

THE IBERIAN SIBILANTS REVISITED

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The Iberian sibilants have been discussed many times in the history of Paleohispanic studies.¹ The occasional suggestions that the two graphemes in each script are mere variants of a single phoneme (e.g. Tovar 1962, 173; Siles 1979, 83) have been generally rejected: there are indeed some instances of apparent alternation, but there often seems to be some pattern behind them, even if the details are not yet clear.² The two sibilants are generally distinguished remarkably consistently: so much so, in fact, that when we find an abnormal degree of variation, as in **esker** ~ **ešker**, we are justified in suspecting that these may be two different roots. Only in a few cases, such as **salir** in G.1.2, is a simple spelling mistake the most likely explanation. In other words, the clear picture that emerges is of two separate and easily distinguishable sibilants.

Although there is still no consensus about their phonetic values, previous treatments have made several important contributions to the debate through detailed investigations of the various sources of evidence, both internal—the distribution, phonotactics and possible assimilations or alternations of the sibilants within Iberian itself—and external (interaction with other languages, both in the scripts and in renderings of personal names and placenames from one language into another). Another profitable line of inquiry has involved linguistic typology and the wider picture of sibilant systems across the languages of the world. Finally, the possibility of a direct comparison with Basque has always been a recurrent theme, either on the controversial hypothesis of a genetic relationship, or merely on the grounds that the numerous phonological similarities between the two languages point to the existence of a regional typological area. A useful recapitulation of the state of the question is provided by de Hoz 2011. Since then, however, there have been two important developments which would potentially bring new evidence to the table.

¹ Detailed treatments include Michelena 1955; Siles 1979; Mariner 1985; Quintanilla 1998; Silgo 2000; Ballester 2001a; Correa 2001; de Hoz 2003; 2011; Rodríguez 2004a; 2004b.

² E.g. **iunstir iustir iunštir iušdir**; **laiešken** (and the more easily explained **otobešken**) alongside **seteisken**, **untikesken** etc.; perhaps also **ibeis ibeš**, **leis leš**, **beleš bels**.

1. TWO NEW CONSIDERATIONS

One of these new developments is Ferrer i Jané's proposal of dual systems for both Meridional *ś* and Levantine *s*,³ which could potentially support the occasional suggestion that Iberian had more than two sibilants. The other, which we will address first, is the increasing amount of evidence that the alleged Iberian numbers proposed by Orduña and Ferrer i Jané⁴ really are numbers. This is relevant because of the apparent systematic correspondence between Iberian *s* : *ś* and Basque *z/tz* : *s* in Iberian **bors(te)**, **śei**, **sisbi**, **sose** and Basque *bortz*, *sei*, *zazpi*, *zortzi*.⁵ This very correspondence was proposed by Michelena 1955, 277-8 (and on independent grounds by Tolosa 1996-1997 and de Hoz 2003), but with the exception of Anderson 1993 was not generally endorsed or developed even by Vascoiberists.⁶ Likewise, although several of these Iberian forms had already been compared to the Basque numbers,⁷ they remained little more than intriguing lookalikes on a par with *saldu-* : *zaldi* 'horse'. However, as the likelihood that these really are the Iberian numerals increases, so does the importance of the sibilant correspondence that they seem to show.

2. FIVE OPTIONS TO EXPLAIN THE IBERIAN NUMBERS

The significance of this possible Basque-Iberian sibilant correspondence is directly dependent on our verdict on the Iberian numbers. There are five possible answers to the question of why Iberian seems to have "Basque" numbers:

1. It doesn't: the Iberian "numbers" may not be numbers at all, and the resemblance with Basque is purely coincidental.
2. They really are the Iberian numbers, and were loaned into (early) Basque. In other words, it is actually Basque which has Iberian numbers, and not the other way round.
3. They really are the Iberian numbers, but were loaned into Iberian from (early) Basque.
4. They really are the Iberian numbers, but were loaned into both Iberian and Basque from a third language.
5. They really are the Iberian numbers, and are evidence for a genetic relationship between Iberian and Basque.

³ Ferrer 2010; 2013; 2015.

⁴ Orduña 2005; 2011; 2013; Ferrer 2009.

⁵ With variants *bost*, *xei*, *saspi*, *zorzi* etc. (cf. Orduña 2011, 127).

⁶ The correspondence is now accepted more widely, e.g. by Faria 2016, and is codified in the transcription system used by Silgo 2016. However, earlier studies happily compared **aśs** and *hertsí*, **ebaśiran** and *ebazi* and so on (e.g. Rodríguez 2002b, 255; 2004b, 303).

⁷ In these older comparisons (references in Ferrer 2009, 454n12), which did not include **śei** or **sisbi**, the sibilant correspondence was not yet apparent.

The fourth option is included purely for the sake of logical completeness: there are no other possibilities, so one of these five answers must be the correct one. However, they have very different consequences for the sibilant correspondence. If we favour the first option, then there is no correspondence at all.⁸ If, on the other hand, we favour any of the possibilities involving borrowing (options 2, 3 and 4), the correspondence would seem to tell us something new about the phonetic values of the Iberian sibilants: namely, that at the time of the borrowing they sounded similar enough to the Basque sibilants to map consistently from one language to the other. Finally, if we favour option 5, the hypothesis of a genetic relationship, this does not necessarily tell us anything about the synchronic values of the Iberian sibilants, since the two languages could have developed in different directions. However, it would open new possibilities for research into the sibilant systems of both languages (and, of course, their implied parent-language), including the controversial question of whether the 4-term system proposed for Proto-Basque by Michelena is a secondary development.

Because the implications for the sibilant correspondence are so different, we must first decide which of these five options is most likely. We can start with the observation that the first option is actually now increasingly hard to defend. In some cases there is now possible internal evidence to support the proposed values of the numbers,⁹ but even without proofs of the individual values, the mounting evidence that these lookalikes of the Basque numbers really do form a cohesive system within Iberian is a strong indication that the theory is correct. This system of putative Iberian numbers turns up exactly where we would expect to find them: occasionally on funerary monuments (**orkeikelaur** on D.12.1), but usually in lead texts or other inscriptions with potentially commercial or metrological content (e.g. the ostrakon C.22.2, the stone weight C.8.2), often in association with metrological formulae and elements such as **šalir** (and **eta-**, **kitar**, **ota-**, **uštain** and so on) which were already suspected to relate to commerce or weights and measures.

Even before this system was demonstrated, the resemblance of **borste** : **abařgeborste** to Basque *bost* / *bortz* and *hamabost* was striking enough to

⁸ Or at least, not in the numbers. It could still be sought in other traditional Vascoiberian comparisons such as *saldu-* : *zaldi* and **šalir** : *sari*, where Michelena first found it, but is far less convincing without the numbers (which as Michael Koch (p.c.) points out, is equally true of the Vascoiberian hypothesis as a whole).

⁹ The coin denominations discussed in Ferrer 2009 offer possible support for the values of **erder**, **ban** and **šei** (if we accept the relationship with **šerkir**), and the fact that the combinations with the structure X-ke-Y consistently start with **abař** and **orkei** (and not, say, **sisbi** or **orse**) ties in with the idea that they are 10 and 20 respectively. There is also far weaker support for the value of **sisbi** (on side B of the Casinos text, where it could correspond to the seven **a** units on side A: Ferrer and Escrivà 2014, 221), and perhaps even for **abařšei** ‘16’ and **orse** ‘8’ (on F.13.2 B.1a, where Ferrer 2009, 467 notes that the ratio would correspond to that of the tallies 14 and 7 on the accompanying text F.13.2 C.1). Another possible sum is on C.0.2, where **abařkebiotař** ... **bieinesir** ... **o** IIIII could perhaps refer to a half-share of twelve **otař**.

draw the attention of Iberists,¹⁰ and once it is established that **sei**, **sisbi**, **sorse** and **orkei** appear to belong to the same system, their resemblance to the other Basque numerals takes on a much greater significance. We have to ask, what are the chances that this is mere coincidence? Somewhere in the Iberian texts we can probably find matches for the numbers of German, Japanese or Swahili, but what are the chances that these matches will prove to form a recurring system of elements which combine both with each other and with other elements that can be argued on independent grounds to relate to trade and commerce, and that this system will continue to turn up in newly-discovered inscriptions such as the Casinos text, and in new readings of other inscriptions?¹¹ It seems telling that every new development since the theory was first proposed, seems to strengthen the case that these really are the Iberian numbers.¹² We can also count it as a support that the numbers show precisely the same sibilant correspondence proposed by Michelena and de Hoz on entirely independent grounds.

