



A multidisciplinary approach to modeling expansions from the Franco-Cantabrian refuge

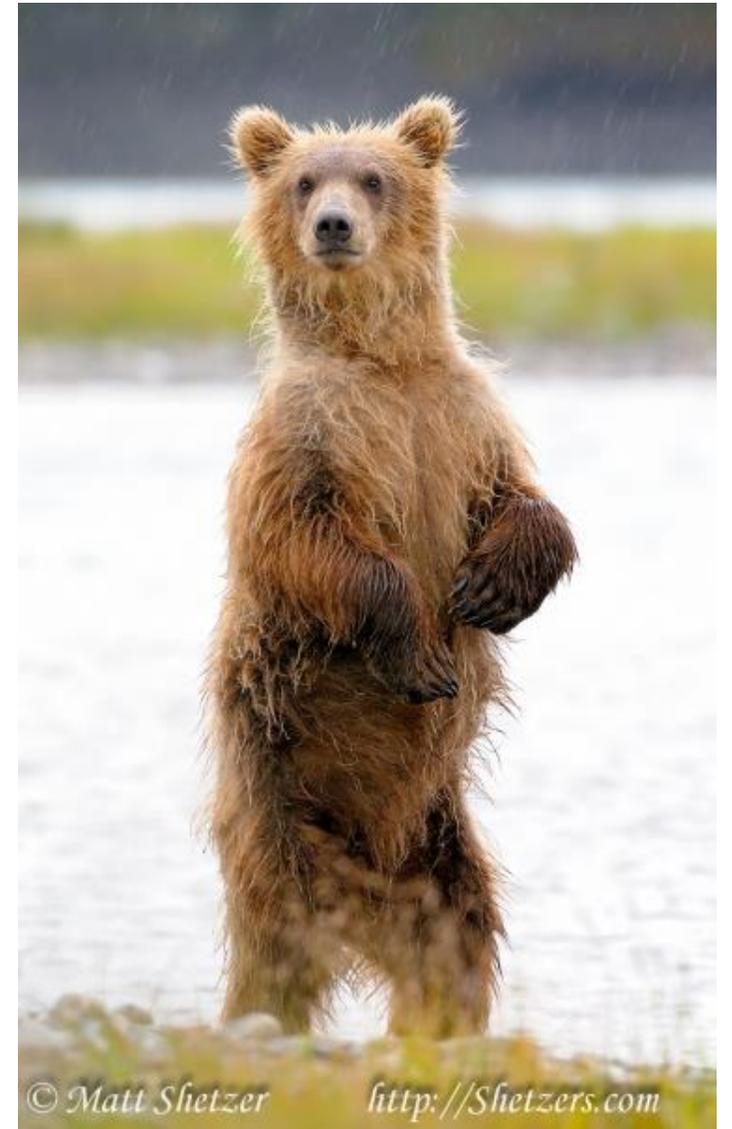
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Introduction

- Our investigation into the possible contributions of the Franco-Cantabrian refuge relies on a multi-proxy comparative approach that brings together researchers from three different fields of expertise: archaeology and genetics as well as linguistics
- In contrast to other work that has been carried out on this aspect of European prehistory, this project benefits from input from linguists and ethnographers with extensive knowledge of the Basque language and culture.
- My own relationship to the project dates back to the early 1980s when I began doing fieldwork in the Basque Country and learning Euskera (Basque).
- That was when I first was told in Basque by a Basque-speaker that the Basques used to believe they descended from bears.
- The talk will begin by examining the results of nearly forty years of fieldwork and research into the implications of that statement: the archaic belief in an ursine genealogy that harkens back to a hunter-gatherer mentality.





