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► **To cite this version:**

Ander Egurtzegi, Gorka Elordieta. A history of the Basque prosodic systems. *Diachronica*, 2023, 40 (1), pp.30-72. 10.1075/dia.20066.egu . hal-03930858v2

**HAL Id: hal-03930858**

**<https://hal.science/hal-03930858v2>**

Submitted on 10 Mar 2023

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# A history of the Basque prosodic systems

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This paper presents new proposals for the reconstruction of Proto-Basque accentuation, as well as the development and chronology of the main accentual systems of the modern dialects, grounded in phonetic, historical and typological evidence. It is the first attempt to reconstruct Basque accentuation from a pre-Roman stage to the dialectalization that followed Common Basque. We suggest that Old Proto-Basque had prosodic prominence in the root, i.e., [(C)V̇CVC]. This system evolved into phrase-level prominence in Modern Proto-Basque, giving rise to unaccentedness in non-phrase final positions, with marked stress only introduced later, through Latin loanwords (2nd–3rd century CE). This would become the common system, which still persists in the west. Not long after the dialectification, word-level systems developed in non-western areas, first as peninitial and then as penultimate stress (in eastern dialects). Finally, we propose that the Goizueta prosodic system can be derived from the Central system, which is an alternative view to Hualde (in press).

**Keywords:** historical phonology, Basque, reconstruction of accentuation, pitch accent, stress accent, sound change, relative chronology, prosodic reconstruction

## 1. Introduction

There is a wide diversity of prosodic systems in Basque. According to the most exhaustive description (Hualde 1997), there are at least three very different prosodic systems in the modern dialects, Western, Central, and Eastern. In the Western system, only some words are accented lexically, and the accent falls on a non-final syllable. Other words are unaccented, if they do not contain accented roots or pre-accenting affixes. Unaccented words only get a post-lexical accent in their final syllable when pronounced in isolation or immediately preceding the verb. In the Central system, accent falls on the peninitial syllable of the word,

with the exception of marked words (i.e., words that are lexically marked and do not follow the standard pattern). In the Eastern varieties, stress-accent falls on the penultimate syllable in the unmarked pattern, its base being the word or the stem. In addition, a fourth prosodic system needs to be added to these, namely the Goizueta system described by Hualde and Lujanbio (2008), Hualde et al. (2008) and Hualde (2012). This system shows two different pitch accents that can fall on either of the first two syllables.

This paper presents new reconstructions of Basque prosody that go back to Old Proto-Basque, including a proposal for the Common Basque stage (cf. Michelena 1981/2011), as well as a complete diachronic account of both marked and unmarked patterns of the major prosodic systems of the modern language. Alongside the newly reconstructed proto-systems, we present a very detailed account of the evolution of each modern prosodic system, enabling a thorough reconstruction of their history. In addition, our chronology provides the first account for the development of the complex pitch-accent system from Goizueta that only involves the proposal of a single process. All proposals are grounded in phonological, typological, geographic and historical evidence.<sup>1</sup>

The rest of this paper is structured as follows. In §2, we present a reconstruction of the prosodic systems of Proto-Basque and Common Basque. Descriptions of the main prosodic systems of the modern language are provided in §3 each of them, followed by an analysis of the developments that resulted in that system. Chronologies of the relevant changes and the development of the main prosodic systems are offered in §4. A comparison of our proposal with earlier ones is established in §5, and the paper ends with the main conclusions in §6.

## 2. Reconstructed prosodic systems: Proto-Basque and Common Basque

There are two main stages of the Basque language that are usually considered in diachronic reconstruction: Proto-Basque, the stage preceding contact with Latin (first centuries before the Common Era), and Common Basque, the stage that preceded the development of the modern dialects (which might have ended roughly around the 8th century, cf. Zuloaga 2020; Urrestarazu 2021). In this section, we will propose a prosodic system for each of these stages, alongside the changes that could have led from one system to the other.

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1. In order to constrain the scope of the paper, we do not address the emergence of the particularities of the various local subsystems within each of the major types (for a detailed overview of the variety of types and subtypes see Hualde 1997, as well as Hualde 1999, 2003a).

## 2.1 Proto-Basque prosody

Proto-Basque usually refers to the oldest stage of the Basque language we have been able to reconstruct. It is often divided into two stages. Old Proto-Basque (or Pre-Proto-Basque), as reconstructed by Lakarra (1995, 2005, 2013), would be a language with monosyllabic CVC roots, no onset clusters and few coda clusters (only after the addition of the suffix \*-z). Words would have been mostly monosyllabic or disyllabic. Old Proto-Basque is usually placed some centuries before the Common Era. On the other hand, Modern Proto-Basque is the reconstructed language that would have been in contact with Latin. It is thus roughly placed at the time of the Aquitanian language, a *Trümmersprache* (a corpus language only attested by a few names) related to Basque attested between the 1st and 3rd centuries CE (cf. Gorrochategui 1984). Most words were disyllabic or longer.

### 2.1.1 Characteristics of Old Proto-Basque prosody

Not much has been said concerning the individual components of Proto-Basque prosody. Most older accounts of the reconstruction of Proto-Basque prosody have either been proven wrong or the reconstruction has been shown to reflect a stage more recent than originally expected (§5.1).

In Old Proto-Basque, roots were monosyllabic, with a CVC structure. CV-CVC words were created later by means of prefixing (\*gi-, \*la-, \*sa-, e.g., \*gi-zen > *gizen* ‘fat’; Lakarra 2005: 427–428) and reduplication (\*zen > \*ze(n)-zen > *zezen* ‘bull’, \*gor > \*go(r)-gor > *gogor* ‘hard’). The reduplicated part was predictable and probably prosodically weaker than the root (Jurafsky et al. 2001), and we do not have any evidence of accented prefixes. The accented syllable was thus very likely the second (and last) syllable, i.e., the syllable that contained the root in both prefixed and reduplicated forms. Given that the syllable of the root was usually closed (i.e., it had a coda), we may reconstruct an iambic foot with a [(C)VˑCVC] pattern as the most common structure in (Old) Proto-Basque, and we can hypothesize that the accent-assignment rule was weight-based (as Blevins 2018 does), i.e., ( $\mu\mu$ ).<sup>2</sup>

The clearest and most general acoustic correlate of word-level prominence in the world’s languages is fundamental frequency or  $F_0$  (cf. Hyman 1977; Beckman 1986). We propose that Proto-Basque accent was realized by a high or rising tone,

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2. Blevins (2018: 104–105) also discusses the possibility of early CVC-CVC compounds with main stress in the second member, which accords with our general proposal. She suggests that words of the form root+suffix (CVC-(C)V) would not fit the iambic pattern found in most other words. Nevertheless, as Proto-Basque was a prefixing language, the abundance of such structures is uncertain for the earliest stages.

that is, through a H\* tone, preceded by a low tone (L) in the first syllable (cf. also Elordieta 2011a). In a more economic manner, as proposed for Proto-Bantu (Stevick 1969), only H (and not L) would be phonologically specified. L would only be realized as a default tone. Thus, the Proto-Basque word melody would be reconstructed as [oH\*]. The structure in (1) shows the underlying tonal representation of a sequence of two words when produced in a prosodic phrase.<sup>3</sup> External square brackets show phrasal boundaries ([ ]<sub>p</sub>), while internal square brackets show word boundaries ([ ]<sub>w</sub>).

- (1) Intonational realization of a sequence of words in Old Proto-Basque  
 [[oH\*]<sub>w</sub> [oH\*]<sub>w</sub>]<sub>p</sub>

In short, we reconstruct an Old Proto-Basque system with iambic feet and a rule of accent assignment based on weight, where a H\* tone would be associated to the heavier root (CVC), and no tone to a prefix ((C)V).

### 2.1.2 From Old Proto-Basque to Modern Proto-Basque

Following Elordieta (2011a), we propose that the high tone of the first word of a phonological phrase spread to the first syllable of the following word, which was unspecified for tone, as a consequence of this syllable being surrounded by two H\* tones. A high tone plateau resulted from this process:

- (2) Development of a high tone plateau  
 [[oH\*]<sub>w</sub> [oH\*]<sub>w</sub>]<sub>p</sub> > [[oH\*]<sub>w</sub> [HH\*]<sub>w</sub>]<sub>p</sub>

Cross-linguistically, rightward tonal spreading is much more common than leftward spreading, i.e., tone spreading is a perseverative assimilatory process, rather than anticipatory (Hyman & Schuh 1974: 88–90; Hyman 1978: 262, 2007: 6). As Hyman (2007: 19) points out, the pervasiveness of perseverative tone assimilation would receive an explanation in phonetic terms, as F<sub>0</sub> targets have the tendency to align toward the end of the associated tone bearing unit (Akinlabi & Liberman 2000: 5), both for languages with lexical tone and intonational languages (Kingston 2003: 86).<sup>4</sup>

3. We use the term “phonological phrase” in a rather open way, to refer to a prosodic constituent that contains two or more words. Phonological phrases can contain multiple phonological phrases as well, in a recursive structure. See Elordieta (2015) and Elordieta and Selkirk (in press) on the way in which phonological phrases are derived from syntactic representations in Western Basque.

4. The spreading of a H tone is more common than that of a L or M tone: if spreading only affects one tone, that tone is, in most cases, H (Hyman & Schuh 1974: 88, 97; Hyman 2007: 6–7).

Three additional changes are required to develop the prosodic system that we reconstruct for Modern Proto-Basque:

- (i) a low tone is realized in the first syllable of the phonological phrase,
- (ii) a phrase-final H\* is reinterpreted as the realization of main prosodic prominence after the loss of the accented status of the first H\* of the phonological phrase, and
- (iii) the high tone is maintained from the phrase-initial rising until the phrase-final H\* as a feature of the phrase, instead of being an independent tonal feature of each word.

These three steps are depicted in (3), which continues from (2):

- (3) Development of Modern Proto-Basque prosody  
 [[oH\*][HH\*]] > (i) [[LH\*][HH\*]] > (ii) [[LH][HH\*]] > (iii) [LH<sub>n</sub>H\*]

Elordieta (2011a) finds the motivation for step (ii) in the concept of accent culminativity and demarcativity at the phrasal level. The words lose phonological independence by not having an accent of their own any longer and they become part of a larger phrase with the accent in its last syllable. The fact that the last H\* of the phrase becomes more prominent is thus a projection to the phrase level of word-final prominence of the previous stage, i.e., from word-final prominence to phrase-final prominence (Elordieta 2011a; Egurtzegi & Elordieta 2013). That is, there is a single phrasal H\* where there (formerly) were two prominent H\*s in the phrase (cf. Hyman 2011: 232–233). This process would be comparable to the one undergone in French, where word-level stress evolved into phrase-level stress, or to be more accurate, into a system where the last syllable of the phrase gets main prominence, rather than a specific syllable in each word.

Lastly, a plateau is developed from the H in the second syllable to the final H\* by maintaining the high tone until the accent. The symbol H<sub>n</sub> in step (iii) in (3) refers to this spread, which involves multiple syllables. In this way, we arrive at the system that we propose developed during Modern Proto-Basque. This system would continue to evolve until Common Basque (with the addition of accented loanwords, see §2.2.2), and a similar system is still present in the unmarked word sequences of the Western system, namely [LH<sub>n</sub>H\*].