Despite these encouraging signs, the case for the identification of the Iberian numbers has not convinced everyone.¹³ It is true that there are various problems and uncertainties; however, the objections generally prove to be matters for discussion rather than fatal blows for the theory.¹⁴ As for Lakarra's objection that the Iberian forms do not fit his internal reconstructions of the Basque numbers (Lakarra 2010), the fact that every new development seems to support the theory raises the suspicion that although his etymologies would indeed pose an insuperable problem for the proposed identifications, it may actually be the other way round. On this note, it is worth drawing attention to the fact that the Basque number which seems

¹⁰ Faria 1993, 152. **Borste** was already compared to *bortz* by Albertos 1973, 100, but the sequence was usually taken as a personal name plus patronymic, like *Beles Umarbeles F*.

¹¹ C.22.2 and F.13.2, in Ferrer 2009.

¹² The rock inscription published in Ferrer 2016 seems like an exception, since it makes it less likely that **bařbin** is a number. However, it was already slightly problematic that there were apparently two forms for '12', **bařbin** and **abařkebi**, so the removal of **bařbin** from the dossier actually constitutes a refinement of the theory.

¹³ The traditional interpretations of **borste** : **abařgeborste** and **orkeikelaur** as personal names are repeated in Moncunill 2010, Rodríguez 2014, Faria 2014. However, we can note that the simultaneous comparison of **borste** : **abařgeborste** to both Aquitanian *Borsei* (for the root) and Iberian *Beles Umarbeles F* (for the structure) does not really work: it would make it equivalent to "**Quintus Abarquintus F*", which seems unlikely.

¹⁴ Perhaps the most serious problem is that several of the "numbers" turn up in contexts where the proposed values do not seem to fit, as in **abařeřkeř** and **abařiltur**. However, as discussed by Rodríguez 2014, 104, this could be homonymy, polysemy (e.g. '10' but also 'big' or 'limit'), or even proper names along the lines of Greek Triptolemos and Dekapolis. The **ban** of **eřiar** : **ban**, **seltar-ban-mi** and **tikirsbalař** : **ar-mi** : **ban-mi** could likewise just be a homonym, but would also tie in with the cross-linguistic parallels for the use of 'one' as an indefinite article (Ferrer 2008, 264), singular marker (Heine and Kuteva 2002, 223-4) or "prop-word" (as in English 'the red one').

most likely to have a transparent inner-Basque etymology, *bederatzí* ‘9’,¹⁵ is also the only number from 1 to 10 for which a possible match has not yet been found in Iberian.

3. BORROWING VERSUS GENETIC RELATIONSHIP

If we conclude, for the reasons given above, that in all probability these sequences really are the Iberian numbers, then we need to decide how it is that they are shared with Basque. In other words, after rejecting option 1, we are left with the choice between options 2-4 (borrowing) and option 5 (genetic relationship). Lakarra 2010, 195 was sceptical of any explanation involving borrowing, and cites Buck’s observation that Indo-European languages preserve the numbers even better than kinship terms. However, the borrowing of numbers is cross-linguistically very common (which was precisely why Swadesh did not include the higher numbers in his 100-word list); so common, indeed, that according to Comrie, “numeral systems are even more endangered than languages”.¹⁶ As far as the direction of borrowing is concerned, the most probable scenario is that early Basque/Aquitania borrowed the Iberian numbers in a trading context: the other possibilities (options 3 and 4) cannot be ruled out completely, but are far less likely.¹⁷

To Ferrer 2009, 471, the unlikely scenario that the putative borrowing would have imported an entire system of numbers, including 1 and 2, is an argument in favour of genetic relationship. In fact, complete replacement of the original system is not unknown: there are parallels in Chamorro (from Spanish), Chantyal (from Nepali) and various other languages. Nevertheless, it is true that the lower numbers appear to be much more resistant to borrowing.¹⁸ Thus, if it were the case that the higher numbers in Basque and Iberian

¹⁵ Apparently ‘less (than 10) by one’, either as a simple derivative of *bedera* ‘(one) by one, each one’, or as a compound (Lakarra 2010, 227-8). There are several parallels where a language has replaced its inherited word for 9 with an innovatory formation meaning ‘one less (than 10)’—e.g. Kodi *bandaiha*, Lamboya *kabhani dhiha*, Nyindrou *ndro ari* and Ngadha *ter esa*, all taken from the online Austronesian Basic Vocabulary Database at www.language.psy.auckland.ac.nz/austronesian/—or ‘one more (than 8)’ (Ossetic *farast* ‘beyond 8’, Pashto dial. *terai*, literally ‘past (8)’: Edelman 1999, 225).

¹⁶ Quoted at <https://mpi-lingweb.shh.mpg.de/numeral/>.

¹⁷ I do not know of any parallels for the suggestion of Blasco Ferrer (p.c.) that the Iberians adopted the numbers of their rustic Basque neighbours as a way of encouraging trade. However, borrowing of numbers is attested even between hunter-gatherer societies (Epps *et al.* 2012, 69), so it seems possible that it could have taken place much earlier, perhaps in connection with transhumance (which, despite Vega Toscano *et al.* 1998, need not be a relatively recent phenomenon: in other areas of Europe it seems to go back to the Neolithic, *cf.* Kienlin and Valde-Nowak 2004; Bentley and Knipper 2005). In this case, the borrowing could have proceeded in either direction.

¹⁸ For example, most varieties of Berber preserve the inherited roots for 1 and 2, even when the rest of the numbers are borrowed from Arabic (Souag 2007, 240). Within the Dravidian family we find that Malto, Pengo and Kuvi only borrow the Indic numbers from 3 upwards, Brahui from 4 upwards and Kurukh from 5 upwards. Even in languages where the

were the same but the lower numbers were completely different, this would be good evidence for borrowing. What we seem to find, however, is that they are *slightly* different: **ban** : *bat* and **bi(n)** : *bi(ga)*. This is interesting, because a pattern of identical higher numbers but slightly divergent lower numbers is often found in cases where languages are genetically related: cf. PIE **Hoi-wo-* ~ **Hoi-ko-* ~ **Hoi-no-* ‘1’, where the variation is apparently a result of the special status of the number 1 and its cross-linguistic tendency to play a wider role in the grammar.¹⁹ In other words, if the differences between **ban bi(n)** and *bat bi(ga)* represent suffixal morphology, this might fit better with the hypothesis of genetic relationship as opposed to borrowing.²⁰

Despite this, borrowing from Iberian into early Basque still seems possible, especially because it would fit so well with the historical sociolinguistic situation.²¹ Indeed, several of the other Vascoiberian comparisons such as **salir** : *sari*, **iltir** or **iltun** : *hiri* and **kalir** : *gari* could also be loanwords from Iberian into Basque, as Ferrer 2014 suggests for **kutun** : *gutun*.²² However, concrete positive evidence in favour of borrowing is much harder to find:²³

numbers are completely replaced, ‘one’ and ‘two’ usually survive outside counting contexts, for example in grammatical functions or as the etyma of ‘alone’, ‘double’ and so on. However, Basque seems to show the same roots *bat* and *bi* in these wider functions (e.g. *bakar* ‘alone’, *bedera* ‘(one) by one, each one’, *bizkitartean* ‘meanwhile’ and perhaps also *biur* ‘twisted’, *bertze* ‘other’).

¹⁹ ‘One’ is often a determiner (typically the indefinite article) or pronoun, and the etymon of adjectives and adverbs such as ‘same’, ‘similar’, ‘alone’ and ‘only’. ‘Two’ can also have a wider role in the grammar, as the etymon of ‘between’, ‘combined’, ‘apart’ and so on, and occasionally as a dual marker or co-ordinating conjunction (Heine and Kuteva 2002, 219–226, 302–4).

²⁰ In this case, we could even compare the *-de* of **bade* > *bat* with the *-te* of Iberian **bors(te)**, as in Orduña 2011, 132.

²¹ In fact, the direct historical evidence for contact between the two languages is probably not enough to explain the borrowing, since it is effectively restricted to the southern fringes of early Basque (i.e., “Vasconian” and its interaction with Iberian in the Ebro valley and the southern Pyrenees), whereas the numbers are apparently found throughout Aquitanian (*Laurco*, *Borsei* etc.), as are the onomastic elements *Tautin-*, *Talsco-* etc. Since it seems unlikely—though perhaps not impossible—that influence on the Aquitanian language as a whole could have resulted from the historical contacts in the Ebro valley, a more plausible setting for the proposed borrowings is an earlier period of contact in north-east Spain or southern France (Ballester 2014, 80; Jordán 2015, 334).

²² If there really was enough contact between the two languages for the entire number system to be borrowed, there would certainly have been other borrowings as well, and the semantics of these words are a perfect fit for the contact situation. However, this would not work for the proposed comparisons involving verbs. If we accept a link between **ekien** and *egin* (or the more problematic comparisons of **take** and *dago*, **eban** and *eman* or *ipini*) it would favour the hypothesis of genetic relationship, since basic verbs like these are unlikely to be loanwords.