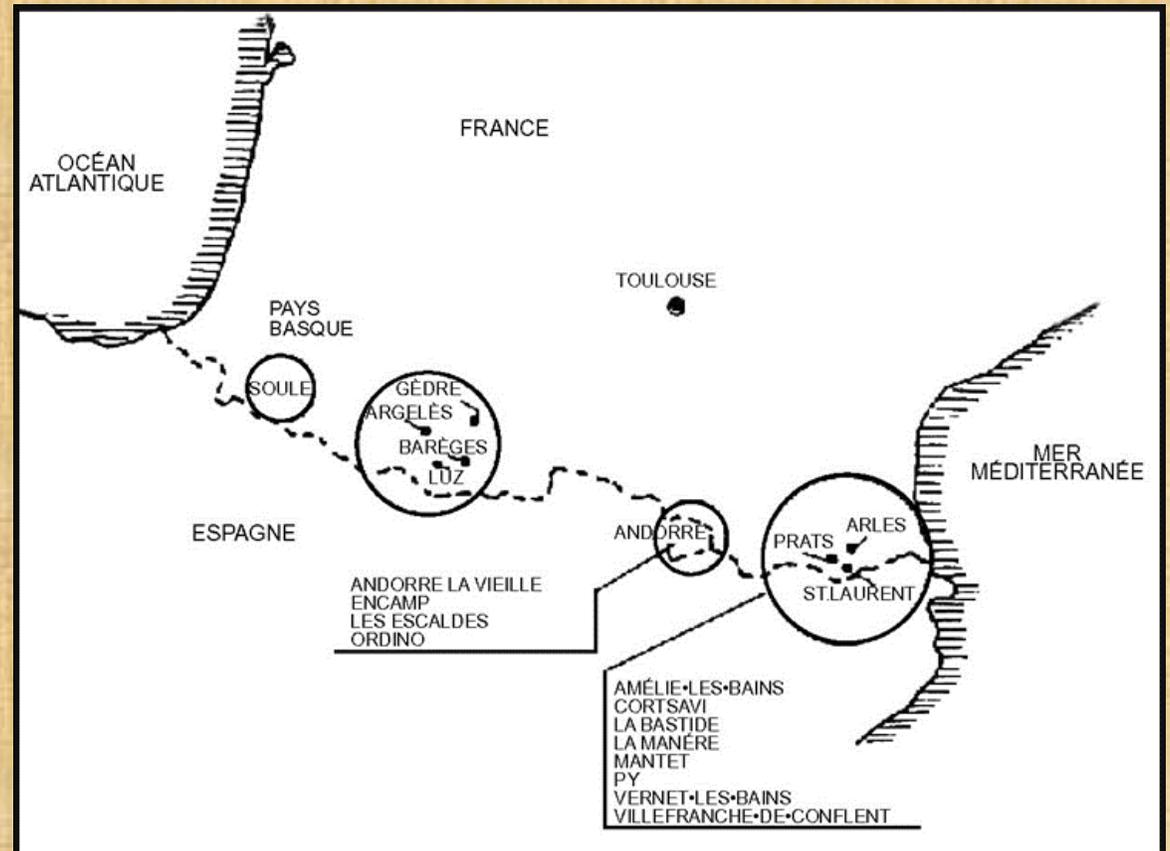
The Bear's Son Tales



- The research has focused on a pan-European phenomenon, the “Bear’s Son tales”, whose protagonist is half-human, half-bear. This is because his mother was a human female and his father was a bear. Hence, this figure functions as an intermediary, as a kind of “Jesus bear” according to one informant, and is a central component of this much earlier worldview grounded in the belief in ursine ancestors.
- Moreover, not only are these tales found in Basque as well as in IE languages, the Bear’s Son has a name in Basque and variants of that name are found in Indo-European languages, a linguistic signature that is an indirect proxy for past contacts.
- While this motif represents the most widely disseminated European folktale, until the belief that humans descended from bears was plugged into the interpretive frame of these tales and related performances, they were not viewed as particularly significant.
- Not only is the story of the birth, life and exploits of this character recounted in a set of European folktales, passed down orally from one generation to the next, in the Pyrenean zone, the ‘bear fest’ performances celebrated there each year still incorporate elements taken from the plot of the Bear’s Son narrative, reenacting, for instance, the initial encounter between his mother and father and his subsequent birth in the bear cave.

Pyrenean locations of the most elaborate reenactments of the Bear's Son tale and 'Fêtes de l'Ours'

- The zone extends from the Basque-speaking zone in the west to the Mediterranean in the east.
- These festivals continue to be performed each year while their origins are currently under intense investigation.
- Moreover, all across Europe, in what were once remote mountain villages, similar although somewhat less structurally complex performances have survived.



Contemporary European Bear-Human Performers: Recent Examples of their Ursine Costumes



Representatives from
Southern Europe



Ursul, Palanca, Greece



Mamutzone, Samugeo,
Sardinia (above)

Arapides, Monastiraki,
Greece



Sourvakari, Leskovets, Bulgaria



Other examples of European Bear-Human performers. All photos shown are from 2012.

Testing the alleged non-relationship of Basque to IE languages

- In light of the results of this ethnographic research, the assumption that the Basque language was a total isolate and hence not related to IE languages needed to be tested, a process that has spanned two decades.
- The results from that aspect of the FCR project are summarized in the discussion that follows.

Basque-speaking zone today →



Linguistic Evidence: Differences from other attempts at modeling the prehistory of Europe

