Larrau (Haute-Soule). In Diego Catalán (ed.), *Estructuralismo e historia. Miscelánea homenaje a André Martinet*, vol. 2, 77–106. La Laguna: Universidad de La Laguna.

Lakarra, Joseba A. 2009. Adabakiak /h/-aren balio etimologikoaz [Amendments on the etymological value of /h/]. *International Journal of Basque Linguistics and Philology/Anuario del Seminario de Filología Vasca "Julio de Urquijo"* 43(1-2). 565–596.

Larrasquet, Jean. 1932. Phonétique du basque de Larrajá (quartier de Barcus). *International Journal on Basque Studies/Revista Internacional de Estudios Vascos* 23(1). 153–191.

Maddieson, Ian. 1984. *Patterns of sounds*. New York: Cambridge University Press.

Martínez-Areta, Mikel. (ed.). 2013. *Basque and Proto-Basque. Language-internal and typological approaches to linguistic reconstruction* (Mikroglottika 5). Frankfurt am Main: Peter Lang.

Michelena, Luis. 2011 [1950]. De fonética vasca. La aspiración intervocálica. *Boletín de la Real Sociedad Vascongada de los Amigos del País* 6. 443–459. [Reissued in Joseba A. Lakarra & Íñigo Ruiz Arzalluz (eds.). 2011. *Obras completas* 7, 3–20. Donostia-San Sebastián & Vitoria-Gasteiz: Diputación Foral de Guipúzcoa & University of the Basque Country].

Michelena, Luis. 2011 [1977]. *Fonética histórica vasca* (Publicaciones del seminario

"Julio de Urquijo"). Donostia-San Sebastián: Diputación Foral de Guipúzcoa. [1961, 2nd edn. 1977. Reissued in Joseba A. Lakarra & Íñigo Ruiz Arzalluz (eds.). 2011. *Obras completas* 6. Donostia-San Sebastián & Vitoria-Gasteiz: Diputación Foral de Guipúzcoa & University of the Basque Country].

Ohala, John J. 1975. Phonetic explanations for nasal sound patterns. In Charles A. Ferguson, Larry M. Hyman & John J. Ohala (eds.), *Nasálfest: Papers from a symposium on nasals and nasalization*, 289–316. Standford: Standford University Press.

Ohala, John J. 1990. There is no interface between phonetics and phonology. A personal view. *Journal of Phonetics* 18(2). 153–171.

Trask, R. Larry. 1997. *The history of Basque*. London: Routledge.

Walker, Rachel & Geoffrey K. Pullum. 1999. Possible and impossible segments. *Language* 75(4). 764–780.