²³ Orduña 2005, 503 originally saw an argument for borrowing in the fact that two languages seem to form the higher numbers differently. However, he subsequently concluded that genetic relationship is actually the simplest explanation (Orduña 2011, 138), and points

instead, there is only the negative criterion that the Vascoiberian hypothesis is generally regarded as a proven failure. Ultimately, though, this historical baggage is not fair grounds for ruling out a genetic relationship: the verdict on the Vascoiberian question is always directly dependent on our knowledge of Iberian, which is at present very limited.²⁴ As this gradually increases, it is perfectly possible that the verdict could change: already, the Iberian numbers would disprove the claim that Basque is “of no assistance whatever in reading the Iberian texts.”²⁵ In fact, if we were dealing with any other two languages than Basque and Iberian, genetic relationship would almost certainly be the default hypothesis to explain the matches between the numbers.

A more specific objection is that the phonetic similarity of the numbers in the two languages is a problem for the theory of a genetic relationship, since if the two languages really were this closely related, we would expect to be able to get further with Iberian (*cf.* de Hoz 2011, 198). Orduña 2013, 518 attempts to counter this by noting that the numbers happen to have phonological structures which for the most part lack plosives other than /b/, and as such could have been less affected by the radical sound changes which are often posited for the other plosives in the historical development of Basque. This is a good point, but unfortunately, allowing for changes in the plosives does not suddenly provide us with any new breakthroughs in deciphering Iberian. In fact, though, the objection that we cannot read Iberian as well as we might expect is not actually a serious argument against a genetic relationship with Basque: the fact that Iberian has proved so hard to decipher is mostly due to the lack of good bilingual inscriptions.²⁶ It is worth comparing Indo-European *Trümmersprachen* such as Messapic and Thracian: the inscriptions are still generally unreadable, even though most of the words probably do have Indo-European etymologies. Likewise, progress in Lydian has been made not on the basis of the “lookalike” method, but from the one good bilingual and its consequences for identifying structures in other inscriptions. Furthermore, for these languages we have a whole family to compare, whereas for Iberian we only have Basque. As such, we have no way of knowing which elements of Basque are inherited and which are innovatory.²⁷ Thus, in attempting to compare Iberian with Basque we suffer from the two-fold disadvantage that we do not know what to look for, and because of the

out that in other languages, the system of forming higher numbers can vary from dialect to dialect, or indeed within a single variety (Orduña 2013, 526).

²⁴ *Cf.* Bloomfield’s sardonic comment that if you want to compare two languages, it helps if you know one of them.

²⁵ Trask 1995, 79, paraphrasing Tovar; *cf.* de Hoz 2011, 360.

²⁶ The complex agglutinative and apparently polysynthetic structure of Iberian does not help: if it had a simpler structure like Etruscan, progress would probably have been easier.

²⁷ The evidence from Aquitanian is invaluable, but does not let us bridge the problematic difference in time-depth discussed by Jordán 2015, 333: for example, we have no idea what the Aquitanian verb looked like.

lack of bilinguals, we do not know what to compare: there could well be dozens of good cognates hiding in plain sight.

The key to any credible attempt to compare Basque and Iberian is to start not from mere “lookalikes” such as *adin-* : *adin*,²⁸ but from the few Iberian words where we have internal evidence for their possible meanings.²⁹ In fact, when we look at this small set of Iberian words, a strikingly large percentage of them have potential matches in Basque (Rodríguez 2002a, 208). Of course, as Trask (1996, 113; 1997, 412-4) has shown, one can find dozens of matches for Basque words in Hungarian, English or any other language. However, in these cases we have the whole lexicon to play with, whereas for Iberian we only have evidence for the meaning of a handful of words. As such, any resemblance to semantically similar Basque words has much more significance. This was noted by Rodríguez (*loc. cit.*) even before the Iberian numbers were part of the dossier; with the numbers it becomes much more striking, even though we now also have more Iberian words with suggested meanings but without clear Basque comparanda (*e.g.* **baltußer**, **abardan**, **efiar**, **kaštaun**)³⁰ to add to the other side of the scales.

At the moment, it is not possible to demonstrate a genetic relationship, let alone to reconstruct a proto-language. However, this may simply be due to the limited material available.³¹ we only have two languages to work with, and for one of them, we only know the meanings of a handful of words. If our evidence for Indo-European was limited to Greek and Lycian, progress would be equally difficult. But in terms of how to proceed, the treatment for a dead horse is the same as for a live one: we should try to apply the comparative method to the small amount of useable data, and attempt to confirm and if possible extend the limited phonological and morphological corre-

²⁸ In fact, lookalikes still have a role to play, since if the two languages really are not just related, but related closely enough for the numbers to be instantly recognisable, many of these lookalikes will turn out to be correct, and may even lead to further progress in the rest of the language. However, given that attempts to decipher Iberian using the lookalike method as a primary tool have failed to convince the majority of scholars, it is best to put the lookalikes to one side for the moment, rather than merely replicating the work of these earlier efforts.

²⁹ A provisional list could include **seltar** ‘grave/gravestone’, **baikar** ‘cup/libation’, **egiar** ‘make’, **arē take** ‘here lies’, **šalir** ‘money’, **kitar** ‘weight unit’, **ars** (and perhaps also **ars**) ‘town’, **iltur** ‘town’, **iltir** ‘town’, **kaštaun** ‘spindle-whorl’, **baltußer** ‘vessel’, **efiar** ‘vessel’, **abardan** ‘kalathos vessel’, **abiner** ‘slave’. As discussed above, we can now add **ban** ‘one’, **erder** ‘half’, **šefkir** ‘sextans’, **abar** ‘ten’ and **ofkei** ‘twenty’. However, for the moment we should exclude cases where the contextual support is insufficient in itself and the comparison with Basque is already vital for the identification, such as **kutun** ‘writing’, **erir** ‘died’, **kalir** ‘corn’ and the more doubtful numbers such as **atun** ‘100’.

³⁰ The comparison of Iberian **kaštaun** with Basque *txaonda* in Silgo 2008, 143-4, is worth considering, but remains difficult. If such phonetic licenses are allowed, we could also compare **baltußer** with *eltze* ‘cooking pot’.

³¹ Of course, even a full decipherment of Iberian might not resolve the question: a genetic relationship is still controversial for other pairs such as Japanese and Korean, Quechuan and Aymaran, Hurro-Urartian and North-East-Caucasian, etc.

spondences which seem to be present in this material. The sibilant correspondence is an important part of the evidence, and we can proceed on the hypothesis that the same correspondence will apply in other words as well (cf. Michelena 1955, 278; Ferrer 2006, 136, n. 15; Faria 2016, 164-5). Of course, even if the correspondence is correct there may well turn out to be exceptions where it is not maintained:³² we already know that Basque and apparently also Iberian show some degree of alternation between sibilants, sometimes predictable and sometimes “random”. However, *a priori* and *ceteris paribus* we should favour comparisons which respect the correspondence, like **šalir** : *sari*, over those which violate it, such as **ařs** : *hertsı* (Rodríguez 2002b, 255), **seltar** : *seldor*³³ and so on.

The correspondence works in the suggested comparison of **-es** and **-esken** with the Basque instrumental and adverbial **-z** (Orduña 2011, 138; 2013, 520), and in **šalir** : *sari*, **seltar** : *zilho*, **šai** : *sai*, **saldu-** : *zaldi*, **sosin-** : *zezen* and **sakař-** : *zakur*. However, there are problems even with the best examples in this list,³⁴ and it soon descends into “lookalikes” that are little better than **ořor** : *otso* (Tolosa 2007) or **is** : *hitz* (Silgo 2009).³⁵ Also, it does not immediately lead to further, more impressive phonological correspondences. Thus, although the systematic sibilant correspondence in the numerals is a good sign, the wider comparison of Basque and Iberian will have to be left for another day, hopefully when there is more evidence to work with.

4. CONSEQUENCES FOR THE IBERIAN SIBILANTS

The apparent confirmation of the correspondence of Iberian **s** : **š** to Basque **z/tz** : **s/ts** has important implications for the phonetics of the Iberian sibilants. Previous treatments often favoured a “vertical” comparison with the rows and columns of the Basque phonological inventory, taking Iberian **s** : **š** as affricate versus sibilant (e.g. Rodríguez 2004b, 326; Silgo 2000, 512). However, the correspondence clearly suggests a “horizontal” difference of

³² Pérez Orozco 2007; 2009, seems to work with a model where the correspondence applies in initial position, but can be reversed in other positions. However, it is not clear whether there are any rules behind this.