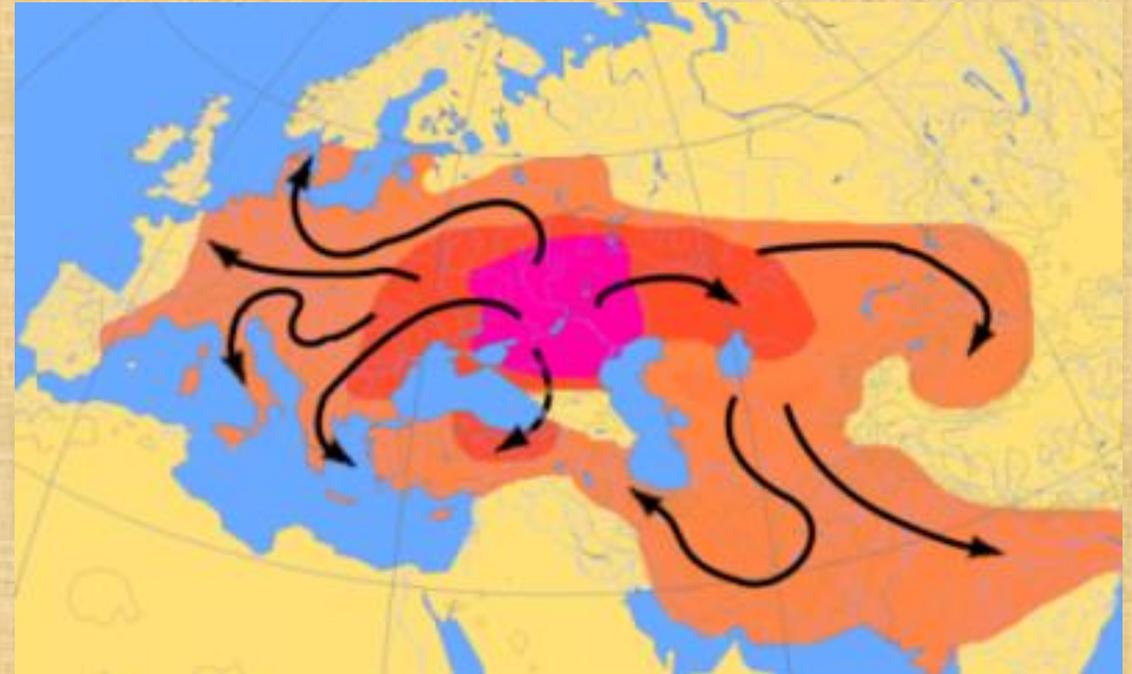
- For the past thirty years proponents of the dominant IE Steppe hypothesis have sought to weave together different threads of evidence in support their narrative, that is, by drawing on linguistic, archaeological and genetic data.
- But, for the most part, these attempts have been grounded in the *Stammbaum* model- the 'tree-model'- and hence in the supposition that there was once a single, unitary language (*Ursprache*) spoken in a single location (*Urheimat*) by a specific population (*Urvolk*). Hence, the givens or knowns built into the model are 1) a unitary language and 2) a specific group of speakers. This leaves pinning down the exact location of this 'homeland' (*Urheimat*) as the only unknown left in that equation.
- The canonical IE research model also assumes that features found to be common to all or at least several of the branches of the IE family can be traced back to this original unitary language. Consequently, taken collectively, these common features give rise to a reconstructed entity referenced by the term Proto-Indo-European. However, that construct is simply a hypothetical reconstruction based on sets of features shared by the IE languages and, therefore, should not be confused with a fully functioning language.



The Steppe 'Homeland' hypothesis currently in ascendance (Anthony & Brown 2017; Haak et al. 2015)

Canonical mapping of the geographic diffusion of the unitary PIE language and its offspring (c. 4000 to 1000 BCE)

- Putative expansion of IE languages following the earlier Kurgan model
- The purple area corresponds to the assumed *Urheimat* (Samara culture, Sredny Stog culture).
- The red area corresponds to the area which might have been settled by Indo-European-speaking peoples up to ca. 2500 BCE, and the orange area by 1000 BCE.
- In this proposed narrative of expansion, the Franco-Cantabrian region is left blank.



Role of commonalities shared by Basque and IE languages

- In the IE model all commonalities are assigned to the same chronological horizon. In contrast, with the introduction of the Basque data sets, it becomes possible to identify at least two chronological layers, one much older than the other.
- At this juncture, approximately 5% to 10% of the features referenced collectively by the expression Proto-Indo-European can be identified as having counterparts in Basque.
- In all instances the morphological features in question are deeply entrenched systemically in the Basque language, and as such they are integral parts of several interlocking subsystems within the language.
- For this reason, they cannot be viewed as loans from an IE language.

Typing of morphemes

- Recognizing that Basque and IE languages are structurally different, rather than treating the languages globally, as essentialized bounded entities, each morpheme set is treated individually.
- This allows us to identify and keep track of their phonological and functional variants, both in Basque and in the branches of IE languages. The numbering in the chart (below) refers to four actual morpheme types and shows their distribution.

Morpheme Type	Basque	Romance	Celtic	Germanic	Slavic	Etc.
A.1	X	x	x	x	x	x
B.1	X	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>
C.1	X	<u>x</u>		<u>x</u>	<u>x</u>	?
D.1	X	<u>x</u>		<u>x</u>		?

Typing of morphemes when combined

- More remarkably, when the corresponding morphemes are found in combination, they form chains in the IE languages in exactly the same order as they do in Basque. This ordering also reflects the innate agglutinative structure of the Basque language. The ordering is shown below.

Morpheme Types in Combination	Basque	Romance	Celtic	Germanic	Slavic	Etc.
B.1 + A.1	X	x	x	x	x	x
C1 + A.1	X	x	x	x	x	x
D1 + C1 + A1	X	x		x		?

Analysis of shared data sets

- The set of Basque morphemes under analysis have been studied extensively so their functions are well documented (de Rijk 1993, 2008; Azkarate 2001).
- However, until now their relationship to the corresponding IE morphemes has been treated in depth by only one Basque linguist, nearly half a century ago (Tovar 1954, 1970).
- The phonological shape and functions of the corresponding morphological elements found in IE languages are easily identified.
- Thus, a major advantage of the new model is that the data sets are readily accessible for they are encountered in languages still spoken in Europe today.

Unanswered questions

- At this stage in the research there are many questions that remain unanswered, among them the following:
- Are we to assume that the Basque-IE commonalities identified so far are best explained by assigning to them a much deeper time-depth than the 4000 BCE date associated with PIE?
- Does this mean that those commonalities clearly found in IE languages but not identified as having counterparts in Basque should be assigned a more recent origin? That they belong to a more recent layer? If so, does that mean that the ultimate origins of this second layer are still unclear: that they developed through processes not yet fully understood and from sources not yet identified?
- Finally, if a deeper time-depth is assigned to the shared data sets, should the commonalities in question be traced back, ultimately, to the effects of migrations out of the Franco-Cantabrian refuge? Or, for example, also to migrations out of one or more of the other southern Ice Age refugia?
- Or, is there yet another explanation for their survival and presence as living entities in the Indo-European languages still spoken today?