Another possibility, which is not very different from the one proposed here, is that the system found in Proto-Basque had underlying L and H, and that the tonal sequence in two words in a phrase were [[LH\*][LH\*]]. The initial L of the second word would assimilate to H, giving rise to [[LH\*][HH\*]], i.e., identical to the result of step (i) in (3). This change would be in line with the attested tendency against HLH tonal sequences in languages from different families and areas in the world, many of them changing them to HHH sequences. This occurs for

instance among African languages: Digo, Konni, Deg, Gã, Esaaka Makhuwa, Zulu and Luganda (Yip 2002: 137; Cahill 2007; Hyman 2011: 234); and Mianmin, Kairi and Usarufa in Papua New Guinea (cf. Cahill 2007). In contrast, all these languages permit LHL sequences.

In short, the proposed development from Old Proto-Basque prosody to the Modern Proto-Basque system is far from unlikely. Tone spreading is the most widespread tonal process, usually being perseverative rather than anticipatory, and H is the tone that is most likely to spread.

## 2.2 Common Basque prosodic system

Since Michelena (1981/2011), most Basque linguists agree on the need to reconstruct a stage of the language preceding the modern dialects, which is usually called (Old) Common Basque. While Michelena proposed a 5th–6th century chronology for Common Basque, recent research has pushed the beginning of the dialectalization to the 8th–9th century (Zuloaga 2020), roughly placing Common Basque around the 6th–8th century (Urrestarazu 2021). In this section, we will describe the prosodic system we reconstruct for this stage.

### 2.2.1 *Phrase-level accentuation*

Both Modern Proto-Basque and Common Basque prosody were characterized by a H-tone plateau that started in the second syllable of a phonological phrase and ended with a demarcative final H\*. This H\* tone is perceived as prosodically prominent in the modern Western-type prosodic system (cf. §3.1.1), which is the most conservative system, as argued below. Such prominence could be achieved by the presence of a L tone target immediately following H\*. The L tone would be a phrase-final boundary tone, L%, which could be an extension or reinterpretation of the L tone that marks the beginning of the following phonological phrase. This boundary L% combined with phrase-final H\* to form a contour, as illustrated in (4).

- (4) Development of boundary L%

$$[\text{LH}_n\text{H}^*]_p [\text{LH}_n\text{H}^*]_p > \text{(i)-}[\text{LH}_n\text{H}^*_{\text{L}\%}]_p [\text{LH}_n\text{H}^*]_p > \text{(ii)-}[\text{LH}_n\text{H}^*_{\text{L}\%}]_p \\ [\text{LH}_n\text{H}^*_{\text{L}\%}]_p$$

We argue that the L% boundary tone can still be observed in the Western pitch-accent systems (cf. §3.1.1).

### 2.2.2 *Development of an accented class*

In our reconstruction, the biggest difference between Modern Proto-Basque (1st–3rd c.) and Common Basque (6th–8th c.) prosody is the development of



word-level prominence through the progressive incorporation of Latin loanwords.

As is well known, in Latin the stress system was quantity-sensitive. The final syllable was extrametrical, and a moraic trochaic foot was set at the right edge. Latin borrowings were not assimilated to the phrasal accentuation rule. Rather, they were adopted as having word-level accent, respecting the original location of stress from Latin (and Romance).<sup>5</sup> This gave rise to words with prominence on a non-final syllable, as opposed to the native (phrase-)final prominence. These accented loanwords entered the language in the timespan that extends from Modern Proto-Basque to Common Basque.<sup>6</sup>

The adoption of Latin loanwords did not imply the adoption of the Latin prosodic system. The syllable with main prominence in the original language maintained main prominence in the Basque correspondent, without introducing moraic trochees right to left with main prominence on the rightmost one, as in Latin (cf. §3.2.2). We present some examples of the adaptation of old borrowings from Latin and early Romance into Common Basque in (5). After the Latin word, we present its accentuation pattern in parenthesis (penultimate or antepenultimate), with an acute accent mark on the stressed syllable. To the right of the arrow, we give a form from the northwestern variety of Getxo-Gernika, the most conservative variety with regard to the Common Basque prosodic system (Hualde 1997, 1999; see §3.1 below):

(5) Accentuation in Old Latin borrowings in the Getxo-Gernika system

Latin		Getxo-Gernika Basque	Gloss
<i>ānsēr</i> (án.ser)	>>	<i>ántzar</i>	‘goose’
<i>lībru(m)</i> (lí.brum)	>>	<i>líburu</i>	‘book’
<i>bācilla</i> (ba.cíl.la)	>>	<i>makíla</i>	‘stick’
<i>cepulla</i> (ce.púl.la)	>>	<i>kipúla</i>	‘onion’

In addition, a particular form of compounding that may have produced accented words evolved in medieval times. This process is not observed in the early 1st–3rd century Aquitanian names (Gorrochategui 1984), but it was very productive in the Middle Ages. According to Michelena (1977/2011), stress fell on the first syllable of the second member. This would explain the changes affecting the final vowels of

5. The mechanisms of adaptation of foreign prosodic prominence observed in languages such as Huave or Fijian have been argued to pertain to the perceptual grammar of the adopting language (see Broselow 2009). Basque presents a simpler case, with no manifest cases of conflict between different accentual patterns.

6. Note that the earliest Latin adaptations can already be found in Aquitanian (e.g., *Erriapo* << Lat. *Priapus*; Gorrochategui 1984).

the first member, such as mid-vowel lowering (6a) and high-vowel deletion (6b), the latter giving rise to further changes on the resulting final consonant (e.g., neutralization of all stops to /t/, as in (6b)).

- (6) Processes resulting from compounding
  - a. *baso* ‘forest’ + *katu* ‘cat’ > *basakatu* ‘squirrel’
  - b. *ardi* ‘sheep’ + *alde* ‘side’ > *artalde* ‘sheep herd’

Hualde (1993) generalizes the introduction of word stress to certain grammaticalized words that attached to roots or stems, the most productive of them being the plural demonstrative \*haga, which nowadays survives as the absolutive *-ak* (cf. Manterola 2015: 224; cf. also, non-absolutive *-e*). According to Hualde (2007), the origin of pre-boundary accent in marked words is found in a glottal gesture that was added between the two members of compounds such as the ones in (6) – e.g., \*basoʔkatu, \*ardiʔalde. This system of compounding is common to all Basque dialects and well attested in the Middle Ages. Nevertheless, this process may have been completed only after Common Basque, and hence it may not have been a factor in the introduction of word-level accentedness in Common Basque. Within the earliest attestations, we find potential compound forms such as *Erretzubi* ‘royal bridge’ (Longida, Navarre, 1125) but also non-completed compounds such as *Erret Ihera* ‘royal mill’ (Aiegi, Navarre, 1150). Both are formed from the root *errege* ‘king’ (cf. *erret-*) and attested in the 12th century. Attestations such as *Erret Ihera* (or *erret bide* ‘royal way’, *ilkit bide* ‘way out’, etc.) argue against the completion of this process of compounding during Common Basque, making the accentedness of these compounds by the 8th century debatable. If so, the only uncontested accented words would have been loanwords during this period.

The question remains whether accentedness developed due to language-internal reasons or due to language contact. Borrowings can dramatically affect the prosody of a language, as we argue here. For instance, Germanic languages borrowed Romance loans without adapting the position of their stressed syllables, even though the accentuation patterns were foreign to Germanic (i.e., the stress window was found at the right edge in Romance, whereas it was aligned with the left edge in Germanic). The maintenance of the Romance pattern affected the stress systems of some Germanic languages, gradually making them analogous to those of Romance languages (Lahiri et al. 1999: 377). Similarly, Basque and Latin/Romance have been in intense linguistic contact (including widespread bilingualism) from the first centuries of our era until today. This has resulted in the borrowing of many linguistic features and a myriad of loanwords (cf. Echenique 1987). We suggest that the addition of accented Romance loanwords was the trigger that facilitated the creation of the first accented inherited compounds, likely around the end of the Common Basque period.

### 3. Modern Basque prosodies and how they developed

In this section, we present the main four prosodic systems found in the modern varieties, followed by a discussion of the changes that gave shape to them from a previous stage of the language, starting from Common Basque (§2.2). All proposed changes (and, conversely, our reconstruction of the proto systems) will be supported by distributional, phonetic, chronological and geographic evidence, taken from sources that include the oldest attestations (both textual and onomastic) as well as modern variation. Nevertheless, before introducing these systems, a brief overview of Basque word structure is in order.

Modern Basque is highly agglutinative. Although there are a number of old verbal prefixes (such as *e-* ‘PART./INF.’ and *-ra-* ‘CAUS.’), derivation in modern Basque is mostly suffixing (e.g., *lotsa-garri* ‘shame-ful’, *ilun-tasun* ‘darkness (dark-quality)’). Case/number inflection is phrasal; morphemes are bound to the last word of a noun phrase (Hualde 2003c:171). Inflectional endings do not vary across categories. The definite article *-a* has a broader use than the English definite article (Trask 2003:119). It is attached at the end of the noun phrase, as in *etxe-a* ‘house.DEF’ and *txakur handi-a* ‘dog.big.DEF’. The absolutive plural suffix *-ak* is also appended to the noun phrase, as in *etxe-ak* ‘house-DEF.PL’ and *txakur handi-ak* ‘dog big-DEF.PL’. In non-absolutive forms, we find the morpheme *-e-* instead, as in *etxe-e-ta-n* ‘house-PL-NON.SG-LOC.INES’ or *txakur handi-e-k* ‘dog big-PL-ERG.’<sup>7</sup> There are different kinds of compounds (cf. Hualde 2003d), including *dvandva* co-compounds (*neska-mutilak* ‘girls and boys’, *gora-beherak* ‘ups and downs’) and noun + noun sub-compounds, where the modifier precedes the head (e.g., *talde-lan* ‘group work’, *lan-talde* ‘work group’), verb + noun sub-compounds (*bizi-leku* ‘residence (live-place)’), noun + adjective exocentric compounds (*buru-handi* ‘big headed (head-big)’), noun + adjective endocentric compounds (*sagu-zahar* ‘bat (mouse-old)’), etc. Old sub-compounds follow a set of fixed morphophonological rules that mainly affect the first member and result in combinatory forms (e.g., *begi* ‘eye’ + *ile* ‘hair’ > *betile* ‘eyelash’, *uso* ‘pigeon’ + *tegi* ‘place’ > *usategi* ‘dovecote’; cf. the forms in (6) as well). In the remainder of this section, we present the four main prosodic systems of the modern language.

#### 3.1 Western

Western prosody, found in Northern Bizkaian today, is characterized by a lexical distinction between accented and unaccented words, as indeed in Tokyo Japanese

7. Historically, the singular and absolutive plural determiners evolved from the distant demonstratives \*ha and \*haga, respectively (cf. locative plural \*heta; Manterola 2015).

(cf. Pierrehumbert and Beckman 1988; Kubozono 1993, among others) or, perhaps, Cushitic languages such as Somali, where, as in Western Basque, accent is assigned morphologically (Hyman 1981).

In this system, unaccented words are formed by the combination of unaccented morphemes. Most native stems and singular affixes are unaccented, as well as some derivational affixes. When unaccented words precede the verb or when they are produced in isolation, these words display main prosodic prominence on the final syllable, as in (7a). Jun and Elordieta (1997) call this post-lexical accent ‘derived accent’. In (7b) the lexically unaccented word *lagune* occurs immediately preceding the verb, hence it gets a derived accent on its final syllable.