³³ Antonio Beltrán’s suggestion, rejected by Tolosa 1996-1997, 120 and Oroz 1999, 501 on the grounds that *seldor* is merely a variant of *sendor*.

³⁴ For example, if **šalbitas** really is related to **šalir** (Rodríguez 2014, 188), it makes the comparison with *sari* more difficult), and for **seltar** ~ **siltar** : *zilo* (Tolosa 1996-1997) there is the problem of the variant *zulo*.

³⁵ The equation **šai** : *sai* was proposed by Faria 2008, 86 on the basis of a possible rebus on a quadrans of *Saetabi* (the same logic which took **iltif** to mean ‘wolf’), and the only evidence for the meanings of **saldu-** and **sosin-** is the possible menagerie noted by Rodríguez 2014, 209-10 in the series of personal names **saltutibaite**, **josintiba**[, **agirtibaš** and **bikVřti-baškV** (where **kV** is S45, the Meridional sign identical to Levantine **gi**). The comparison of **sakař** to *zakur* (Rodríguez 2014, 187) is equally tenuous, though certainly no worse than the alternative comparison to *zahar*.

point of articulation.³⁶ Of course, this does not rule out a “mixed” system involving both features: we could, for example, take Iberian **s** : **ś** as phonetically equivalent to Basque *tz* : *s* (which is precisely the system found in the Basque dialects which have merged the two series).

There are various possible pieces of evidence for affrication in Iberian. As noted by Correa 2001, the Grecoiberian use of *tau ionicum* is suggestive,³⁷ as is the rendering of the *tau gallicum* as **s** in *tesile* and *asedile* (and possibly also as **ś** in *uaśile*,]+*uaśel*[: de Hoz 2011, 245).³⁸ The alternation of **iunstr** and **iunsir** is also interesting.³⁹ However, all of this is outweighed by the fact that in stark contrast to Aquitanian, where the presence of affricates is immediately obvious, renderings of Iberian names in Greek and Latin show very little evidence for affricates.⁴⁰ The only good example is OR[D]VNETSI, and it is surely no coincidence that this is from Muez in Navarra: in other words, it is Vasconised (Fernández 2009, 534). This suggests that Iberian did not exhibit phonetic affrication, neither as part of the opposition **s** : **ś**, nor “within” either of these as we find in Basque.

If we accept that the correspondence from the numbers points to a difference of point of articulation, the default hypothesis would be an opposition of laminal /s/ versus apical /s̺/ as we find in Basque (as endorsed by de Hoz 2003 even before the evidence from the numbers, and without Michelena’s lexical equations either, but on purely phonological grounds). However, this is by no means the only possibility. Cross-linguistically this is a very rare system,⁴¹ and we cannot even be certain that it was present in early

³⁶ As such, it also seems to rule out the occasional suggestion that **s** : **ś** could be voiceless vs. voiced (Velaza 1996, 41), or voiced vs. voiceless (Jordán 1998, 25; Moncunill 2007, 40). The latter was intended to tie in with Celtiberian, but never seemed very likely for Iberian itself (cf. Ballester 2001a, 298; de Hoz 2011, 244): if the difference really was one of voicing, we might expect Grecoiberian to use *zeta* for the voiced sibilant (Rodríguez 2004b, 322). We would also expect to find more evidence for a complementary distribution within Iberian itself, but apart from the enigmatic pair *iunstr* *iusdir* (discussed below), there is no sign of such a distribution.

³⁷ De Hoz 2011, 251 suggests that this special Ionic letter could have retained its affricate value in its name (e.g. *τσει̯) long after the language itself had deaffricated the sequence to -σσ-. This is contentious, and would not fit with the account of *tau ionicum* in Willi 2008, but cannot be ruled out.

³⁸ And, indeed, of Gaulish -χs- as **ś** in *lituriś*, *auetiriś*, *gartiriś*, *ośiobarenñi* (Correa 1993, 105).

³⁹ This is helpfully pointed out to me by an anonymous reviewer. However, the suggestion that Iberian **st** and **št** might sometimes represent monophonemic affricates (e.g. Orduña 2005, 492) is hard to evaluate, since these sequences otherwise appear to be genuine clusters.

⁴⁰ Of course, even if forms such as **-bels** and **-beleś** did contain affricates, it would be understandable that they are not reflected in Latin *Adimels* and Greek Ἀνδοβάλλης. However, the contrast with Aquitanian remains striking.

⁴¹ The alleged parallels (e.g. in Alonso-Cortés 1993, 98; de Hoz 2011, 249) mostly prove to have more common systems such as /s s̺/, /s s̺ f/ or even just /s f/. However, it seems that the opposition was areally common in California (Bright 1978, 35-7; Campbell 1997, 427-8), and apparently also in medieval Europe (Joos 1952; Adams 1975; Trask 1998, 317).

Basque. The modern Basque system is not just $z s / \zeta \xi /$ but $z s x / \zeta \xi \jmath /$, which is a “crowded” system.⁴² As such, it is worth wondering, as Michelena already did,⁴³ whether the new phonemes $/\jmath/$ and $/t\jmath/$ could have acted as a “push rod”, and whether the earlier system could have been something less unusual such as $/s \jmath/$ or $/s \xi/$.⁴⁴

The first thing to note is that the difference between these three systems $/\zeta \xi /$, $/s \xi /$ and $/s \jmath /$ is not as clear-cut as it appears. There is a phonetic continuum of “retracted sibilants” between $[\xi]$ and $[\xi]$,⁴⁵ and although Basque s and ts are apical alveolars in the standard language,⁴⁶ the eastern dialects show a more retracted, postalveolar articulation⁴⁷ that would fit most phoneticians’ definition of a retroflex.⁴⁸ There is even a similar problem for the

Mirandese and the adjacent dialects of Portuguese and Galician that have preserved the medieval opposition of three points of articulation for sibilants have either $/\zeta \xi \jmath /$ or $/\xi \xi \jmath /$ (Alonso-Cortés *loc. cit.*; Ferreira *et al.* 2014, 88). The published descriptions of the Californian languages are often not sufficient to distinguish between $/\xi \xi /$, $/\zeta \xi /$ and $/s \xi /$, but we can mention Kato (Goddard 1912) and Yawelmani (Archangeli 1984) with $/\xi \xi /$, Karok (Bright 1957) with $/\xi \xi \jmath /$, and Serrano (Hill 1967, 3-4) with $/\zeta \xi \jmath /$. Another cluster is in British Columbia, where Saanich (Montler 1986) and Chilcotin (Cook 1993) have variations on $/\xi \xi \jmath /$. According to the data from Staudacher-Valliamée 1992 presented in the PHOIBLE database, Réunion French Creole has a four-term system $/\zeta \xi \zeta \xi /$.

⁴² Such systems are generally the result of secondary developments, and often prove to be unstable. Classic examples of crowded three-way systems of sibilants and affricates are Mandarin, Polish and indeed the Western Iberian Romance languages, where the medieval system $/\zeta \xi \jmath /$ resulting from the deaffrication of $/t\zeta /$ survives only in a small region of the north-west, and has elsewhere been “de-crowded”, with the laminal sibilant either merging with $/\jmath /$ or shifting to the non-sibilant $/\theta /$.

⁴³ Michelena 1985, 281, following Jungemann; cf. Rodríguez 2004a, 144.

⁴⁴ As discussed below, the evidence of Latin *thieldones*—if this really is a Vasconian word related to Basque *zaldi*—could indicate that Basque $z s$ were already $/\zeta \xi /$ in the Roman period. However, Aquitanian *Xembus*, *Xembesus*, *Xalinus* (v.l. *Xalinis*) and *Xuban* suggest that the palatal series may already have been present (Gorrochategui 2003, 34-5), in which case the putative push rod would already have done its work.

⁴⁵ Kümmel 2007, 27 distinguishes three points on the continuum from $[\xi]$ to $[\xi]$: apical alveolar $[\xi]$, apical postalveolar $[\xi]$ (with a corresponding “shibilant” denoted by \jmath with the apical diacritic) and subapical-retroflex $[\xi]$. However, as Ladefoged and Maddieson 1996, 155, point out, “there are no absolute landmarks in the vocal tract.” This is why, in his discussion of the Californian languages which the UPSID database lists as having oppositions of either $/\zeta \xi /$ (Karok, Diegueño) or $/\xi \xi /$ (Luiseño), Bright 1978, 37, does not distinguish between the two, preferring to speak more generally of a contrast between a “normal” and a “retracted” sibilant.

⁴⁶ They are often described as retroflex in the literature (e.g. Maddieson 1984, 419), but Trask 1997, 84, and others have strongly criticised the use of this label. Attempts to recast the Basque system as $/s \epsilon \jmath /$ (i.e. $s z x$), as in van der Weijer 1992, 131, seem equally misguided.