Preliminary conclusions, based on ethnographic and linguistic data



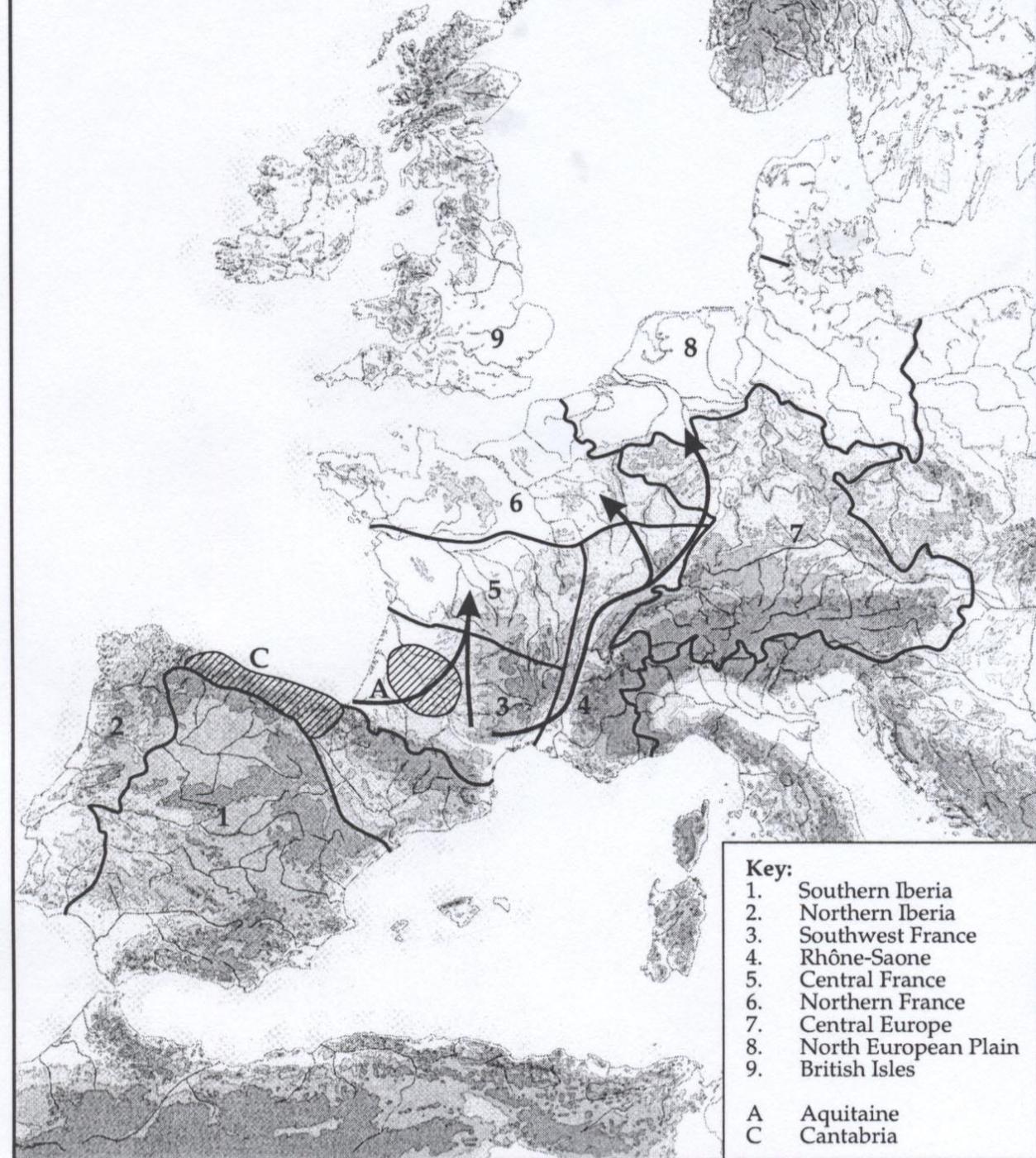
- Material drawn from the Basque language and culture opens up new vistas, shedding light not only on the linguistic prehistory of Europe but also on what appears to be remnants of a deeply entrenched hunter-gatherer mentality. These survivals, many of which are readily accessible today, have left a strong signature in the ethnographic and linguistic record of Europe.
- The next step is show how evidence from archaeology and genetics can serve as additional proxies for the role played by the Franco-Cantabrian refuge in prehistory.



Archaeological evidence

- Another member of our group who is working in the field of archaeology is Dr. Fabio Silva. He is currently engaged in a collaborative investigative project entitled “*Late Glacial Human Range Expansions.*” The project involves data collection and computer modelling of the recolonization of Western Europe from the Franco-Cantabrian Refuge, starting with the Last Glacial Maximum.
- Fabio’s research focuses on the spatial analysis and modelling of large-scale dispersal and diffusion processes in the archeological record.
- Preliminary results from the project are expected in 2018.

Map from Gamble et al. (2006) →



Evidence from genetics



- The FCR project also draws on the expertise of geneticists from the BIOMICs research group at the University of the Basque Country, namely, their work on the contribution of hunter-gatherer populations to the postglacial colonization of Europe.