- (7) Unaccented words in Northern Bizkaian (Hualde 1997, among others)
- a. *lagune berandú etorri de* ‘the friend has come late’
  - b. *laguné etorri de* ‘the friend has come’

Accented words have at least one accented morpheme, which can either be the stem or an affix. Many compounds – both old and opaque (e.g., *bélarri* ‘ear’, *egúski* ‘sun’) and more recent and transparent (*burú-gogor* ‘stubborn (head-hard)’, *begí-gorri* ‘red-eyed (eye-red)’) – are accented, as well as most loanwords (e.g., *ganbára* < Lat. *cambra* ‘loft, attic’, *kipúla* < Lat. *cēpulla* ‘onion’). Plural inflectional suffixes (*-ak* ‘ABS.PL’, *txakúrrak* ‘the dogs (ABS)’ and *-e* ‘NON.ABS.PL’, *txakúrrek* ‘the dogs (ERG)’, *etxéetan* ‘in the houses’) and some other suffixes are pre-accenting – e.g., *-ago* ‘comparative’, *báltzago* ‘blacker’, *-en* ‘superlative’, *askárren* ‘fastest’, *-egi* ‘too much’, *lodíegi* ‘too fat’, *-ki* ‘(part of)’, *txarríki* ‘pork’, *-tze/-te* ‘verbal nominalizer’, *egíte* ‘deed’, *-txu* ‘diminutive’, *katútxu* ‘kitty’, *-(t)ar* ‘demonym’, *Gerníkar* ‘from Gernika’, etc. In most varieties (as in the variety that extends from Getxo to Gernika), pre-accenting morphemes assign the accent to the syllable preceding them, but, in others, they assign it to the penultimate or the third from last syllable of the word (as in the varieties from Lekeitio-Ondarroa-Markina). Two examples with the accented suffixes *-ak* and *-e* are provided in (8), where the apostrophe marks a pre-accenting morpheme.

- (8) Assignment of marked accent in Northern Bizkaian / Western system  
(Hualde 1997)

Example	Accent	Gloss
a. <i>lagúnek etorri dire(s)</i>	lagun-'ak > <i>lagú.nek</i>	'the friends have come'
b. <i>kalíetan ikusi doras</i>	kale-'e-ta-n > <i>kalí.e.tan</i>	'I have seen them in the streets'

Unaccented words do not show prosodic prominence. They combine to form phonological phrases that only include one accented word. The first syllable of the phonological phrase bears a low boundary tone %L, and a phrasal H tone occurs in the second syllable of the phrase. Once the pitch has risen, a high tone is maintained until the accent, i.e., the phrasal H tone spreads rightwards onto the following syllables forming a high tone plateau up to the accented syllable. The accent is realized as a fall in pitch from a high tone, i.e., a H\*+L pitch accent. The structure in (9a) shows a case of a lexically unaccented word (*lagune* 'the friend') that gets an accent in its final syllable by being in a specific syntactic position, and that is immediately preceding the verb. That of (9b) illustrates a case of a lexically unaccented word – *lagunen* 'the friend's' – followed by a lexically accented word – *amúma* 'grandmother'. A high tone plateau spreads from the second syllable of the unaccented word up to the syllable carrying the H\*+L accent. In (9c) is an example of a sequence of two accented words. After the fall in the first accented word, the pitch level stays low on the initial syllable of the following word, until it rises again on the second, accented syllable of that word.<sup>8</sup>

- (9) Realization of the phonological phrase in Northern Bizkaian (Elordieta 2011b)
- |    |  |  |
|----|--|--|
| a. | <i>la/guné\etorri de</i>                 | 'the friend has come'                  |
|    |  |  |
|    | %L H H*+L                                |  |
| b. | <i>la/gunen (sg.) amú\ma ikusi dot</i>   | 'I have seen the friend's grandmother' |
|    |  |  |
|    | %L H H*+L                                |  |
| c. | <i>la/gú\nen (pl.) a/mú\ma ikusi dot</i> | 'I have seen the friends' grandmother' |
|    |  |  |
|    | %L H*+L %L H*+L                          |  |

8. For details and more examples, we refer the reader to Hualde et al. (1994), Hualde (1997, 1999), Elordieta (1997, 1998, 2003, 2015), Jun & Elordieta (1997), Gussenhoven (2004), Elordieta and Hualde (2014) and Elordieta and Selkirk (in press), among others.

In sum, in Western varieties the underlying prosodic system has phrasal prominence at the right edge of a phonological phrase. In addition, word-level prominence on a non-final syllable is observed in a lexical class of roots (compounds or borrowings) and in words with pre-accenting affixes, that is, affixes that are lexically specified to introduce a H\*+L accent on the syllable that precedes them in surface form.

Out of the four main prosodic systems found in modern Basque, only one of them, Western, shows phrase-level (as opposed to word-level) prominence. However, it is precisely this system that shows the most conservative features linked to accent, including the greatest faithfulness in the position of the accent in the earliest Latin loanwords (§2.2.2). The Central and Goizueta systems only maintain word-initial Latinate accents as marked (see §3.2 and §3.3, respectively), and the Eastern system does not maintain any (§3.4). In addition, medieval Western attestations show an unrestricted distribution of laryngeals, more akin to that observed in the 1st–3rd century Aquitanian than the one found in other Basque varieties of the same period – see the data in (10) and Egurtzegi (2014: 73–75). In Medieval Eastern (and Central) varieties, laryngeals are limited to the first two syllables and to one laryngeal per word. These restrictions are linked to the realization of prosodic prominence on the word's first two syllables in the Central system (cf. Michelena 1957–1958/2011; §3.2.1–§3.2.2) and to word-level prominence (§3.2.1). Thus, we consider the Western system the most archaic.

- (10) Distribution of /h/ in proper nouns in Aquitanian, Western (11th c.), and Eastern Basque (11th c.)

Position of /h/	Aquitanian (1st–3rd c.)	Western (11th c.)	Eastern (11th c.)*
First syllable	<i>Halsco, Harbelex, Herauscorritsehe...</i>	<i>Huribbarri, Harhazua, Hereinzguhina...</i>	<i>Ferriete, Ferriague, Feribarren...</i>
Second syllable	<i>Bihoxus, Lohitton, Belheiorix...</i>	<i>Olhaerrea, Harhaia, Zuhazu...</i>	<i>Olfegi, Befasken, Sufarasu...</i>
Later syllable	<i>Abisunhari, Larrahe, Serhuhoris...</i>	<i>Goiahen, Gastehiz, Sagassaheta...</i>	n/a

\* Note that in the *Livre d'or de Bayonne* (12th century) and the *Cartulary of Saint-Jean de Sordes* (11th century) <f> represents <h>, following the Gascon tradition. Western place-names come from the Reja de San Millán (11th century) and Aquitanian names from Gorrochategui (1984).

In the light of this evidence, we have reconstructed a Common Basque prosodic system (§2.2) that is fairly similar to the modern Western system. Both are phrase-

level systems with a distinction between accented and unaccented words, and both realize the phonological phrase by means of a H-tone plateau that starts in the second syllable. However, we propose that a number of changes are necessary in order to arrive from the Common Basque system to the Modern Western system.

### 3.1.1 *The tonal realization of accent*

We have reconstructed Common Basque prosodic prominence as H\*, or, better, the final H at the end of a phonological phrase was made prosodically prominent (cf. §2.2.1). However, the most carefully studied Western variety (Lekeitio Basque) is described as having a H\*+L pitch accent, that is, a high tone followed immediately by a low tone. This analytical choice is motivated by the very steep fall in pitch at the end of the final syllable in lexically unaccented words that are pronounced in isolation or are located immediately preceding the verb. Moreover, in this western variety, lexically accented words display a falling pitch-accent on the penultimate syllable with a rapid drop in pitch starting before the end of the syllable carrying the tonal accent. This is what led to the assumption that the accent is bitonal in nature, H\*+L, as it is in Japanese, another pitch accent language (cf. Pierrehumbert and Beckman 1988 and much subsequent work). So, the issue arises whether the tonal realization of prominence is H\* or H\*+L in the Western prosodic system.

The answer comes from the most widespread type of accentuation in the Western varieties, which excludes Lekeitio and its neighboring area. Such Western varieties are more conservative prosodically than the Lekeitio one, in the sense that in lexically accented words the accentual H\* is realized on the syllable preceding the pre-accenting suffix (cf. Hualde 1997, 1999), hence the accent can be realized farther from the right edge of the accented word. In such cases, the fall in pitch starts later, on the posttonic syllable, and it is less steep. When there are more than two syllables following the syllable with the accent, a continuously descending F<sub>0</sub> line is observed until the valley (i.e., the lowest F<sub>0</sub> value) is realized on the last syllable of the word (cf. Gandarias 2013; Sastre 2021 for the varieties of Gernika and Bermeo, respectively). As stated in §2.2.1, phrase-level prominence was carried by H\*, followed by a L% boundary tone. Thus, we claim that the accent in accented words in the Western system is realized through a H\* tone, followed by a L target at the end of the accented word. That is, the L target could be a boundary tone of an accented word, i.e., L%.<sup>9</sup> In Lekeitio, the location of H\*

9. Alternatively, L% could be the boundary tone of a phonological phrase, as a word with a H\* accentual tone marks the right edge of a phonological phrase (cf. Elordieta & Selkirk 2018, in press).

on the penultimate syllable of the accented word leaves little room for a gradual descent, and the fall to L% must be steep. The accentuation pattern in Lekeitio (and the surrounding area) constitutes an innovation with respect to the rest of the Western varieties, which are thus more conservative.

At this point, a plausible explanation for the boundary L% after an accented word could be that it was a generalization from the steep falls occurring at the right edge of lexically unaccented words uttered immediately preceding the verb (see previous subsection) or in isolation as responses to a previous question. The descent from H\* in the final syllable to the L tone at the beginning of the verb must occur right at the end of the final syllable. Uttered in isolation, the lexically unaccented word occurs at the right edge of an utterance, and we know that declarative utterances end in a L% boundary tone. It is likely that such a fast fall in pitch could be interpreted as due to the presence of a L% in all instances of pitch falls, including those of accented words. In some Western-type varieties, the location of H\* on the penultimate syllable in accented words and the presence of L% in the final syllable also creates a rapid, steep fall that led Hualde et al. (1994 and subsequent work) to analyze the pitch accent as H\*+L.

### 3.1.2 *Incorporation of more accented words*

In addition to the oldest Latin and Romance loanwords discussed in §2.2.2, more recent borrowings were gradually incorporated into the language, and these were also adapted as accented. In the same way, compounds also increased the number of accented words in the system. Nevertheless, the class of accented words never included as many items as that of unaccented words in this system.

### 3.1.3 *Development of a class of pre-accenting suffixes*

A number of derivational suffixes are marked for stress in different manners in different varieties of Basque. In the modern Western prosodic system, these suffixes are pre-accenting. The class of pre-accenting words was likely developed following the same mechanism described for accented compounds in §2.2.2, i.e., the accent is assigned to the last syllable of the first member of the compound. If we were to accept Hualde's (2007) proposal – involving the insertion of an intervening /-ʔ-/ that would produce a H tone in the preceding syllable – the same could have happened in this kind of derivation.

We cannot easily place on a timeline the grammaticalization of every pre-accenting suffix, but we can start this arduous task with one of the most important elements, given its frequency and distribution: the plural inflection. In Basque, post-posed articles, singular *-a* and plural *-ak*, developed after the grammaticalization of the distant deictics \*ha and \*haga, respectively. The plural inflectional paradigm developed later than the singular, and plurals likely maintained



a greater independence for a longer period (see Manterola 2015). In contrast to the singular inflection, which is never marked for accent and shows no cross-dialectal variation, the plural suffixes *-ak* and *-e* induce accentual changes in all four modern systems, but they do so in different ways: pre-accenting (§3.1), stress-retracting (§3.2), accent-shifting (§3.3), and stress-bearing (§3.4). We take the dialectal variation observed in the accentuation patterns induced by plural suffixes as evidence for their late cliticization (see also §3.4.2 on the “reset” of marked stress in the Eastern system, which necessarily preceded the cliticization of non-absolute *-e*, but not that of *-ak*, which is unmarked in this system).