⁴⁷ Michelena 1985, 279n1; Trask 1997, 84; Hualde 2003, 22.

⁴⁸ Even for plosives, “retroflex” consonants are often merely postalveolar apicals as in Hindi, rather than true curled subapicals as in Tamil. For the sibilants, genuine subapicals are extremely rare or perhaps even non-existent (Hamann 2004, 54-6, although the example from Toda clearly comes pretty close, especially since it contrasts with a postalveolar apical). As such, unless we are prepared to give up the term “retroflex sibilant” altogether (at least, for

distinction between retroflex and palatal sibilants: for example, in several of the Californian languages with a system /ʂ ʂ/ or /s ʂ/, the “retracted” one alternates allophonically with a palatal [ʃ].⁴⁹ As Rodríguez 2004b, 325-6, points out, the evidence for a cross-linguistic connection between the two sounds could be significant for the earlier stages of the Basque system and its relationship to Iberian. However, it also makes it more difficult to decide between the various possibilities.

For the synchronic situation in Iberian, there are various pieces of evidence that could support a system /s ʃ/, as endorsed by Ballester 2001a, 301; 2001b, 25; 2014, 67. One is the fact that the semisyllabaries use signs which go back to Phoenician *samekh* and (probably) *shin*,⁵⁰ while another is the claim by Pérez 2009, 260, that the same two signs are also used consistently for **s** : **ś** in renderings of Iberian placenames in Punic and Libyophoenician coin legends. However, Pérez’s examples are doubtful (the readings are idiosyncratic, and there is no proof that *Urso* really does contain Iberian **ś**), and the evidence from the semisyllabaries is equally inconclusive, since the creators of the first Paleohispanic script were probably not Iberians: the transmission from Phoenician to Iberian was probably second- or even third-hand, so we cannot assume that the phonetic values of the Phoenician letters are a reliable clue for their values in Iberian. In any case, the values of *samekh* and *shin* in Phoenician have been questioned in recent years: some scholars have proposed that they were not /s ʃ/ but /ts ʃ/.⁵¹

A more promising argument is the hypothesis in Ballester 2001a, 301, that **ibeis** > **ibeś** represents [eis] > [eʃ], a phonetically straightforward development with parallels in many languages.⁵² Nevertheless, we cannot be certain that **ibeis** **ibeś** and **leis** **leś** really do represent a development **eis** > **eś**: Rodríguez 2004b, 320, proposes the opposite development **ibeś** > **ibeis**, which he compares to **beleś** > **bels**. These pairs are actually very difficult to interpret: as Ballester 2001a, 297-8, points out, **beleś** and **bels** could well be two different roots.⁵³ It seems clearer that *iunstir iustir iunśtir iuśdir* are variants of a single form, but the details of the variation remain puzzling.

languages other than Toda), the definition has to include the postalveolar apicals found in these eastern dialects of Basque.

⁴⁹ E.g. Wiyot, Kitanemuk, Mutsun and Diegueño (Bright 1978, 37); cf. Merrill 2008, 109 for Tilquiapan Zapotec.

⁵⁰ Rodríguez 2004b, 62-3; the alternative is that **ś** derives from *tsade*. Incidentally, I see no reason to think that Levantine **s** was borrowed from Greek *sigma* (e.g. de Hoz 2011, 203, 206): the development from Meridional **s** seems straightforward (Rodríguez 2004b, 85).

⁵¹ E.g. Hackett 2008, 86-7; cf. Kümmel 2007, 337-343. Interestingly, this would correspond precisely to the original values of the *tau ionicum* and *sigma* of the Grecoiberian alphabet. However, given that the transmission of writing from Phoenician to Iberian seems to be indirect, this could just be a coincidence.

⁵² Cf. the Basque development *aiz* > *ax*, *oiz* > *ox* in Biscayan *baxen*, *nox* etc.

⁵³ Vascoiberists invariably identify **bels** with Basque *beltz* ‘black’, but **beleś** has also been compared to *belatz* ‘hawk’ (Pérez 2007, 104) and *beratz* ‘soft’ (Vidal 2011, 331).

However, it is undeniable that **nś**, **lś** and **rś** are extremely rare in Iberian, so there does indeed seem to be some kind of neutralisation at work. Ballester 2001a, 300, takes this as a further support for the value [ʃ], but in fact it is equally compatible with a system /s̺ s̺/, since the corresponding sequences *n(t)s*, *l(t)s* and *r(t)s* are equally rare in Basque.⁵⁴ The connection was already made by Michelena 1985, 365, who takes **beleś** **bels** as part of the same phenomenon; it would presumably be due to the same universal articulatory tendencies which led Biscayan Basque to merge *tz ts z s* as *tz s* [t̺s̺]. Thus, we could imagine a process *Rś > Rs in Iberian (Rodríguez 2004b, 325-6), exactly parallel to the process *Rs > Rz proposed for Basque by Juliette Blevins (p.c.).⁵⁵ In fact, even Ballester's **ibeis** > **ibeś** could be equally compatible with /s̺ s̺/ or /s s̺/, since alongside the examples of [is] > [iʃ] presented in Kümmel 2007, 233, there are others where it gives an apical postalveolar.⁵⁶

So far, then, the evidence does not point specifically in favour of any different values for the Iberian sibilants, but always seems equally compatible with a system /s̺ s̺/. Furthermore, there are additional pieces of evidence which seem to fit best with such a system (especially once we include the evidence from the numbers, which would rule out some of the earlier suggestions). One telling sign is the fact that Grecoiberian uses *sigma* to represent Iberian ś. If the system was /s f/ or /s s̺/, we would expect the 'default' sibilant of Greek to be used for the former rather than the latter. However, if the system was /s̺ s̺/, the situation is different. As noted by de Hoz 2011, 249-50, the ancient Greek sibilant was probably apical, just as it is in modern Greek;⁵⁷ this would explain why the Grecoiberian script used *sigma* for /s̺/.⁵⁸ Another important observation made by de Hoz is that in the pair /ts s/, the affricate tends to be laminal, giving the realisation *tz s* [t̺s̺] that we find in Biscayan Basque. As he points out, this may well have been the case for Gaulish, which would explain the spellings *tesile* etc. Given that this is a

⁵⁴ There is still the problematic question of why **rś** is apparently avoided while **řś** **rs** **řs** are common. If **r** was /r/ but **ř** was something else, for example an uvular /ʁ/, the parallel with Basque would still apply; however, all the evidence indicates that **ř** was the "normal" rhotic.

⁵⁵ Another match with Basque would be the fact that ś is rarer than s in absolute terms, but is relatively common before a plosive: Quintanilla 1998, 258; Rodríguez 2004b, 250-2.

⁵⁶ Namely, in the Slavic and Indic versions of the 'ruki rule' (a parallel also noted by Rodríguez 2004b, 324-5).

⁵⁷ As in many varieties of Spanish, the modern Greek sibilant is apical and slightly retracted, with the result that it sounds "in-between *s* and *sh*" to English speakers. Cf. Vijiñas 2010, 49, n. 23: "if a language possesses a single sibilant, it is often a retracted [ʃ]."

⁵⁸ De Hoz goes on to claim that Latin speakers perceived Iberian s as the 'regular' sibilant, due to the fact that the Latin sibilant was not apical but laminal (as seen in its regular reflex *z/tz* in Basque *gorputz*, *gatzelu*, etc.). However, it is actually not at all clear that there is any distinction between the Iberian sibilants in Latin renderings: the supposed pattern **s** : *S*, ś : *S* ~ *SS* may well be illusory. Just as the renderings of Aquitanian names in Latin inscriptions make no distinction between laminal and apical, it seems plausible that Greek and Latin renderings of the Iberian sibilants actually treat both of them identically as (*S*)*S* or (σ)σ. The Grecoiberian script is an entirely different matter, since this is a native orthography.

universal phonetic tendency, it may well have also been the case for Greek (if the *tau ionicum* really was still an affricate),⁵⁹ and perhaps even Phoenician, if we accept the revised values of *samekh* and *shin*.

Positing the values /ʃ ʒ/ for the Iberian sibilants therefore seems to fit well with their interactions with Gaulish, Greek and possibly even Phoenician. It also fits neatly with Celtiberian, where we can now observe that the connection between Iberian *s* and Celtiberian *z/đ* is nothing to do with voicing, but rather, with the laminal quality of both sounds: in other words, the relationship between [ʃ] ~ [ʒ] and [θ] ~ [ð] that is familiar from the history of Spanish, where the historical development /tʃ ʒ/ > /ʃ ʒ/ > /θ ʒ/ seen in *cede* : *sede* is a well-attested “decay chain”.⁶⁰

A further clue comes from the folk-etymological connection of *arse* with *Ardea*. Assuming that this is not merely based on *ardeo arsus*, it implies a phonetic similarity between the two clusters; as already seen by Ballester 2001a, 299, the connection is best explained on the basis that *Ardea* was already pronounced as [ˈarðja] (or, less likely, [ˈardʒja]). This would be directly comparable to the rendering of Vasconian *ʃald- in the Latin loanword *thieldones*, suggesting that the sibilant of Iberian *arse* was also laminal.