Sergio Cardoso Martin - Marian Martinez de Pancorbo

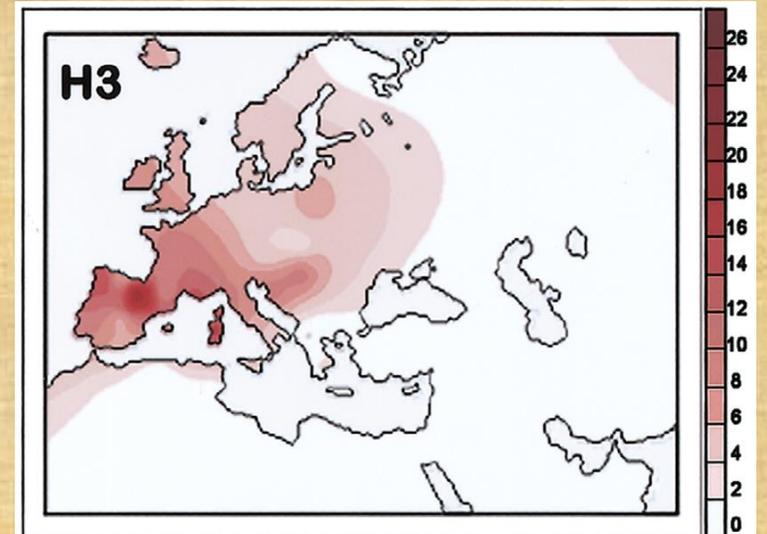
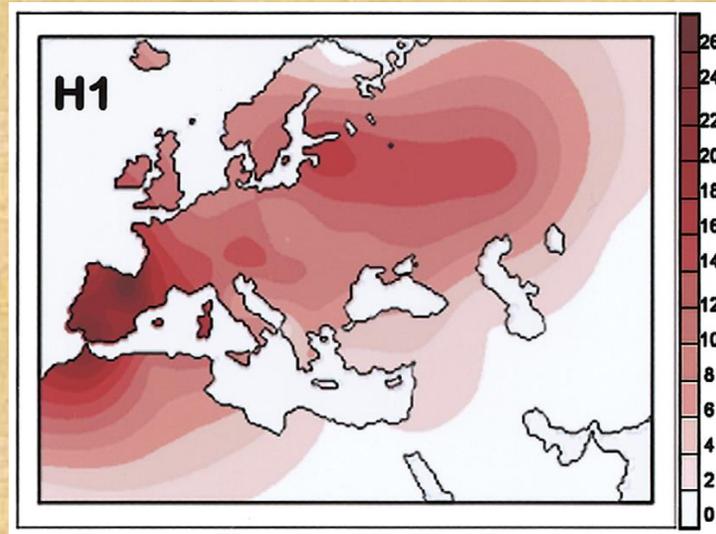
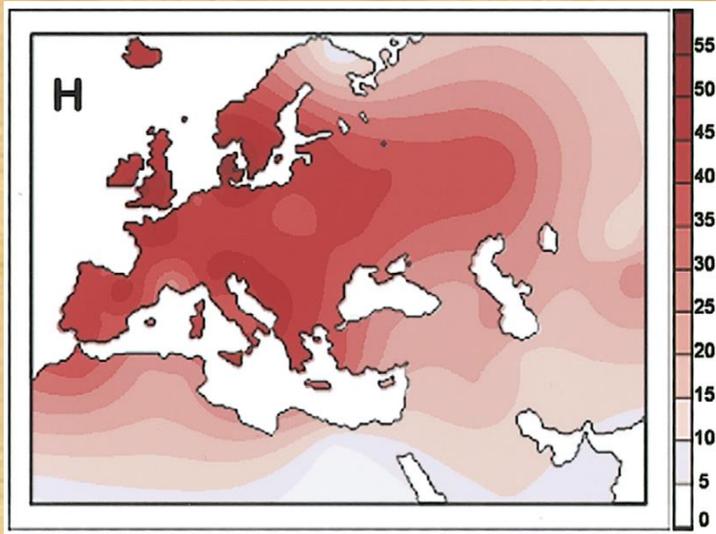
Los linajes genéticos de la población vasca hablan de su pasado