Tracing accentual alternations in the old documentation is close to impossible due to accent being rarely marked in writing, but we can observe the distribution of the two dialectal variants of the ergative plural suffix: *-ak* and *-ek*. Independent research has shown that *-ak* is the more conservative variant (Manterola 2015), and that the oldest attestations of the *-ak/-ek* isogloss might correspond to a Proto-Western – with the conservative *-ak* – vs. Proto-Central-Eastern dialect – with the innovative *-ek* – (cf. Urrestarazu 2021: §4). This distribution is in line with an archaic Proto-Western variety that also conserved the most archaic prosodic system, in contrast to a Proto-Central-Eastern variety that developed word-level accentual systems, as discussed in §3.2–§3.4. We propose that plural suffixes started their grammaticalization process during Common Basque, and thus they are almost the same in all varieties (Michelena 1977/2011). However, the cliticization of plural morphemes was only completed later. This resulted in a general specification for accent in these morphemes, but with different realizations of this accentedness in each prosodic system (as well as segmental variation in *-ak/-ek*).

#### 3.1.4 *Prosodic behavior of verbs*

The unmarked word order in declarative sentences is SOV (Hualde & Ortiz de Urbina 2003). In modern Western varieties, verbs display an interesting prosodic behavior. The last accent in the phonological phrase before the verb is perceived as the most prominent one in the utterance, and the sequence formed by the participial verb and the inflected auxiliary appears in a decreased pitch range. Although participial verbs are lexically unaccented, inflected auxiliaries can be accented if they contain a plural morpheme *-e*. Participial verbs can get an accent when the suffixes used to realize future tense and imperfective aspect are added (*-ko* and *-t(z)en*, respectively; cf. Hualde et al. 1994; Hualde 1997, 1999). However, such pitch accents in the participial verb and the auxiliary are hardly perceptible, due to the narrow pitch range that is the norm after the preverbal phrase (see Hualde et al. 1994; Elordieta 1997, 1998, 2003; Elordieta & Hualde 2014). For the Western variety of Lekeitio, Elordieta and Selkirk (in press) show that after the

phonological phrase that precedes the verb there is no pitch rise from L to H at the left edge of the verb that signals the beginning of a phonological phrase (cf. §3.1). They claim that the participial verb and the auxiliary are prosodic words that do not form a phonological phrase. This property of verbs is shared by other Western varieties. However, non-Western varieties of Basque do not display such a depressed pitch range in the verb (cf. Elordieta 2003; Elordieta & Hualde 2014). Thus, this feature must be an innovation of the Western varieties.

### 3.1.5 *Historical geographic extension of the Western prosodic system*

Given that we reconstruct a Common Basque prosodic system that does not differ to a great extent from the Western system, we can assume that an early variant of the Western system was once common to the whole Basque territory. However, it is of interest to try to delimit the historical extension of this system by using the earliest attestations from Medieval times. Once again, we resort to segmental evidence in order to do so. Recall our comparison of place names from the Western vs. Central-Eastern varieties from the 11th–12th centuries in (10). The unrestricted distribution of /h/ in medieval times was found in South-Western attestations (*Reja de San Millán*, 1025), while Eastern attestations only show one /h/ in each word – a restriction we relate to the establishment of the prosodic word (§3.2.1) – and necessarily within the word-initial foot – a restriction we link to the development of peninitial accent (§3.2.2). Given that San Millán (in modern La Rioja) was likely close to the south-westernmost corner of the medieval Basque-speaking area, and that the Western system is still found in Biscay (North-West) today, we hypothesize that this was the prosodic system of a medieval Proto-Western dialect.<sup>10</sup>

## 3.2 Central

The Central accentuation is the most widespread. It is found in most of Gipuzkoa, in the South-East of Bizkaia and in the west of Navarre nowadays. This is not a pitch accent system with a lexical distinction between accented and unaccented words. It is rather a stress-accent system (Beckman 1986), in the sense that each

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10. Although long extinct, evidence of the Alavese dialect (in the region between Biscay and La Rioja) possessing the Western prosodic system can also be found. First, most place-names in the Reja de San Millán are from places in this region. Second, place names from this region show an “unexpected” accentuation in Spanish that can be readily understood had their Basque forms followed a prosodic system similar to the Western type (Olano Martinitz-Xil & Elordieta 2018). See Hualde (in press) for evidence of some Gipuzkoan varieties evolving from the Western to a Central-like accentuation in recent times.

lexical word can carry word-level prominence, with no lexical contrasts in type of pitch accent, either. In this prosodic system, stress is generally assigned to the second syllable of the word (e.g., *emákume* ‘woman’, *alába* ‘daughter’). However, in some subtypes of this system, stress is placed on the initial syllable in disyllabic words ending in a vowel (e.g., *néska* ‘girl’, *bíde* ‘way’). Words involving monosyllabic roots also have initial stress (e.g., *lúrr-erako* ‘for the earth (earth-BENEF)’, *ón-a-rekin* ‘with the good one (good-DET.COMIT)’, as well as borrowings (e.g., *básoa* ‘the glass’, *dénbora* ‘time’, *líburu* ‘book’)<sup>11</sup> and certain lexically marked words. Finally, some marked suffixes also trigger accent retraction, that is, initial stress (Hualde 1997: 130–140), as shown in (11). The unmarked stress system may thus be defined as a syllabic iambic foot, built at the left edge of the word, with final syllable extrametricality (cf. Hualde 1997, 1999). The marked stress system would consist of a syllabic trochee, from left to right, and with end rule left.

(11) Unmarked vs. marked suffixes in the Central system (variety of Beasain)<sup>12</sup>

Indef. <sup>13</sup>	Unmarked	Gloss	Marked	Gloss
<i>zakúr</i>	<i>zakúrr-ak</i>	‘the dog (ERG.SG)’	<i>zákurr-ek</i>	‘the dogs (ERG.PL)’
<i>gizón</i>	<i>gizón-ai</i>	‘to the man’	<i>gízon-ai</i>	‘to the men’
<i>mendí</i>	<i>mendí-tik</i>	‘from the mountain’	<i>méndi-tatik</i>	‘from the mountains’
<i>polítt</i>	<i>polítt-e</i>	‘pretty (ADJ)’	<i>pólitt-egi-e</i>	‘too pretty’
<i>azkár</i>	<i>azkár-r-a</i>	‘fast (ADJ)’	<i>ázkarr-en-a</i>	‘the fastest’
<i>txerri</i>	<i>txerri-e</i>	‘the pig’	<i>txérri-ki-e</i>	‘the pork’
–	<i>etórr-i</i>	‘to come’	<i>étor-tzen</i>	‘coming’

The Central prosodic system evolved directly from the Common Basque system or, more precisely, from a very early version of the Western system, preceding most of the innovations discussed in §3.1 (if not all of them, disregarding the gradual incorporation of accented words). We explain this in the following subsections.

11. From Sp. *vaso*, cf. the native word *basóa* ‘the forest’ (INDEF. *báso* ‘forest’), Lat. *témpōra*, and Lat. *líbru(m)*. In these loanwords, stress was preserved in its original location.

12. Many suffixes that trigger accent retraction in the Central system carry accent in the Western as well (such as plural inflectional suffixes, *-egi*, *-en*, *-ki*, *-t(z)en*, etc.; cf. Hualde 2012). Nevertheless, the exact list may vary locally, even within a system.

13. In the variety of Beasain, disyllabic words may have final or penultimate accent, e.g., *méndi* ~ *mendí* ‘mountain (INDEF.)’, *búru* ~ *burú* ‘head (INDEF.)’ (Hualde 1997: 133).

### 3.2.1 *The establishment of the phonological word as the minimal prosodic unit*

The main difference between the Western system and the other modern Basque prosodic systems lies in the domain in which accentuation applies: while the former (§3.1) involves a phrasal-level accentuation system, the rest involve word-level systems (§3.2–§3.4). Thus, a major change preceded all modern-day non-western prosodic systems, namely the establishment of the phonological word as the smallest prosodic unit. This innovation likely occurred not long after the start of the dialectal diversification of Basque (~8th–9th century), and it must have been mainly due to two reasons: the addition of stressed loanwords from Latin and Romance (see §2.2.2), and a process of word compounding that assigned an accent to the compound (Hualde 2007; cf. §2.2.2). In both cases, the process was gradual: borrowings are typically introduced on a one-by-one basis, and we can observe many steps in the formation of compounds (§2.2.2). Once accented words became more frequent, non-western varieties shifted from a phrase-level system where most words were unaccented to a word-level system in which nearly all words had a syllable that was more prominent than the rest. But in order to develop into such a system, a prosodically prominent syllable had to be assigned to all unaccented words.

### 3.2.2 *The development of peninitial prominence*

Recall from §2.2 that Common Basque had a prosodic system where a %L was assigned to the first syllable of a phonological phrase, and a pitch rise followed in the second syllable, as still maintained in Bizkaia (§3.1). If an unaccented word was not uttered in isolation or immediately preceding the verb, it did not have a H\* accent at the right edge. Thus, in unaccented words, the LH pitch rise at the beginning of the phonological phrase was often the only perceivable tonal contour. According to Hualde (2003a), the pitch rise in the second syllable, found in the Bizkaian system, was reinterpreted as stress in unaccented words, potentially due to the influence of Castilian Spanish. In Castilian Spanish, the main percept of stress is pitch rising, at least in prenuclear accents (Estebas-Vilaplana & Prieto 2010, among others). Hualde's (2003a) hypothesis is that the phonetic realization of the pitch rise at the left edge of the phonological phrase was reinterpreted as stress on the second syllable, that is, the syllable where the H tone would be associated. Hualde suggests that this prosodic reinterpretation may have taken place in a city where Castilian Spanish started to have a strong presence, such as Bilbao, the main city in the western territory of Biscay. In fact, in the almost extinct Basque variety from Bilbao, stress falls on the second syllable of the word (cf. Gaminde 1998). The reinterpretation of the accent in Bilbao is likely recent, because it did not extend to many nearby varieties.

The now-widespread Central system may have originated in a similar way, but long before this innovation affected the variety of Bilbao. Elordieta and Hualde (2003) empirically tested this pathway by means of a perception test. In their experiment, they found that speakers of non-western varieties of Basque and L2 speakers of Standard Basque tend to interpret the non-contrastive pitch rise in the second syllable of a phonological phrase produced by modern-day Northern Bizkaian speakers (i.e., LH) as word stress. Subsequently, the reinterpretation of the initial pitch rise in a phonological phrase as a L+H\* pitch accent must have generalized to all previously unaccented words. This could have been due to influence from Castilian Spanish, where all lexical words can potentially surface with word stress, alongside the increasing number of borrowings and accented compounds (§3.2.1).