The theory that the Iberian sibilants were /ʃ ʒ/ cannot solve every problem. It does not explain why *śa* is so much more common than *śe śi śo śu*,⁶¹ or why *rś* is so much rarer than *rś rs rś*. Another puzzle is the series *iunstir iumstir iunstir iusdir iustir iunsir unsir iunsr*, which is unique in showing several different parameters of variation. In theory, any or all of them could be contrastive,⁶² at the other extreme, all the variation could be purely graphical.⁶³ The true answer is probably somewhere in between: they probably do

⁵⁹ In fact, Ionic /ts/ > /ss/ could have remained laminal even after the deaffrication (we can compare Irish, where the opposition of *fortis* vs. *lenis* nasals and laterals survives as lamino-dental vs. apico-alveolar in several dialects). Thus, we could retain the connection without the need for the contentious idea that the relevant variety of Ionic must still have had an affricate (if only in the letter-name of the *tau ionicum*) when the Grecoiberian alphabet was created.

⁶⁰ It is common for an opposition of /ʃ ʒ/ to be recharacterised as /θ ʒ/ “durch maximale Differenzierung”, as discussed in Kümmel 2007, 195-6. He lists various examples from Indo-European, Semitic and Uralic languages; we can also note that this development of /ʃ ʒ/ or /ʃ ʒ/ to /θ ʒ/ was in progress in Karok and Central Sierra Miwok, and completed in Mojave and “the Highland Yuman languages of Arizona” (Bright 1957, 8; 1978, 46).

⁶¹ Correa 2001, 206. The “práctica ausencia de *śe y *śi” noted by Rodríguez 2004b, 325, is overstated: *śo* and *śu* are actually rarer. In fact, it might be possible to take the prevalence of *śa* as a support for the idea that *ś* was retracted: something vaguely similar is attested in the Chilcotin language, where vowels are “flattened” after a retracted sibilant (Cook 1993; Campbell 1997, 427). However, ultimately all we can say is that the skewed distribution of *śa śe śi śo śu* is a synchronic fact whose significance and origins are impossible to ascertain.

⁶² For example, in the Brazilian Terêna language (Ohala’s “Tereno”), the 1sg. is indicated by a nasalisation prosody: *iso* ‘he hoed’ vs. *ĩʷzo* ‘I hoed’, *owoku* ‘his house’ vs. *õwõʷgu* ‘my house’ (Ohala 1993, 164).

⁶³ Most of the individual alternations found for *iunstir* have parallels elsewhere in Iberian. Furthermore, the more common a sequence is within the Iberian corpus, the more likely

represent the same word-form,⁶⁴ but there is probably also some genuine phonological variation, comparable to that seen in Basque *bortz bost*. However, it is still unclear whether there is any meaningful distribution,⁶⁵ or any correlation between the different alternations. The idea that *iunstir iunstir* represents a process *nś > ns* seems plausible, given the possible parallel with *beleś bels* (Rodríguez 2004b, 243, 317, 325); the apparent correlation of *st* and *śd* in *iunstir iuśdir* noted by Ferrer (2006, 156; 2010, 91n76; 2016, 21) is even more interesting, but so far lacks a good explanation.⁶⁶

Another potential problem is that the Iberian sibilants are generally distinguished so consistently, when the difference between / ζ ζ / is “una distinción poco visible” (de Hoz 2011, 249), particularly for non-native speakers,⁶⁷ and even within Basque shows numerous alternations and neutralisations. However, this is not conclusive evidence in favour of a different system, and the proposed values / ζ ζ / generally do seem to account for the various pieces of evidence more successfully than the alternatives. Cross-linguistically it is a rare system, but it is typical of unusual typological features to be globally rare but locally commonplace: an opposition / ζ ζ / may well have been widespread in pre-Indo-European Western Europe, just as it apparently was in the native languages of California.

5. HOW MANY SIBILANT PHONEMES DID IBERIAN HAVE?

In the proposed correspondence of Iberian *s* : *ś* to Basque *z/tz* : *s/ts*, the four phonemes of Basque correspond to only two graphemes in Iberian. If we believe that the two languages are descended from a common ancestor, the two sibilant(/affricate) systems must also ultimately go back to a single original system. There are various possible scenarios: for example, the two Iberian graphemes could conceal a more complex system of four phonemes, or the four Basque phonemes could be a development from an earlier two-term system. Both of these theories already exist: the connection with Basque was already part of the argument for the first (e.g. in Michelena 1955; Pérez 2007), but the second was proposed by Lakarra on entirely in-

it is to show variation (especially variation of voicing in semisyllabic texts, e.g. *baides baites*, *egiar ekiar*, which could just be due to the inconsistent use of the dual system).

⁶⁴ This is not necessarily true for the last three variants: as Rodríguez 2004b, 276, 286, points out, the fact that *iunsir* occurs alongside *iunstir* in F.9.7 suggests that the forms without *t/d* may be morphologically different from the others.

⁶⁵ Rodríguez 2004b, 277-8 identifies some possible geographical/dialectal differences.

⁶⁶ The first step is to rule out mere coincidence. The pattern is not quite as striking as it appears from the dossier in Ferrer 2016, 21: not all the examples of *iuśdir* are secure, and his *iunśdir* in G.15.1 is better read as *iunstir* (as in Ferrer 2010, 91). Nevertheless, the correlation does seem likely to be genuine.

⁶⁷ As such, this would be a particular problem if we subscribe to the theory that Iberian was a regional *lingua franca* used by native speakers and non-native speakers alike.

dependent grounds (e.g. Lakarra 2013, 198). Either way, the correspondence clearly opens new avenues for the study of both languages.

A good starting-point is to reassess the situation in Iberian, beginning with the question of how many sibilants it possessed. The proposals for four phonemes are generally based more on the comparison with Basque than on any compelling internal evidence, but given how many other phonological features Basque shares with Iberian,⁶⁸ it is a possibility worth considering. De Hoz 2011, 251 gives three arguments against the theory of a four-term system for Iberian: firstly, that the Grecoiberian script, which is usually taken as a near-ideal phonemic alphabet, only has two signs (cf. Rodríguez 2004b, 297); secondly, that Aquitanian marks the distinction between sibilant and affricate but conflates the two points of articulation, while Iberian would follow the opposite priority; and finally, that the dual system for plosives in the Levantine semisyllabary does not extend to the sibilants.

The first point is a fair objection: if the creators of the Grecoiberian script had felt the need for four graphemes, they could have added *zeta* and *xi*, or employed diacritics as with *ř* and *r*. However, we cannot assume that Grecoiberian is always perfect: in this respect it could be defective. The second point is less compelling, since the situation in Aquitanian is different: there is no native Aquitanian orthography, only renderings in Latin inscriptions. As such, it is natural that they only marked distinctions which were salient in the Latin system. The Iberian scripts reflect an indigenous phonological perspective, with different priorities; also, if the two proposed phonemes at each point of articulation were subject to alternation and positional neutralisation as they are in Basque (e.g. *gatz gazi*, *hitz hizlari*, *hots hoslari*), it would be even more natural that Iberian would treat the difference in point of articulation as more important.

The third point is more interesting, since Ferrer 2010; 2013; 2015, proposes that the *two* dual systems of the Iberian semisyllabaries actually *did* mark oppositions within the sibilants, for *s* in Levantine and *ś* in Meridional. Of course, even if we accept this, the difference might turn out to be non-phonemic. But if Iberian really did have four sibilant phonemes, and if Ferrer's dual systems for sibilants are correct, it is clearly more likely that they marked these otherwise hidden contrasts, rather than some other non-contrastive opposition. To investigate the question further, we need to decide whether Ferrer's proposed dual systems are genuine, whether they are phonologically contrastive, and whether we can discern anything about the probable phonetics of the alleged contrasts.

6. SIBILANT DUAL SYSTEMS: FOUR SIBILANTS, OR THREE?

In Ferrer's proposal, each semisyllabary shows an opposition in only one of its sibilants:

⁶⁸ Ballester 2001b, 23-7.