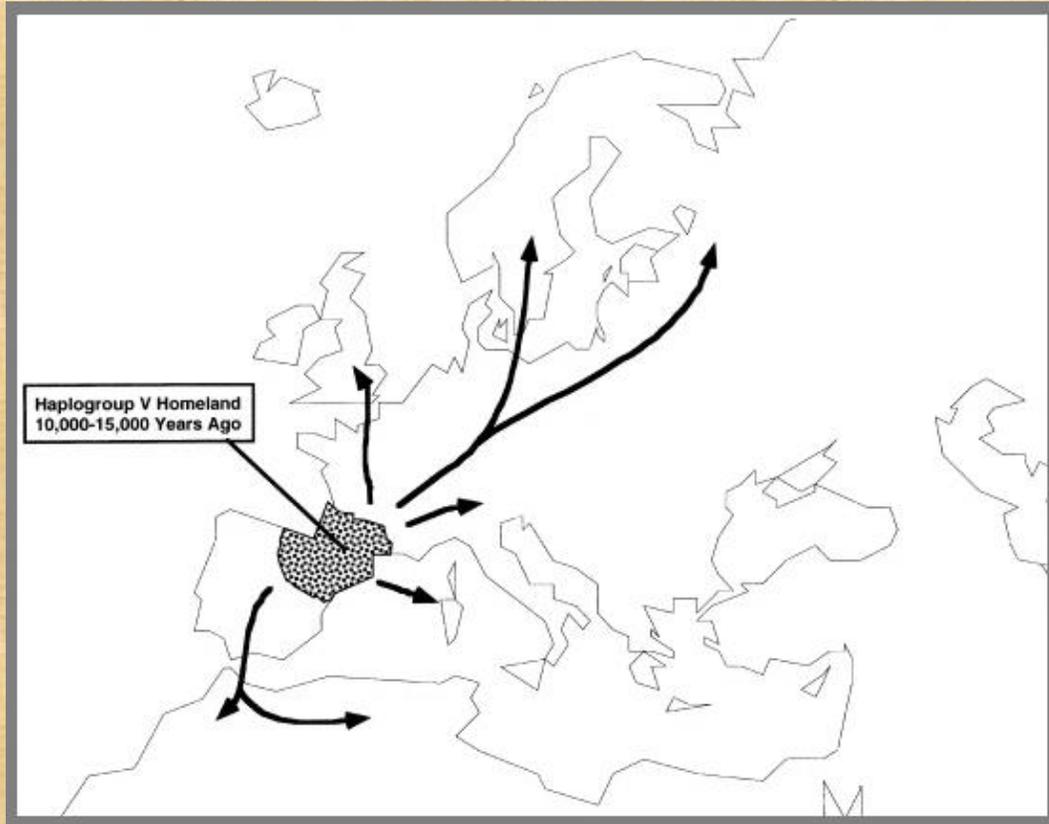
BIOMICs Research Group, EHU Euskal Herriko Unibertsitatea, Vitoria-Gasteiz

Evidence from mtDNA: Contributions by the BIOMICs team and others

- Although the frequency distribution of haplogroup H overall in Europe is rather uniform, those of subhaplogroups H1 and H3 harbor clear-cut patterns, both with peaks centered in Iberia and surrounding areas. The highest frequencies of H3 are found among the Basques of Spain (13.9%), in Galicia (8.3%), and in Sardinia (8.5%)—in other words, in the same areas where H1 is also most frequent (Achilli et al. 2004).
- It has been noted with great interest that such frequency patterns are extremely similar to those previously described for haplogroup V, an autochthonous European haplogroup, which most likely originated in the northern Iberian Peninsula or southwestern France at about the time of the Younger Dryas (Torroni et al. 1998, 2001a; Richards 2003).
- The distribution of haplogroup V has been attributed to a major population expansion from this zone which occurred 13–10 kya and eventually carried those mtDNAs into Central and Northern Europe following the postglacial improvement in climate conditions (Achilli et al. 2004).
- In short, mtDNA research done on samples from the wider Franco-Cantabrian zone points to a maternal continuity in this region since the pre-Neolithic (Behar et al. 2012). Moreover, the expanded mtDNA phylogeny of the Franco-Cantabrian area upholds the Pre-Neolithic genetic substrate of the Basques (Achilli et al. 2004; Cardoso et al. 2011, 2013).



Distribution patterns of H, H1 & H3



The most probable source of the haplogroup V (10 to 15 kya) and its pattern of diffusion, according to Torroni et al. (1998).

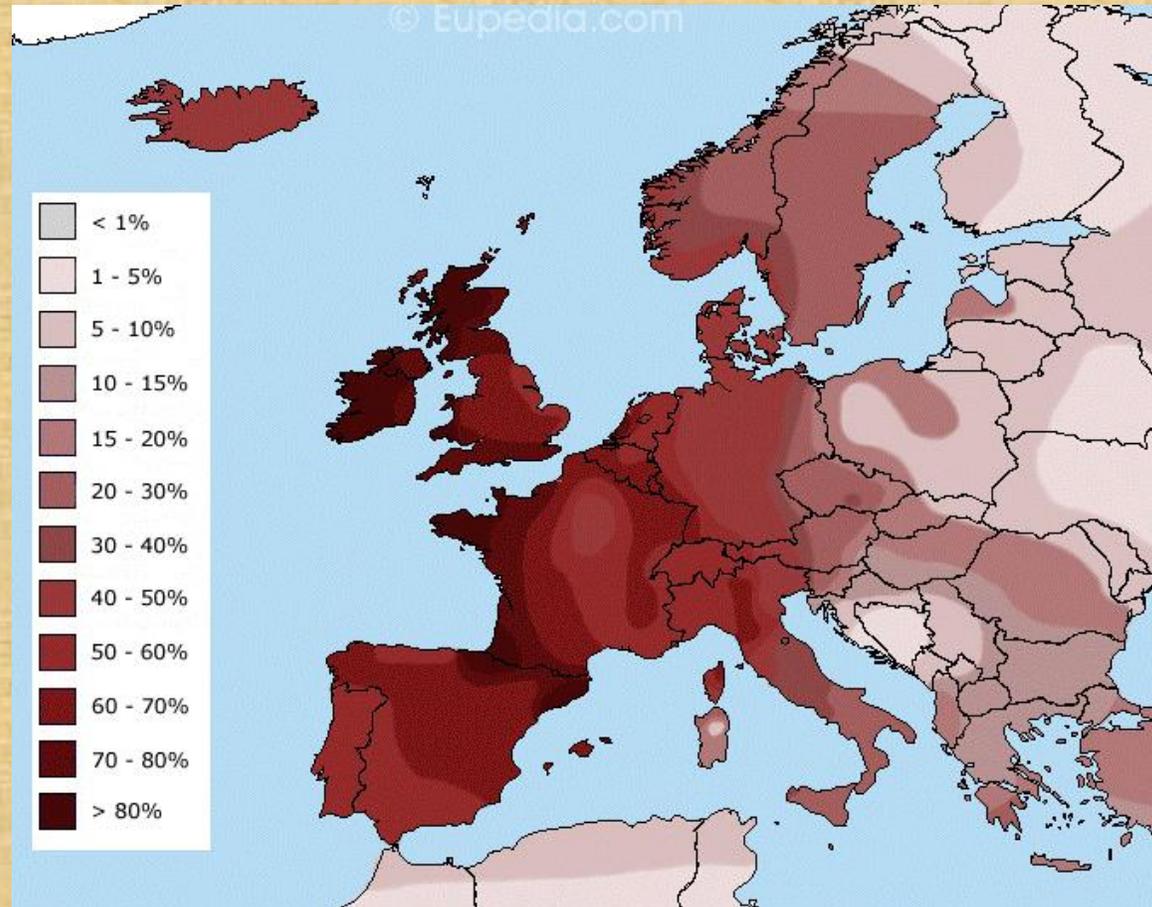
Basque-speaking zone during the first century BCE.