We provide the details of the derivation of the change in the interpretation of phrase-level accent to word-level stress in (12). The initial LH pitch rise at the left edge of the phonological phrase is reinterpreted as the location of main prosodic prominence, a prominence that was presumably gradually changing from the phrase level to the word level. Principles of culminativity and demarcativity (cf. §2.2) would rule out the presence of two locations of prosodic prominence, and the H\* at the right edge of the phonological phrase would no longer be interpreted as the location of prosodic prominence, but as a non-contrastive phrase-final boundary tone (which is still found in some Navarrese varieties; Hualde *in press*). The H tones following the accent would then become phonologically unspecified. A process of phonetic interpolation would apply from the accented H\* to the boundary %L starting the next prosodic unit, which, by the final stages of this process, would start in the following word (§3.2.1).

(12) Reinterpretation of the pitch rising in the second syllable as word stress

$$[[LHHH]_w \dots H^*]_p > [[LH^*HH]_w \dots H]_p > [[LH^*oo]_w \dots (H\%)]_p$$

The reinterpretation of the non-contrastive pitch rise in the second syllable as unmarked word-level accent created a new phonological domain formed by the first two syllables of a prosodic word. This initial foot was the only part of the word that could bear stress in the newly created system of word-level accentuation. Unmarked stress fell in the second syllable of this foot (forming an iamb, [ $\sigma\sigma$ ]), while marked stress fell on the first syllable of the word-initial foot (a trochee, [ $\sigma'\sigma$ ]). Roughly speaking, all unaccented words and old loanwords with post-initial accent fell into the unmarked category, while old loanwords with initial accent (such as *liburu* ‘book’ or *ántzar* ‘goose’) formed the class of marked words. We stated in §2.2.2 that Latin loanwords did not imply the adoption of the Latin metrical system. The introduction of Romance loanwords did not affect the construction of feet in Central Basque, either. Simply put, if either of the first

two syllables was stressed in the borrowed word, it also surfaced with stress in the Basque form. Finally, suffixes lexically specified for accent (including plurals) produced accent retraction to the first syllable.

### 3.2.3 *Phonotactic consequences of the word-initial prosodic domain*

The restriction of the position of the accent to the initial foot brought a number of constraints regarding word-internal phonotactics, conditioning the distribution of laryngeals, aspirated stops, and potentially other segments such as /f/ (cf. Egurtzegi & Ariztimuño 2019).

Two laryngeals can be reconstructed in Common Basque, namely /h/ and a nasalized /h̃/ – which evolved from intervocalic \*n –, and both can still be found in modern Zuberoan (Egurtzegi 2018). These two segments, as well as the aspiration in voiceless stops (Michelena 1951/2011), were unrestricted in their distribution in the early western attestations (see (10) above), but in the Eastern Basque dialects that maintain aspiration today /h/ and /h̃/ only occur in the first two syllables and only once in each word (cf. Egurtzegi 2014: 74–77).<sup>14</sup>

All laryngeals after the second syllable were either lost or subject to metathesis, as shown in Example (13) (cf. Egurtzegi 2011, 2013b, 2014: 82–85), and voiceless stops after this domain were deaspirated.

(13) Historical loss and metathesis of /h/

Old form	Mod. Form	Gloss
Med. Bsq. <i>Gastehiz</i>	<i>Gasteiz</i>	‘Gasteiz (place name)’
Lat. <i>sabānum</i> > *zamañhu > <i>zamau</i>		‘tablecloth’
Lat. <i>ballaena</i> > *balleña > <i>balea</i>		‘whale’
Med. Bsq. <i>ibahi</i> <sup>15</sup>	<i>hibai</i>	‘river’
Lat. <i>arēna</i> > *areña > <i>harea</i>		‘sand’
Lat. <i>leōne(m)</i> > *leoñe > <i>lehoi</i>		‘lion’

Michelena (1977/2011: 330) was the first to link the restricted domain of modern Basque laryngeals to peninitial stress (which he reconstructed for Proto Basque, cf. §5.1) by looking at the history of Welsh. In Welsh, post-tonic /h/ was consistently dropped after the shift that moved stress from the last syllable to the second to last syllable of the word, i.e., /h/ in the last syllable was always lost. Note that

14. Given that both Grassmann’s Law and the mirror-image process that affected aspirated stops occurred within the first two syllables (cf. Michelena 1951/2011; Egurtzegi 2014: 85–88, 2019), the accentuation shift to the first two syllables is probably older than the laryngeal co-occurrence restrictions.

15. Cf. *Sagibahia* (Becerro de San Millán 1128) and *Muruvahy* (La Rioja 1251).

the relationship between aspiration and stress is not limited to Welsh; typological and phonetic research has established a link between aspiration and stress in multiple languages (cf. Miller 2012: 127). Following Michelena (1977/2011), we assume that an analogous process occurred in Basque, yielding the loss of laryngeals and stop aspiration after the initial foot. In contrast to Michelena, however, we propose that this conditioned loss of aspirated segments only affected non-western dialects.

#### 3.2.4 *From accent to stress*

In the central system, unmarked peninitial accent was developed due to the reinterpretation of the non-contrastive H in the second syllable as the accent, which would then be realized as H\* (§3.2.2). Recall from §2.2.2 that the accent in accented words was realized through a H\* tone in previous stages of the language (namely in the Common Basque and Proto-Western systems). Thus, we reconstruct a Proto-Central prosodic system where accent was realized as H\* in either of the first two syllables.<sup>16</sup>

Today, most areas with this system have shifted from a realization of the accent based mostly on pitch to a realization more similar to Spanish stress. This has likely been a gradual process, which involved the incorporation of additional phonetic cues to the realization of the accent, such as intensity and duration. The importance of duration has increased with time, so that varieties within this system have moved into stress-time, as evidenced by the pervasive syncopes in Navarrese varieties from Bortziriak and Malerreka (e.g., *basérritik* > *basértik* ‘from the farm’; *eskópeta* > *eskópta* ‘rifle’, << Sp. *escopeta*; cf. Hualde 2003b: 57).

#### 3.2.5 *Historical geographic extension of the Central prosodic system*

Historically, the prosodic system that we now describe as Central would have been better described as Central-Eastern: it once spread to the whole Basque-speaking territory, with the exception of the region that maintained Proto-Western prosody (cf. §3.1.5), creating an isogloss that divided the Basque Country in two. However, it is important to highlight that the historical extension of this system was very different to the one we see today. First, Eastern varieties had this system before, but evolved in a different manner later (§3.4.1). Second, as discussed in §3.2.2, the process of reinterpretation that gave rise to the Central system is polygenetic, and it has been found to have occurred very recently in some western areas (Hualde 2003a, 2007). Thus, it is likely that the Central system was found in a Proto-Central-Eastern variety, and only spread to the West much later.

16. Note that, while the system that developed from the Proto-Central system has pitch-based accentuation (§3.3), the other is a stress-based system (§3.4).

### 3.3 Goizueta

The small town of Goizueta, in northern Navarre, shows a prosodic system that looks quite different from that of any other variety. In this variety, the accent can fall in either of the first two syllables of the word, with either a (late) falling accent (accent 1) or a low/early falling accent (accent 2). This results in a four-way accentual distinction at the lexical level as shown in (14). Hualde et al. (2008) transcribe the two pitch accents as H\*+L and H+L\*, but Hualde (in press) simplifies these to H\* and L\*. They can be represented by an acute accent (´) and a grave accent (`), respectively.

(14)	Accentual classes in the Goizueta system	(Hualde et al. 2008; Hualde 2012)
	<b>2nd syllable accent</b>	<b>1st syllable accent</b>
	<b>Accent 1</b> <b>Class 1</b>	<b>Class 2</b>
	(H* / H*+L) <i>saré</i> ‘net’, <i>besó</i> ‘arm’, <i>alába</i> ‘daughter’, <i>emákume</i> ‘woman’, <i>arrántzale</i> ‘fisherman’, <i>basérritarra</i> ‘the farmer’, <i>basó</i> ‘forest’...	<i>áma</i> ‘mother’, <i>átta</i> ‘father’, <i>mátte</i> ‘loved, dear’, <i>séme</i> ‘son’, <i>úme</i> ‘child’, <i>sáltza</i> ‘sauce’ (< Sp. <i>salsa</i> ), <i>nólabitte</i> ‘somehow’...
	<b>Accent 2</b> <b>Class 3</b>	<b>Class 4</b>
	(L* / H+L*) <i>eskòla</i> ‘school’, <i>basèrri</i> ‘farmhouse’, <i>borròka</i> ‘fight’, <i>attàiarra</i> ‘father-in-law’, <i>belàrri</i> ‘ear’, <i>azkànarro</i> ‘badger’...	<i>sàlto</i> ‘jump’, <i>kàfe</i> ‘coffee’, <i>fàbrika</i> ‘factory’, <i>lèngusu</i> ‘cousin’, <i>àurre</i> ‘front’, <i>àtze</i> ‘back’, <i>èuzki</i> ‘sun’, <i>bàsò</i> ‘glass’...

Most native words (indefinite and definite singular nouns and adjectives) display Class 1 accentuation, and hence it is considered the unmarked pattern by Hualde (2012), who considers Class 2, 3, and 4 marked accentuation patterns. The total number of words within Classes 2–4 is much smaller than that of Class 1. These classes include loanwords and some native words, many of them compounds.

Finally, plural case markers and certain derivative suffixes lead to an accentual change – from H\* or late falling (Accent 1) to L\* or early falling (Accent 2) – while maintaining the location of the accented syllable (cf. (15)). Note that this change is systematic, with the exception of plurals of four syllables or longer.<sup>17</sup>

(15)	Marked suffixes in Goizueta Basque	(Hualde 2012, among others)
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17. For details and more examples, see Hualde (2012), Hualde and Lujanbio (2008) and Hualde et al. (2008).



- a. Accent in the second syllable (Class 1 → Class 3)
- | Accent 1 (H*) Gloss |                            | Accent 2 (L*) Gloss |                             |
|---------------------|----------------------------|---------------------|-----------------------------|
| <i>mendía</i>       | ‘the mountain<br>(ABS.SG)’ | <i>mendik</i>       | ‘the mountains<br>(ABS.PL)’ |
| <i>gizónari</i>     | ‘to the man’               | <i>gizònari</i>     | ‘to the men’                |
| <i>auzó</i>         | ‘neighborhood’             | <i>auzòtar</i>      | ‘neighbor’                  |
| <i>beldúrra</i>     | ‘the fear (ABS.SG)’        | <i>beldürtia</i>    | ‘fearful’                   |
- b. Accent in the first syllable (Class 2 → Class 4)
- | Accent 1 (H*) Gloss |                      | Accent 2 (L*) Gloss |                         |
|---------------------|----------------------|---------------------|-------------------------|
| <i>úmek</i>         | ‘the child (ERG.SG)’ | <i>ùmek</i>         | ‘the children (ERG.PL)’ |
| <i>ámakin</i>       | ‘with the mother’    | <i>àmakin</i>       | ‘with the mothers’      |
| <i>béltza</i>       | ‘the black (ABS.SG)’ | <i>bèltzagi</i>     | ‘too black’             |

The prosodic system of Goizueta is thus a hybrid between an accentual system with an underlying contrast between H\* and L\* and a stress system, where word-level prominence may fall on either the second or the first syllable. Metrically, Class 1 and 3 words would have syllabic iambs built left to right, with end rule left, and Class 2 and Class 4 words would have syllabic trochees built left to right, with end rule left.

### 3.3.1 Similarities between the Goizueta and the Central prosodic system

The Goizueta system shares at least two major innovations with the Central prosodic system: the shift from a phrase-level to a word-level accentual domain, and the restriction of the accent to the word-initial foot. Given that the oldest documents from the non-western area (roughly from the 10th century) only show laryngeals in the restricted domain of the initial two syllables in a word (see (10)), we assume that these innovations occurred after Common Basque (8th century). The main difference between the two systems lies in the two patterns of pitch accent found in Goizueta versus the single pitch accent pattern found in the Central system. This is shown in Table 1.