Grecoiberian	Levantine script	Meridional script
s	s š	s
ś	š	š ś

He draws the reasonable conclusion that this attests to a four-term system, where each script would be partially defective (or even, perhaps, with dialectal neutralisation). In fact, since each semisyllabary would have a total of three sibilant signs, we could also consider the possibility that Iberian had a three-term system, and that both scripts independently developed a means of differentiating the third sibilant, each picking a different sign to split.⁶⁹ This would make a certain amount of sense if Iberian had a system like Basque, where the secondary phoneme *x* alternates with both *z* and *s* (for example in *gozo goxo*, *basaran baxaran*). However, the parallel with the other dual pairs suggests that the variants probably do belong together, making a four-term system more likely. In theory, this should be relatively easy to demonstrate, just as it is for the other dual pairs, but as we will see, the material is either too limited (in the Southern script) or too problematic (in the Northern script). Nevertheless, we can say that as far as we can tell—which, unfortunately, is not very far at all—there is no evidence that the pairs do not belong together.

7. SIBILANT DUAL SYSTEMS: MERIDIONAL

For the Meridional script, the proposed dual system clearly seems to be genuine, since in three cases—the Gádor lead H.1.1, the stele from Castulo (Cabrero 1994) and the La Carencia 1 lead text (Velaza 2013)—we find both *ś* and *š* in a single inscription.⁷⁰ As with the Meridional marked grapheme *ge*, it seems likely that the marked variant *š* is contrastive wherever it appears, even when there are no examples of *ś* in the same text. As such, we can add hand 2 of G.7.2 (i.e., the long text on side A) to our corpus, and probably also the Castulo coin legend.⁷¹ However, for texts which only con-

⁶⁹ As a hypothetical parallel, we can imagine a language with high vowels /i i u/, where one orthographic tradition wrote /i/ as *i* or *í*, and another wrote it as *u* or *u* (cf. Latin *optimus* / *optumus*).

⁷⁰ Both variants appear on the Mogente lead G.7.2, but according to Untermann this text is by three different hands: the long text on side A (hand 2) only shows *š*, and the others only show *ś*. In fact, even the opposition of *ś* and *š* in H.1.1 is not entirely secure: Ferrer 2010, 104 notes that *baśtibilos* could actually be *baštibilos*, since corrosion in the field of the *ś* means that we cannot tell whether there was a dot here. This is a good illustration of the fact that the study of Meridional dual variants ultimately requires personal inspection of the texts themselves: photographs and drawings are not sufficient, since even the best drawings of the Gádor and Mogente lead texts did not get all the dots and dashes right.

⁷¹ The Castulo coin legend is the one place where mere “calligraphic elaboration” seems more plausible, especially since it shows variation between *š* and *ś*. However, the unmarked variant is apparently restricted to late semisses with orthograde inscriptions: in the earlier issues, the marked variant is universal.

tain the unmarked variant, we face the familiar problem of not being able to tell whether they use the dual system or not. The presence of other dual pairs in the same text is no guarantee, since it is not clear whether the Meridional dual system always comes as a “full set”.⁷² For this reason, texts which only contain unmarked *ś* have been excluded from the corpus.

The resulting corpus of five texts contains the following forms: A.97 *kašdilo*, G.7.2 A *bankišařikaň*, H.1.1 *baštibilos*, *aΣštarioňΣbi*, Castulo stele *kabikojš*, *aštigiřosta*, La Carencia 1 *balkešira*, *balkešire*, *ikořbaš*, *iuštir*, +*šatiřa*], *šilekov*+[.⁷³ In almost every case there are uncertainties in the readings,⁷⁴ but even from this small corpus we can see a contrast between *ś* and *š* in final position in *ikořbaš* versus *kabikojš* (and also *bankiš*, if we posit a word boundary in *bankiš ařikaň*), and before a dental in *aštigiřosta*, *baštibilos*, *iuštir* versus *aΣštarioňΣbi*, *kašdilo*. Unfortunately, the voicing of the dentals in these forms is problematic,⁷⁵ making it difficult to tell whether there might be a complementary distribution of *št* and *šd* as suggested by Ferrer 2010, 91n75.

8. SIBILANT DUAL SYSTEMS: LEVANTINE

Ferrer’s dual system for the Levantine sibilants is much more problematic, for purely graphical reasons. The proposed distinction between unmarked *s* and marked *š* is the presence of one or more extra “bars” in the *sigma*, but compared to the extra stroke or dot of Meridional *š* this is far more likely to be accidental, just as it clearly is in the corresponding sign *z* in the Celtiberian lead text from Iniesta, which shows free variation between 4-, 5- and 6-bar forms. As such, even if we accept the dual system on the basis of the Castellet de Bernabé text F.13.77]+*óoštodoáll*+[—which itself is by no means straightforward⁷⁶—we face the problem that the evidence

⁷² Side B of the Mogente lead text uses a dual system for the plosives and *ř*, but only shows unmarked forms of *ś* and *n*, while the La Carencia lead text apparently shows dual forms only for *ś* and a few of the plosives, but not for *ř* or *n*.

⁷³ The sign transcribed here as *kV* is S45 (Ferrer’s *ké*), the sign identical to Levantine *gi*. The transcriptions *ň* and *ř* follow Ferrer 2010.

⁷⁴ An additional inconvenience is that the published transcriptions of the La Carencia 1 text are unreliable; the readings in Sabaté 2016, 49-50 are superior but still not perfect (he leaves uncorrected the three examples of *o* on side A, where it seems that Meridional *te* has accidentally been given a Levantine reading).

⁷⁵ *Kašdilo* is risky, but the apparent counterevidence from CASTVLO and CASTLOSAIC is actually inconclusive, since we would not expect SD in Latin spellings (Quintanilla 1998, 277). *Iuštir* is also uncertain, since it relies on the view of Velaza 2013, 541 that the dual-system marking of the pair *ti* : *di* in the La Carencia 1 text is more or less the reverse of that found elsewhere. Ferrer 2016, 21 defends the reading *iušdir* on the basis of its recurrence in Levantine texts, most clearly in F.17.2, but Velaza’s values seem to work better for the other examples in the text (e.g. *orđi-*, *anabedi*).

⁷⁶ Until the discovery of the Tos Pelat text (Burriel *et al.* 2011), it seemed more likely that the painter of F.13.77 was merely doubling the non-syllabic signs to match the pair *to do*, creating pseudo-distinctions for *ó o ś s* where there was already graphical variation that could

from the other inscriptions in Ferrer's corpus (2015, 338-9) is always open to question, even when both variants are found in a single text.⁷⁷

This leaves us with a frustrating conclusion: both the Iberian semisyllabaries really do seem to show occasional graphical contrasts within one of their sibilants, but for the Levantine version the evidence is effectively unusable. The evidence from the Meridional script is much clearer, and even suggests that *ś* and *š* were contrastive, but the sample is extremely small, and as with much of the Meridional corpus, it is not even certain that forms such as *kabikoš* and *kašdilo* are Iberian.

9. POSSIBLE PHONETIC INTERPRETATIONS

The phonetic difference between Meridional *ś* and *š* is difficult to identify. In theory, it is possible that the principle of the dual system was extended to represent any difference that seemed worth representing, whether or not this was phonetically comparable to the opposition marked in the plosives. For example, the alleged dual system in the Levantine vowels would clearly be something very different. However, the fact that Meridional bothers to use the dual system for *ś* : *š* to represent a difference that is apparently purely allophonic (Ferrer 2010, 99-100) could be a sign that the dual system marks a similar phonetic distinction in each case, even when this was non-contrastive. The default hypothesis would be a difference of voice (Ferrer 2010, 104), but this seems unlikely for *n* : *ñ* and *ś* : *š*, and it is often suggested that even the plosives might be better characterised as *lenis* : *fortis* rather than merely voiced : voiceless.⁷⁸ In Meridional, the marked variants would denote the *lenes* plosives, and it is interesting to note that marked Meridional *š* is restricted to intervocalic position, which is the prototypical leniting envi-

be pressed into service, but simply writing *a* twice. The evidence of Tos Pelat led Ferrer to change his mind, but is equally problematic, not least because the subtle graphical distinction which he identifies for *á a* in both texts (Ferrer 2013, 450; 2015, 334) is very hard to perceive. If these two graphemes really are contrastive, it is baffling that the writers of these inscriptions did not make more of an effort to differentiate them. Nevertheless, Tos Pelat clearly does show a graphical distinction in e.g. *ś š*, and it is also worth noting that several of the sign-forms in these two texts are generally never found as mere graphical variants, but are contrastive wherever they appear (e.g. F.13.77 *ś* and the “hyper-unmarked” form of *do* with only two verticals). This leads us to the somewhat reluctant conclusion that the dual system for Levantine *s* may be genuine after all.