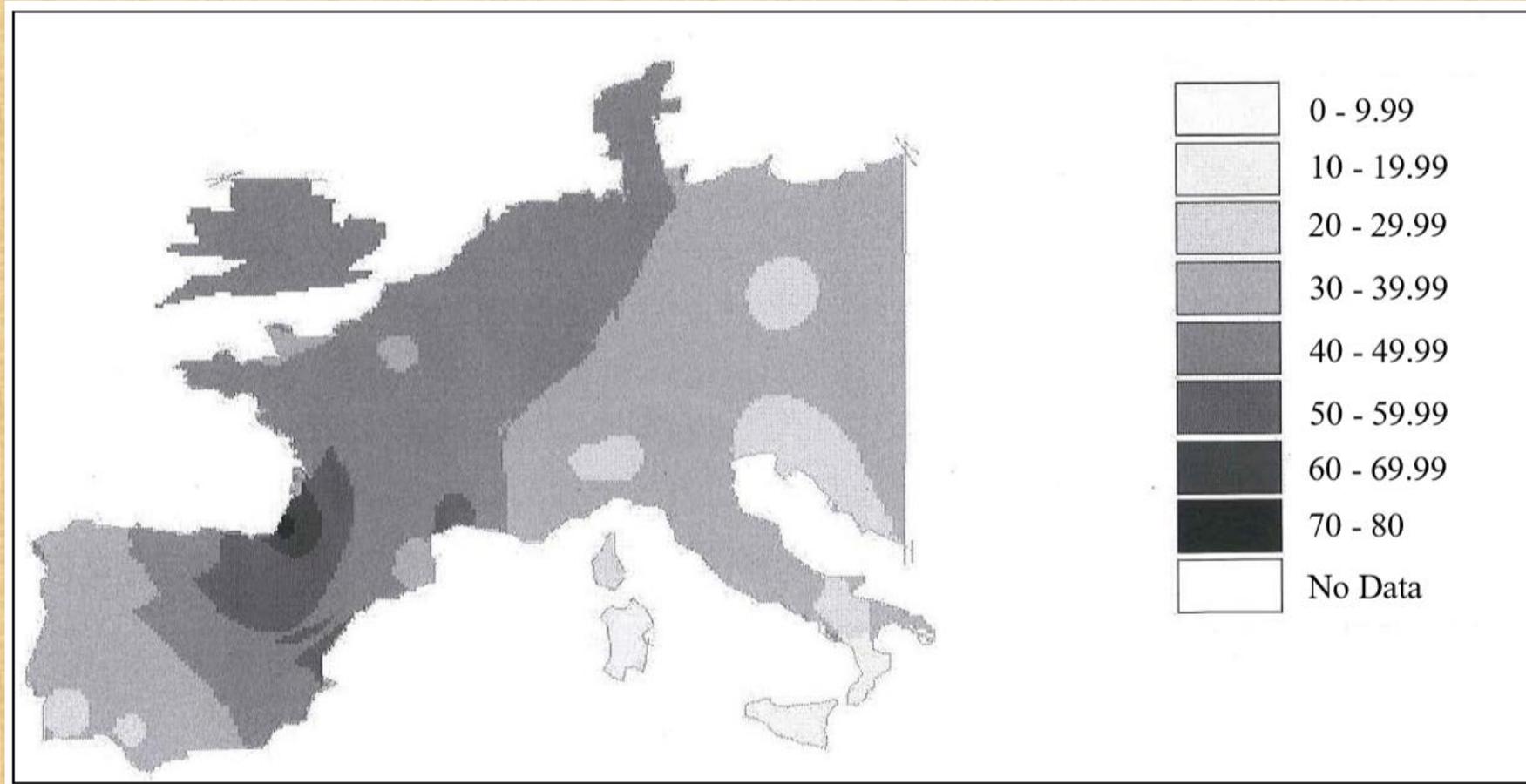
Recent results from the BIOMICs group concerning the R1b-M269 controversy

- Valverde et al. (2016) reported the following in their article “New clues to the evolutionary history of the main European paternal lineage M269: dissection of the Y-SNP S116 in Atlantic Europe and Iberia”:
 - The obtained coalescence times date the origin of haplogroup S116 in the native Basque region to $11\,673 \pm 1962$ ybp, and the origin of the sublineage DF27 soon after ($10\,468 \pm 1831$ ybp). This would place their origins after the last cold period of the Younger Dryas.
 - The scenario proposed here would be most compatible with an arrival of M269 from the east occurring in Palaeolithic times.