**Table 1.** Comparison between the Central and Goizueta systems

Feature	Central	Goizueta
i- Word-level accentuation	✓	✓
ii- All lexical words are accented	✓	✓
iii- Accentual domain limited to word-initial foot	✓	✓
iv- Unmarked accent in the second syllable	✓	✓
v- Two contrastive pitch accents (H*+L and H+L*, or H* and L*)	x	✓

Given that H\*+L is present in virtually all native uninflected words in Goizueta Basque, we consider it unmarked. The words that display the marked H+L\* pitch accent are mostly compounds and plurals (§3.3; Hualde 2012). We propose that this pitch accent was a late development, triggered by the cliticization of the plural determiner, which occurred when other classes of marked words (especially borrowings, but maybe also certain compounds and derived words) were well established, triggering word-initial accent (as in Central Basque; see §3.2–§3.3). Thus, in order for the Goizueta system to have developed from the Central prosodic system we only need to propose one change: the development of the second type of pitch accent (i.e., H+L\*).

### 3.3.2 *Development of Accent 2 (and accentual Classes 3–4)*

We propose that H+L\* was the result of a peak shift triggered by the encounter of two accents in a single word. H+L\* can be observed in two main contexts: plurals and compounds. Today, the presence of Accent 2 is almost systematic in plural forms, with the exception of words longer than three syllables. However, compounds do not show H+L\* regularly, with many old compounds showing Accent 1 (Egurtzegi in press). Thus, we propose that it was the cliticization of the plural suffixes *-ak/-e-* that triggered the phonologization of Accent 2 and the creation of the Goizueta system.

In our account, when plural determiners were cliticized, they had a H\*+L pitch accent. This pitch accent would be too close to the H\*+L in the root, especially in the unmarked pattern which had an accent on the second syllable of the word. In disyllabic and trisyllabic roots or stems, the H\*+L accent from the plural determiner would create an accentual clash that would push back (i.e., retract) the H\*+L contour in the root, creating an innovative H+L\* accent. That is, the original pitch accent changed the alignment of the H tone into an earlier one, without moving it to the previous (word-initial) syllable. This process affected words from both Classes 1 and 2, thus creating Classes 3 and 4 (cf. §3.3). In most cases (but not always, see Egurtzegi in press), the accent of the postposed morpheme was lost after producing this change.

Note that our hypothesis also accounts for the only exceptions to the accent-change rule of plurals (§3.3): plural words longer than four syllables do not adhere to the accent-changing rule because they did not develop any accentual clash due to the greater distance between the pitch contours of the root and the plural morpheme. That is, if the root or stem had four syllables, the syllable containing the plural morpheme would be the fifth syllable in the word, and the accent in the root would fall in the second syllable. This means that two syllables separate the two accented syllables, with enough distance to avoid the accent shift.

We find evidence for our proposal in a number of modern compounds. Some compounds still show a secondary accent in their second component. In these cases, the first component is realized with Accent 2, even in the cases where the word had Accent 1 in its unbound form – compare, for instance, *eó* ‘South’ to *eò-aizé* ‘south-wind’, or *arráts* to *arrátsaldé* ‘afternoon’.<sup>18</sup>

### 3.3.3 Historical geographic extension of the Goizueta prosodic system

There is not a great deal of evidence for a much wider spread of this system. Hualde (2018) argues for a similar system being present in older times in Oiartzun, a town separated from Goizueta by a beautiful 20 km walk through the Aiako Harria mountains (around a dozen kilometers as the crow flies).

## 3.4 Eastern

This kind of accentuation is mainly found in Zuberoan, Roncalese, and Salazarese, but also in the valleys of Erro and Esteribar, in Luzaide, Baztan and Ultzama (cf. Hualde 1997). In this system, unmarked stress falls on the penultimate syllable of the base, which is the stem in Roncalese and the word in Zuberoan (e.g., *gízun* ‘man’, *gízún-a* ‘the man’, *néska* ‘girl’, *alhába* ‘daughter’).

There is a marked accentuation pattern in which stress falls on the last syllable (e.g., *alhabá* ‘the daughter’, *neská* ‘the girl’, *ardú* ‘wine’, *ahái* ‘ram’). This pattern developed from older vowel clusters in the last syllable (e.g., *neská-a* ‘the daughter (daughter-DEF)’). In addition, words bearing some monosyllabic suffixes (cf. *-ñí*, *-xkót*, *-liár*, *-tiár*, *-(t)ár*, *-kór*, or the borrowed *-ús*) and compounds whose second member is monosyllabic (*gibel-mín* ‘bile, gall’, *giza-txár* ‘bad man’) are also oxytones (cf. Hualde 1997: 76–77).

The main or unmarked Eastern metrical system would thus be characterized as one with a syllabic trochee built at the right edge of the base (i.e., the word in Zuberoan and the root in Roncalese). Marked final stress would result from the construction of a syllabic iamb at the right edge of the base. The non-absolute plural suffix *-e-* is also marked, but this morpheme departs from the metrical structure of the system, in the sense that it attracts stress (Hualde 1997: 79–80). Thus, it can result in final stress (*gizun-ék* ‘the men (ERG.)’, *gizun-ér* ‘to the men’), penultimate stress (*gizun-éna* ‘of the men’, *gizun-éki* ‘with the men’), and even antepenultimate stress (*gizon-éntako* ‘for the men’, etc.).

18. In these compounds, both accents are in their etymological position and there is no pre-accentuation as in the Western system. See Egurtzegi (in press) for a detailed account of the development of (H+)L\* and the Goizueta system overall.

As in the case of Goizueta (§3.3.1), the Eastern prosodic system also developed from the Central system, but likely from a variety that had already developed stress-based prominence. Nevertheless, this system would be the consequence of a reinterpretation that completely altered the characteristics of the prosody of the eastern varieties, leaving almost no resemblance to the Central system, as we explain in the following subsection.

### 3.4.1 *Reinterpretation of the position of the stress*

Following Michelena (1977/2011), the shift from peninitial to penultimate stress occurred in trisyllabic words, with peninitial stress being reinterpreted as originating from the second to last syllable, instead of the second from the beginning of the word. This innovative pattern was then generalized to longer words, as represented in (16). The generalization of penultimate stress to the whole lexicon resulted in an early Eastern system with demarcative stress in this syllable, until marked stress was developed in other positions (§3.4.2).

- (16) Reinterpretation of peninitial stress as penultimate in Eastern Basque
- (i)  $[\sigma\sigma\sigma]$  (ambiguous between peninitial (or deuterotonic) and penultimate)
  - (ii)  $[\sigma\sigma\sigma_n] > [\sigma_n\sigma\sigma]$

The reinterpretation depicted in (16) is only possible in a stage of the language where most words were trisyllabic. Given that during the transition from Proto-Basque to Common Basque most roots became bisyllabic (Lakarra 2013), the addition of the postposed singular article *-(h)a* to the grammar of the language could have created the appropriate preconditions for the reinterpretation.

We think that the ambiguity in the stress assignment rule developed language-internally and that it must have been the main factor in the creation of the new prosodic system (as in Preclassical Latin; Kent 1945:66). Note that non-contrastive penultimate stress is far from uncommon typologically, and can be found for instance in Quechua or Swahili (cf. Bybee 2015:60). Nevertheless, we want to suggest that the innovative option was likely chosen due to external influence. The Romance language Gascon has historically been in close and long-standing contact with the eastern varieties of Basque. This contact is reflected in the incorporation of many loanwords (cf. §3.4.2 below) and linguistic features (see, among others, Egurtzegi 2017) into these varieties. Gascon shows unmarked penultimate stress (Rohlf 1977).<sup>19</sup> It is not unlikely that, given an unstable system with ambiguous location of the stress, the long-lasting influence that Gascon exerted on these varieties tipped the scale in favor of a Romance model in assigning the stress from the right edge of the word instead of the left edge. The change

19. With marked final stress, precisely as the modern Eastern system (§3.4).

of edges for the computation of stress assignment is not unheard of. As briefly mentioned in §2.2.2, Germanic languages permitted Romance loanwords to keep their original stress pattern (with a stress window in the last three syllables from the end of the word), and eventually this led to a change whereby “from a predominantly initial stress pattern, all the Germanic languages (other than Faroese and Icelandic) developed a metrical pattern where the parsing began from the right edge” (Lahiri et al. 1999: 377). The Germanic accentual shift is parallel to that found in the evolution from the Central to the Eastern system, where stress was originally assigned from the beginning of the word and then changed to being assigned from the end of the word instead.

### 3.4.2 *Reset of the common marked class and development of a new marked class*

A marked pattern would later develop in the Eastern system in the form of final stress (cf. §3.4). This stress pattern developed after several segmental changes took place in the last syllable of the word. First, within a timeframe when the Eastern territories had Central accentuation, laryngeals /h, ĥ/ after the second syllable of the word were systematically lost (§3.2.3). Given that most words were likely trisyllabic in this stage (§3.4.1) and that most instances of /h/ and all /ĥ/s were intervocalic (cf. Michelena 1977/2011), most of the lost laryngeals were in the third syllable, with which many hiatuses were created at the end of words. After the reinterpretation of the location of stress from the word’s left edge to the right edge that gave rise to the Eastern system, these hiatuses were affected by several changes, including simplification and diphthongization (e.g., Mod. Zub. *alhabá* < *alhabá-(h)a* ‘the daughter’, Mod. Zub. *orgá* < \**orgaĥa* < \**organa* ‘cart’, Mod. Zub. *ardú* < Lit. Zub. *ardáũ* < \**ardaĥo* < \**ardano* ‘wine’). The fusion between the (stressed) penultimate and last syllabic nuclei created word-final stressed vowels and diphthongs. Much later, in the 19th century, and only in Zuberoan, a systematic loss of the tap added more items to this set of marked words (Mod. Zub. *ahái* [aĥai] < Lit. Zub. *ahári* < \**anari* ‘ram’, Mod. Zub. *aihái* [aiĥai] < Lit. Zub. *aihári* < \**gau-hari* ‘dinner’).

In addition, /ĥ/ loss in the final syllable created a group of words with a final contrastively nasalized stressed vowel in Zuberoan (cf. Hualde 1997: 76; Egurtzegi 2014: 151–159, 2015: 4–6). Many loanwords from Bearnese Gascon that shared this structure have greatly increased the number of words in this group (Zub. *salú* ‘living room’, Zub. *arratú* ‘mouse’, from Bearnese Gascon *salon* and *arraton*, respectively; cf. Egurtzegi 2014: 156–158, 2015: 6 for many other such borrowings).

All of these loanwords come from Gascon, and are thus much more recent than the borrowings found in the group of marked words in other prosodic systems (§3.1–§3.3), which were loaned from Latin or early Romance. In the Eastern

system, Latin loanwords that show marked accentuation in other varieties are integrated into the set of words with unmarked stress. Regarding native words with marked word-final stress, most (if not all) lost syllables may be reconstructed by adding a laryngeal or a tap in the middle of the (former) vowel cluster. We date these innovations around the middle of the Middle Ages and the 19th century, respectively. Thus, after the reinterpretation that made penultimate stress penultimate, all words – marked and unmarked – had penultimate stress for some time, until a new class of marked oxytones evolved. In short, in the Eastern system, the class of marked words present in other types was “reset” and a new group of marked words with word-final stress developed afterwards.