⁷⁷ Also, there are often additional problems. For example, in F.13.22 *uniš[ke]ldegiar* : *kinsi* the difference between the sibilant graphemes could just be due to the way the inscription curves around the decorations on the vase (and in any case, variation in the form of *s* is already more common in painted texts, where the *ductus* is more fluid and *s* tends to be a wavy line with many more bars than in carved or incised inscriptions). The lead text F.6.1, which famously appears to distinguish three variants for the plosives—Untermann's *ke k'e k''e*, *ki k'i k''i*—has one 5-bar *s* and a mix of regular and reversed 4-bar forms, but it also has both regular and reversed *ki*, and variation between *baides* and *baites*. These multiple graphical vacillations suggest that there may also be no system behind its different forms of *s*.

⁷⁸ E.g. de Hoz 2011, 225-6; Orduña 2013, 518.

ronment. Thus, it seems plausible that *ř* likewise denotes phonetic (although in this case, non-contrastive) lenition to a tap or approximant.⁷⁹

If *ś* : *š* really does mark a *fortis* : *lenis* opposition, the cross-linguistic parallels can help to narrow down the possibilities. A typical system is [s:] vs. [s ~ z], often accompanied by indirect markers such as induced changes in the quality or length of an adjacent vowel. *Fortes* sibilants are occasionally glottalised or even aspirated; there are fewer parallels for the affricate : sibilant opposition found in Basque,⁸⁰ but given the numerous similarities between Basque and Iberian phonology, this is clearly a possibility that cannot be discounted. However, it ultimately seems unlikely for Iberian, since we would expect to find traces in the renderings of Iberian names in other languages. Voicing is more plausible, since both Greek and Latin may simply have rendered voiced sibilants with *sigma* or *S*, and an opposition of tension or duration would also fit well, since it would be impossible to render in Greek or Latin in initial or coda position (de Hoz 2011, 243), and might even be the reason behind the occasional intervocalic geminates in placenames such as *Kίσσα*, *Iesso*, *Cessetania* and *Bassi*.⁸¹

10. CONCLUSIONS

Our investigation has concluded that the identification of the Iberian numbers now seems increasingly plausible, and that we can agree with Ferrer i Jané and now also Orduña 2011, 138, that a genetic relationship between Iberian and Basque may actually be the most likely explanation for the

⁷⁹ Allophonic lenition of intervocalic /r/ is fairly common, e.g. in Polish, Jersey French, northern Italian dialects (Kümmel 2007, 82) and Farsi (Ladefoged and Maddieson 1996, 216). Ferrer 2010, 102, suggests the opposite values, where *ř* would be a (*fortis*) trill and *ś* a (*lenis*) tap, but this would lose the symmetry proposed above. Incidentally, since Meridional *ś* : *ř* seems to be non-contrastive, Ferrer's proposed connection with Levantine *ś* : *ř* remains uncertain, and it would be safer to transliterate the alleged Levantine opposition as, say, *ś* : *ř̄*. A dialectal difference between southern and northern Iberian would not be a problem, since the parallels from Zapotec and other languages (e.g. Trique: DiCano 2012) show that there is often variation from dialect to dialect in which phonemes take part in the *fortis* : *lenis* opposition, especially for sonorants.

⁸⁰ This is typically only found as an allophonic realisation of underlying *fortis* affricate : *lenis* affricate pairs, e.g. [dz:] vs. [dz ~ z] in Mono Lake Northern Paiute (Babel *et al.* 2012, 236) and [tʃ] vs. [dʒ ~ ʒ] in Zapotec (Leander 2008, 31). However, it is broadly comparable to the other typical cross-linguistic realisations of *fortis* : *lenis* pairs such as plosive vs. lenited fricative and complete closure vs. incomplete closure. We can also compare Hungarian *z: > dz (Kümmel 2007, 151), and the development *n*: > *dn* seen in the Cornish placenames *Pedn Vounder*, *Tol Pedn*.

⁸¹ The possible complementary distribution *śt* versus *śd* would make sense under either interpretation, since the plosives themselves may be *fortis* : *lenis* rather than voiceless : voiced. The evidence for “voiced” stops after sibilants is not entirely straightforward: although Iberian contains various examples of *-sd-* *-śd-* *-sg-* *-śg-*, they often contain a clear morpheme boundary, suggesting that they could just be morphological spellings like Basque *itsasgizon* ‘sailor’ instead of **itsaskizon*. However, it is equally possible that there really are genuine oppositions, e.g. in G.1.1 *boistingisidid*.

matches. This has important consequences: if the numerous phonological similarities between the two languages merely reflect a regional typological area (e.g. de Hoz 2011, 360), then we cannot draw any conclusions from the *differences* between them, but if there is a genetic relationship this changes the picture, because both languages must ultimately derive from a common parent system. However, it is important not to oversimplify the situation: we cannot be certain that every similarity between the two languages must be inherited from the parent system, since there may have been secondary areal convergence. Many of the phonological similarities between Basque and Iberian were apparently also present in “Turdetanian”, as discussed in Correa 2005.⁸² For example, initial *d-* appears to be restricted in all three,⁸³ which complicates the picture both for Basque internal reconstruction and for the Basque-Iberian comparison.⁸⁴

For the sibilants, there are already clear similarities between the Basque and Iberian systems. However, in the investigation of the differences, the Meridional dual system takes on an importance that is probably too much for its slender shoulders to bear. If we decide that Iberian only had two sibilants, this could tie in with Lakarra’s theory that the four phonemes of Michelena’s Proto-Basque are a secondary development from an earlier complementary distribution of *z-* *-tz*, *s-* *-ts*.⁸⁵ The apparent opposition in *kabikoĩš* and *ikoĩbaš* could be non-contrastive, and might even reflect a similar tendency towards fortition in coda position (in which case, the Levantine evidence from F.13.75 *sukuĩba*, *baser* versus *arškotař* might prove to be significant after all).⁸⁶ If, on the other hand, we decide that the Meridional opposition is evidence that Iberian had more than two phonemes, the system could indeed be symmetrical with Michelena’s Proto-Basque, with two *lenis*

⁸² Correa 2005, 147, takes *Baxonensis* and *Axati* as possible evidence for affricates. However, it is hard to rule out that these are just /ks/ clusters as in *Sexi* ~ Punic *skš*, since “Turdetanian” clearly shows more complex clusters than Iberian and Proto-Basque.

⁸³ Initial *d-* in Basque is effectively restricted to loanwords, expressive or onomatopoeic formations and finite verb-forms. There are only a few examples from Iberian (e.g. *dadula*, *dešailauř*, *diukas*, *deitatař*), and only one from “Turdetanian” (*Detumo*).

⁸⁴ This is especially true if we accept the theory that initial *d-* was freely-occurring in Pre-Proto-Basque lexemes but generally changed to *l-*, since it further complicates the question of how the restriction came to be found in all three languages (e.g., whether Iberian likewise showed a change **d- > l-*).

⁸⁵ Cf. Martínez 2006, 464-5. However, we should stress that the Iberian data would still be incompatible with Lakarra’s wider system, since in his model the opposition *oso* : *otso* would already have been lexicalised by the time that the numbers evolved to the forms that we find in Iberian.

⁸⁶ The *fortis* variant of the pairs would be *š* in Levantine but *š* in Meridional (Ferrer 2015, 350). For *arškotař*, it is worth noting that Aquitanian shows several examples of affricates before a plosive, as in *Belexconnis*, *Silexconnis*, *Andoxponni*, *Exprcennio*, *Asspercus* and AXTO[/VRI. Most of these occur at the end of a morpheme (Gorrochategui 1984, 151-2), but unlike the Basque parallels such as *hitcuntça* (Michelena 1985, 289), it is unlikely that they are merely etymological spellings.

: *fortis* pairs at different points of articulation as proposed by Ferrer 2015, 350, and Pérez 2007, 92. However, the Iberian and Basque phonemes would apparently show different distributions,⁸⁷ because Iberian seems to have an opposition between Meridional *ś* and *š* in both final and preconsonantal position.⁸⁸ Clearly, this goes right to the heart of the question of the prehistory of the Basque sibilant : affricate system, and the entire pattern of neutralisation of *lenis* and *fortis*. In fact, the same principle applies to every difference between Basque and Iberian: even though we are not yet in a position to reconstruct the parent system, postulating a genetic relationship would already change the picture for our analysis of both languages.

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⁸⁷ With a few minor exceptions (the *Belexconnis* type, and the enigmatic *Stelaitse* and *Stoloco*), the evidence from Aquitanian and Vasconian shows exactly the same distribution of *z tz s ts* found in modern Basque: Gorrochategui 1993, 617.

⁸⁸ In fact, given Aquitanian *Belexconnis* etc., and the presence of final *-z* in Basque verb forms, adverbs and instrumentals, the two systems may not be as different as they appear.

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