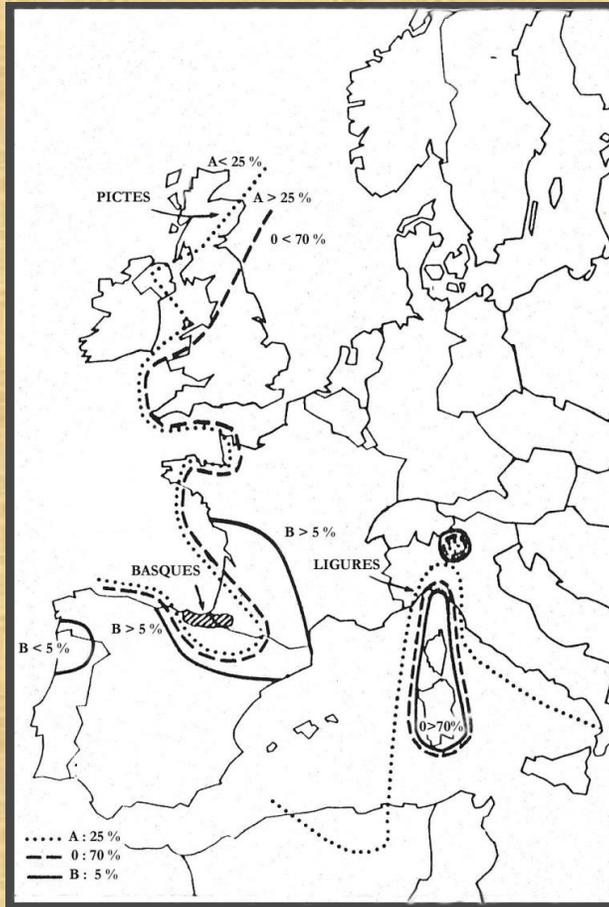
Map of R1b in Europe



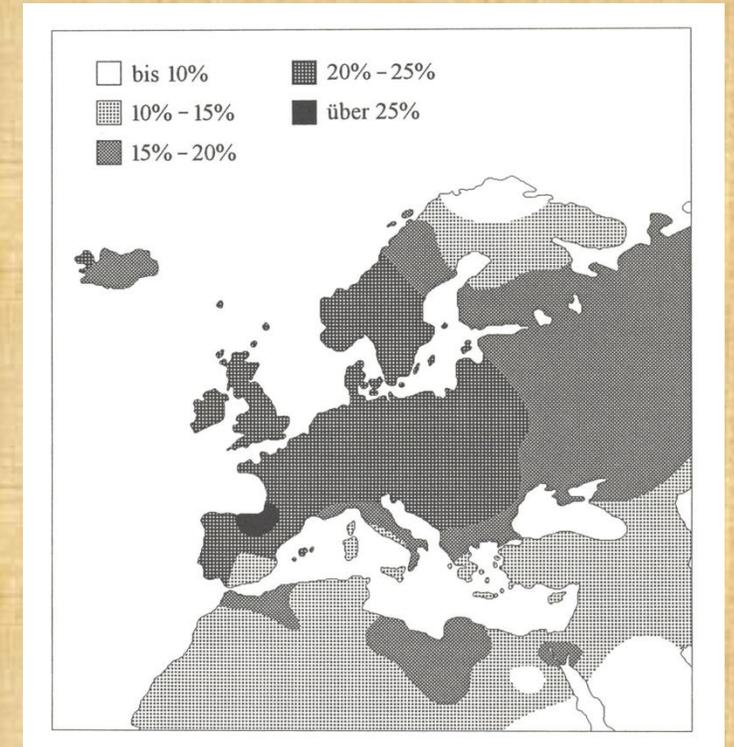
A closer view of R1b-M269 in Western Europe (Lucotte 2015)



Mapping of classic genetic markers



European ABO frequencies (left)



European Rh- frequencies (right)

Blood Group	Chromosomal Site	Characteristics in Basques
ABO	9q34	Highest allele frequency of O and lowest frequency of B
Rhesus (Rh)	1p34-36	Highest Rh-negative frequency in the world
Kell (K)	7q33	Highest K+ frequency
Duffy (FY)	1q22-23	Lowest FY ^a frequency

Concluding remarks

- When the different lines of evidence are combined, they suggest a more complex narrative and that more attention should be paid to the possibility that ancestors of present-day Basques played a more significant role in the repopulation of Europe than previously assumed.
- At this stage in the research the evidence collected to date needs to be examined more closely in order to investigate the types of contacts that might have produced these signals and the population movements that might have been involved.
- So the challenge will be to develop ways to integrate and explore the implications of this new multidisciplinary model, drawn simultaneously from ethnography, linguistics, archaeology and genetics.





THE END

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