Unlike accentually marked categories that predate dialectalization, such as Latin loanwords (§2.2.2), plurals and certain suffixes are stressed in the Eastern system (§3.4). We suggest that this fact points to a much later introduction of these accented categories than what other works have suggested (e.g., Egurtzegi & Elordieta 2013; Hualde in press).

### 3.4.3 *Historical geographic extension of the Eastern prosodic system*

In addition to the region that it has covered in recent times (Zuberoa, Roncal, Salazar, Erro, Esteribar, Luzaide, Baztan and Ultzama, cf. Hualde 1997), it is likely that this system was more widespread into the North-East in older times. Leizarraga (1571), for instance, followed a prosodic system reminiscent of the Eastern system (Hualde in press).

## 4. **Chronology of the Basque prosodic systems and dialect diversification**

Throughout the previous section, we have discussed a number of changes and events that have resulted in the current diversity of prosodic systems of the Basque language and shaped their particularities. They are listed in chronological order in Table 2.

With regard to the general ordering of prosodic systems, we find that the number (and distribution) of old Latin loanwords that show marked vs. unmarked accentuation in each system is a very good indicator of how (comparatively) old that system is. The system that most faithfully maintains the position of the accent in borrowings is the Western system. In this system, the unmarked accentual pattern was phrase-final. Given that the last syllable was extrametrical in Latin, Latin loanwords could keep their accent in its etymological position forming a marked class clearly different from the unmarked native final accent

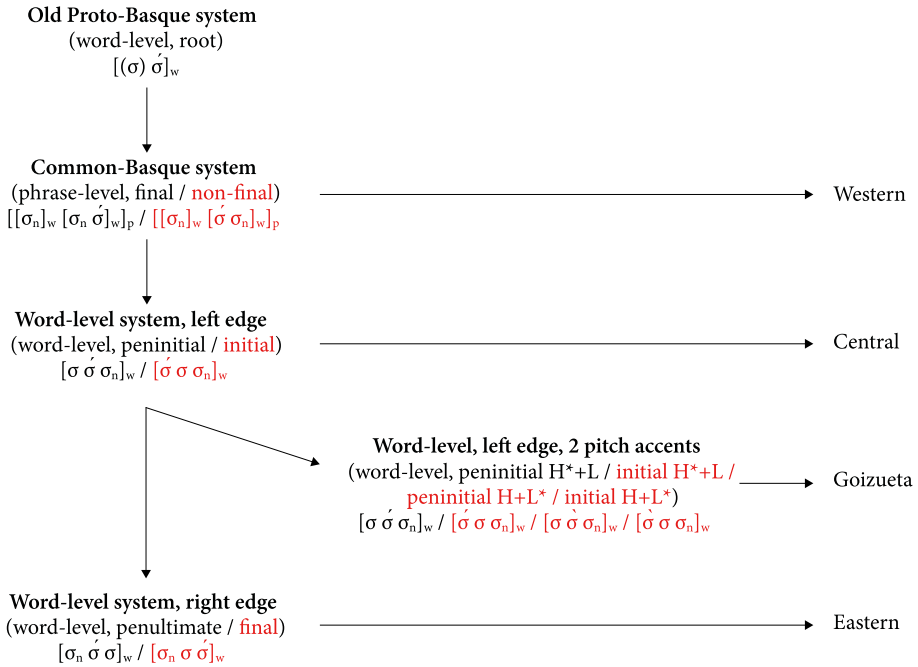
**Table 2.** Proposed chronology and scope of some of the changes discussed

Feature	Varieties
1 Proto-Basque prosodic system (BCE)	Common to all
2 First Latin loanwords (1st–3rd century)	
3 Common Basque system (6th–8th c.) Grammaticalization of the singular determiner	
4 Phonological word as prosodic unit Reinterpretation of %LH > [σσ] (Central system)	Central-Eastern
5 Loss of laryngeals after #[σσ]	
6 Grassmann's Law in #[σσ] (<10th c.)	
7 Reinterpretation of #[σσ] as [σ'σ]# (Eastern system)	Eastern
8 VV simplification	
Cliticization of the plural determiner:	(all)
a-Pre-accenting plurals	Western
b-Accent-retracting plurals	Central
c-Accent 2 in plurals (Goizueta system)	Goizueta
d-Accent-attracting plurals (only -e-)	Eastern

(§2.2.2).<sup>20</sup> In the Central system, post-initially accented marked words are integrated in the unmarked class while initial accentuation is maintained in old loanwords with this pattern (§3.2.2). The same is true for the Goizueta system, which we argue evolved from the Central one (§3.3.1). The only prosodic system that does not maintain any Latin loanword as accentually marked is the Eastern one, where all marked words were regularized (§3.4.2). Other phonotactic features support this chronology. This is the case of the unrestricted vs. restricted distribution of laryngeals (and aspirated stops) that separates the conservative West vs. the innovative Central and Eastern territory (see (10)). The chronology of the Eastern vs. Goizueta system is unclear, but note that the plural suffixes *-ak* and *-e*-trigger (H+)L\* in Goizueta (§3.3), while only *-e-* attracts stress in the Eastern type (§3.4).

The relative chronology of the Basque prosodic systems proposed in this paper results in a sequence as depicted in Figure 1. The modern prosodic systems that evolved from the different proto-systems are represented on the right. For each period, the marked accentuation pattern is represented in red after a slash.

20. See, among others Lahiri et al. (1999: 378–383) for a summary of Latin prosody.



**Figure 1.** Chronology of the development of the major Basque prosodic systems

This chronology reflects two major (groups of) innovations with regard to the dialectalization of the language in medieval times. The first, which leaves behind a more conservative Western area, gives rise to word-level prosodic systems and encompasses all non-Western territories. The second, which changes the assignment of the accent from the left-edge to the right-edge, separates the Eastern area from the Central area. In his recent research of the first stages of the dialectalization process of Common Basque, Urrestarazu (2021) concludes that, given the current evidence, a first separation of a Western proto-variety from the common core (vs. a Proto-Central-Eastern Basque) is more likely than the inverse possibility (i.e., a first separation of an Eastern proto-variety and a Proto-Central-Western Basque). In addition to the chronology of the prosodic systems presented here and in Egurtzegi and Elordieta (2013), he adduces chronological evidence from multiple segmental processes and morphological innovations that point in this direction.



## 5. Comparisons with earlier proposals

Previous reconstructions of the Proto-Basque prosodic system include those by Martinet (1950/1970), Michelena (1957–1958/2011, 1972/2011, 1977/2011), Hualde (1995, 2003a, 2007, 2012, in press), Martínez-Areta (2004); Elordieta (2011a); Egurtzegi and Elordieta (2013); Egurtzegi (2014), and Blevins (2018). Nevertheless, many of the systems proposed in these studies do not apply to Proto-Basque, but only to later stages of the language.

### 5.1 Differences regarding the prosodic proto-system

First, Martinet (1950/1970) reconstructed a word-initial stress pattern [ $\sigma\sigma_n$ ]. He observed that in words with two voiceless stops, the first of these stops is systematically aspirated, as in the case of *phika* ‘magpie’ and *phintakoste* ‘Pentecost, Whitsun’, and he linked this distribution to stress in the initial syllable. However, later research has discarded this proposal (Egurtzegi & Elordieta 2013) and suggested that these aspirated stops are due to a later process (Egurtzegi 2019). Michelena’s (1957–1958/2011, 1972/2011, 1977/2011: 329–345) hypothesis placed old stress in the second syllable [ $\sigma\sigma_n$ ] by linking it to the distribution of laryngeals in modern Eastern dialects, which is limited to the first two syllables of the word. However, medieval documents from the Western dialects show a different, unrestricted distribution of the aspiration (Hualde 2007: 316; Egurtzegi 2014: 73–74; cf. (10)), showing that this feature might be a later dialectal innovation.

Hualde (1995, 2003a, 2007) proposed instead that the Western phrase-level system [[ $\sigma\sigma_n$ ]<sub>n</sub> [ $\sigma_n\sigma$ ]] is the comparatively older attested prosodic system, and is the system found in Proto-Basque. Martínez-Areta (2004) went back to a more conservative proposal closer to Michelena’s. Nevertheless, Martínez-Areta admits difficulties with explaining how a much more complex system developed from a simpler one (2004: 198–204). More recent research (Egurtzegi & Elordieta 2013) has agreed with Hualde’s proposal that the phrase-level system is comparatively older, but positing it for Common Basque instead of Proto-Basque.

Elordieta (2011a) proposed a Proto-Basque system more akin to the one later refined in Egurtzegi and Elordieta (2013) and Egurtzegi (2014). In this paper we have developed a proposal for the reconstruction of Proto-Basque further, in far greater detail than in these works. Blevins (2018: 100) centers her reconstruction in the older stages of Proto-Basque, proposing a combination of lexical accent and predictable weight-sensitive stress, with unaccented roots and accented suffixes. Although we propose that roots were accented in Old Proto-Basque, we suggest that this might be due to a weight-sensitive rule of assignment of prosodic prominence. This rule was a consequence of roots having a CVC structure while

prefixes were (C)V- (§2.1). Unlike Blevins, however, we consider accented/pre-accenting suffixes a much later development (§2.2.2).

Hualde (in press) does not offer any proposal for Proto-Basque prosody, but he reconstructs the Common Basque system as follows (Hualde in press: §7): “In the most straightforward reconstruction, Old Common Basque had both a contrast between two types of lexical accents H\* and L\* (from different historical sources) and a class of unaccented words. [...] [T]here were also phrase-initial pitch rises”. Thus, Hualde (in press: §5.2) proposes that Accents 1 and 2, only preserved in Goizueta, were part of the Common Basque system. In his proposal, H\* was incorporated first through Latin borrowings, and L\* was developed later, either due to a glottal stop resulting from the process of compounding described in §2.2.2 (Hualde 2007), or to vowel encounters. The reconstruction of all these features results in a very complex system: most words were unaccented, and a small set of accented words had two contrastive pitch accents in either the first or the second syllable. We are not aware of any typological parallel of such a system.

In this paper, we consider that Proto-Basque had a system that is, to some extent, comparable to the ones proposed by Elordieta (2011a), Egurtzegi and Elordieta (2013), Egurtzegi (2014) and Blevins (2018), but we provide further detail regarding its individual components. Unlike any previous work, we provide a reconstruction of the prosodies of Old and Modern Proto-Basque as well as the Common Basque system, and a detailed evolution of the reconstructed systems all the way to the major prosodic systems attested today. Our proposed reconstruction of the Common Basque prosodic system is much simpler than that in Hualde (in press): we reconstruct a less complex version of the Western prosodic system for the common stage of the language (cf. §2.2 and §3.1).

## 5.2 Differences regarding the prosodic evolution across dialects

Not many authors have proposed relative chronologies that account for the modern prosodic variation of Basque. Elordieta (2011a) provides an account that tries to integrate most previous proposals, but suggests that the proto-system branched into Eastern and Non-Eastern. Egurtzegi and Elordieta (2013) and Egurtzegi (2014) show that the evolution must have been Common Basque > Western > Central > Eastern, agreeing with Hualde (2007). However, these works do not discuss the position of the Goizueta system within the general chronology of Basque prosodic systems as this paper or Hualde (in press) do.

Hualde (1995, 2007, 2012) argued first that the Western system is comparatively older than other attested prosodic systems, proposing that it reflected Proto-Basque prosody. Nevertheless, in later work he proposed that the Common Basque system was different from the modern Western type and that the modern

Goizueta system directly descended from it (Hualde in press; see §5.1 above). However, his reconstruction of the Common Basque prosodic system is not very detailed, or at least not as detailed as our proposal, and his reconstruction does not go as far back in time as our proposal (see §5.3).

Unlike most previous works, which mainly focused on the unmarked patterns of each system, we also discuss the evolution of marked accentuation within each system, as well as the reconstruction and development of further characteristics including the phonetic realization of the accent and boundary tones.

### 5.3 Typological plausibility, naturalness, and degree of explanation of our approach

In this section we will explore the differences in the typological plausibility, naturalness, and degree of explanation of our approach in contrast to previous ones in understanding the range of Basque accentual systems that have been developed from Common Basque accentuation. Given that this is the first and only proposal that reconstructs the evolution from a Proto-Basque to a Common Basque prosodic system, the comparison will focus on the latter system.

In addition to our work, the most complete proposal on the reconstruction of Common Basque prosody and how it developed into the modern Basque prosodic diversity is Hualde (in press). However, the different chronologies of L\*/H+L\* completely condition each reconstruction of the common prosody as well as the evolution of the attested systems. Hualde (in press) proposes that L\* was created by a glottal stop /ʔ/ – which is unattested in any stage of the Basque language – that was added at the morpheme boundary before Common Basque. As mentioned above (§5.1), this proposal results in a rather complex prosodic system, and the consequences of this complexity for the evolution of the attested prosodies are not discussed in Hualde's work.

First, Hualde (in press) does not provide any detail regarding how first-syllable L\*, second syllable H\* and phrase-initial %LH were distinguished utterance initially. On the one hand, if initial L\* were followed by a pitch rise, to make it clear that there is a L\* pitch accent, the melody would be LH. On the other hand, a melody with H\* on the second syllable would presumably be preceded by a L tone on the initial syllable, to make the H tonal target evident. Thus, the two marked melodies would not be easily distinguishable from one another or from the noncontrastive %LH melody in phrase-initial unaccented words of Common Basque. This would result in the loss of marked stress in more words than we actually observe in the transition from the Proto-Western to the Proto-Central system, in which only marked words with peninitial accentuation are incorporated into the unmarked class.

Second, a merger of the two pitch accents ( $H^*$  and  $L^*$ ) would be required for the development of the Western system, which does not show such a contrast. No motivation for this merger in the otherwise archaic Western system is provided.

Third, under Hualde's account, the unmarked class –  $H^*(+L)$  in the second syllable – would be the last class to be introduced into the Goizueta system, given that he reconstructs Goizueta's Classes 2–4 as marked in his Common Basque system, but Class 1 would only develop after the reinterpretation of the boundary %LH tone as an accent.

In addition, Hualde's (in press) proposal of the source of the  $L^*$  accent also raises some phonetic issues. Glottal effects are known to result in tonal contrasts after the (trans)phonologization of their intrinsic  $F_0$  into an adjacent vowel, in a process usually known as tonogenesis. However, the loss of coda /ʔ/ usually results in a  $H^*$  tone in the preceding vowel, instead of the  $L^*$  that Hualde proposes, as in Chinese, Hmong (Ratliff 2015) or Vietnamese (Haudricourt 1954). In these languages, it was \*h – a segment that is generally reconstructed for Proto-Basque (Egurtzegi 2013a) – that created  $L^*$ , not \*ʔ.<sup>21</sup> More importantly, we would expect a tonogenesis process to affect a vowel in strict adjacency to the glottal segment. However, this is not what Hualde proposes, as illustrated by his examples \*gizonʔhaga and \*lehenʔgusu, both showing an intervening -n (maintained in the modern language) that prevents a \*\*Vʔ sequence (Hualde in press: ex(36)). Moreover, our current knowledge of Basque phonotactics does not render very plausible the idea that a glottal stop was inserted between two consonants, as in the examples above.

Our proposal for the development of a contrastive  $H+L^*$  is very different. We propose that Accent 2 originated more recently, in the development of the Goizueta system, and in a different set of words, namely the frequently used plurals (§3.3.2). Plural determiners maintained their status as independent words for a longer time than singular determiners, probably with word-level stress (Manterola 2015: 298–299). It was only after plurals lost their independent status as prosodic words that their accent produced an accentual clash with these of the stems they were attached to, giving rise to a new pitch contour (originally limited to plural words) that later compounds and recent borrowings from Spanish would mimic (Egurtzegi in press). We have suggested that the early fall was the result of the influence exerted on the original  $H^*+L$  in the first or second syllable of the noun by a following  $H^*+L$  in the plural suffixes -ak and -e-. This proposal also accounts for the different behavior of longer words, given the greater distance between the two accents (§3.3.2). In general terms, the process we propose would

21.  $L^*$  could have been created from \*ʔ after a stable period of vowel glottalization, given that glottalized vowels have low tone, but this kind of phonation has never been proposed to be contrastive in Basque vowels.

not be very different from the development of the two pitch accents of Swedish and Norwegian. In these languages, the clash of stress and phrase-final pitch contours was reinterpreted as two different pitch accents, each assigned with regard to whether or not the final syllable of the word was stressed (Ofstedal 1952; Lahiri et al. 1999: 368).

As opposed to Hualde (in press), who sees Goizueta as a very archaic system, we propose that this system resulted from a late development. Given that Goizueta is close to the geographic center of the Basque Country, our proposal is in line with the usually expected distribution (cf. Bartoli 1925, among others) of innovations in the center vs. conservative features in the periphery, as the most archaic Western system would be maintained in the north-westernmost corner.

In short, our proposal for the development and late chronology of Accent 2 results in a less complex Proto-Basque prosody, avoiding the reconstruction of unattested systems. In addition, our proposal accounts for the observed distribution of the two pitch accents and the exceptions to their synchronic rules, and it fits better with previously known facts of the history of the Basque language than other proposals. The chronology we propose also results in a more straightforward evolution from the Common Basque prosodic system into the modern diversity, given that it requires fewer historical changes and it also accounts for more variability. In addition, our interpretation of the facts is more in line with classic approaches to historical dialectology, and the proto-systems and sound changes we reconstruct find clearer typological parallels than those in other proposals.

## 6. Conclusions

Basque dialects show considerable prosodic diversity. This paper has presented the first relative chronology that accounts for this diversity starting from the reconstructed stages of the language – Old and Modern Proto-Basque, and Common Basque – to the four main modern prosodic systems. We propose that the most usual structure in Old Proto-Basque, a prefixing language with monosyllabic roots CV-CVC, was phonetically realized as [oH\*]. We suggest that either accented roots and unaccented prefixes or a weight-based rule of accent assignment would result in this structure. After a rightwards spread of H tones, this system derived into a phrase-level system in Modern Proto-Basque, with an initial %LH and an interpolation of the H tone until the demarcative phrase-final H\* accent preceding a low boundary tone at the right edge of the phonological phrase (L%). By the time of Common Basque, the prosodic system of Basque also included accented words in the form of Latin borrowings.

We propose that the Western system, which is not very different from our reconstructed common prosody, derived from the common system with few alterations, while non-western varieties innovated in generalizing the word as a new accentual domain. The accent fell in either of the first two syllables in the Central and Goizueta systems, and further innovations moved it to the last two syllables in the Eastern system. We also introduce the novel proposal that the Goizueta system evolved from a Proto-Central system due to a single major change: the development of a second, falling pitch accent after the cliticization of the plural determiner. All in all, our account requires fewer historical changes and it accounts for more observed variability than previous proposals.

## Funding

This work is funded by the French National Research Agency (ANR) through the project *Modern approaches to diachronic phonology applied to Basque* (MADPAB; ANR-20-CE27-0007), the Spanish Ministry of Science (PID2020-118445GB-I00), the Basque Government (IT1396-19), and the University of the Basque Country (GIU18/221).

## Acknowledgements








We are greatly indebted to Juliette Blevins, José Ignacio Hualde, Joseba Lakarra, Iñigo Urrestarazu, three anonymous reviewers, and the journal editor Claire Bowerman for reading and commenting on previous versions of this paper. Their suggestions have immensely improved our work. All remaining errors are naturally ours. We also thank Maia Duguine and Andrea García-Covelo for their help with the French/German abstract translations.

## Abbreviations

Lat.	Latin	BENEF	benefactive
Lit. Zub.	Literary Zuberoan	CAUS	causative
Mod. Zub.	Modern Zuberoan	COMIT	comitative
Sp.	Spanish	DEF	definite
C	a consonant	DET	determiner
V	a vowel	ERG	ergative
$\sigma$	a syllable	INDEF	indefinite
H	a high tone	INES	inessive
L	a low tone	INF	infinitive
o	a syllable that is unspecified for tone	LOC	locative
		PART	partitive
ABS	absolute	PL	plural
ADJ	adjective	SG	singular

In addition the symbols >, < represent direct evolution and >>, << represent borrowing.

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## Zusammenfassung

In diesem Artikel wird ein neuer Vorschlag für die Rekonstruktion der urbaskischen Akzentuierung sowie der Entwicklung und Chronologie der wichtigsten Akzentsysteme der modernen Dialekte vorgestellt, der sich auf phonetische, historische und typologische Belege stützt. Es ist der erste Versuch, die baskische Akzentuierung von einem vorrömischen Stadium bis zur Dialektalisierung, die auf das Gemeinsame Baskische folgte, zu rekonstruieren. Wir schlagen vor, dass das Alturbaskische die prosodische Betonung auf der Wurzel hatte, d.h. [(C)V'CVC]. Dieses System entwickelte sich im Neurbaskischen zu einer Betonung auf Phrasenebene, was dazu geführt hat, dass die Positionen nicht am Phrasenende unbetont blieben, wobei die markierte Betonung erst später durch lateinische Lehnwörter (2.–3. Jh. n. Chr.) eingeführt wurde. Dies ist das übliche System, das sich im Westen bis heute erhalten hat. Nicht lange nach der Dialektalisierung entwickelten sich in nicht-westlichen Gebieten Systeme auf Wortebene, in denen zunächst die Silbe nach der ersten und dann (in den östlichen Dialekten) die vorletzte betont wurde. Schließlich schlagen wir als Alternative zur Ansicht von Hualde (im Druck) vor, dass das prosodische System von Goizueta vom zentralen System abgeleitet werden kann.


## Résumé

Cet article présente une nouvelle proposition pour la reconstruction de l'accentuation en proto-basque et le développement et la chronologie des principaux systèmes accentuels des dialectes modernes, fondée sur des preuves phonétiques, historiques et typologiques. Il s'agit de la première tentative de reconstruction de l'accentuation basque d'une étape préromaine à la dialectification qui est venu après le basque commun. Nous suggérons que le proto-basque ancien avait une prééminence prosodique dans la racine, c'est-à-dire [(C)V'CVC]. Ce système a évolué vers une prééminence au niveau de la phrase en proto-basque moderne, donnant lieu à l'absence d'accent dans les positions finales non-phrasales, avec une accentuation marquée qui est introduite plus tard, par des emprunts latins (IIe-IIIe siècle après JC). Il s'agirait du système commun, qui persiste encore à l'ouest. Peu de temps après la dialectification, des systèmes au niveau du mot se sont développés dans les régions non occidentales, d'abord comme accent péninitial puis comme avant-dernier accent (dans les dialectes orientaux). Enfin, nous proposons que le système prosodique de Goizueta pourrait être dérivé du système central, une vision alternative à celle de Hualde (sous presse).

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## Publication history

Date received: 2 December 2020  
Date accepted: 9 October 2021  
Published online: 23 August 2022