SOME FEATURES OF DENE-CAUCASIAN PHONOLOGY
(WITH SPECIAL REFERENCE TO BASQUE)

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The Basque language has long mystified historical linguists. Many to this day have given up and concluded that Basque is hopelessly isolated from all other languages, and there is no hope of conclusively linking it with any other language or language family. However, for at least a century a minority of linguists (e.g., BLEICHSTEINER, BOUDA, FURNÉE, LAFON, SAPIR, SHAFER, SWADESH, TAILLEUR, TOPOROV, TROMBETTI) have caught glimpses of what we now call the Dene-Caucasian language (macro-)family. These scholars thought they could discern traces of an old language family embracing some of the families and isolates of northern Eurasia (and extending into North America), negatively defined as those that did not fit into the developing hypotheses of Afro-Asiatic (Hamito-Semitic) and Nostratic macro-families. These entities are Basque, Caucasian, Burushaski, Yeniseian, Sino-Tibetan, and Na-Dene.

In the early 1980’s Sergei A. STAROSTIN of Moscow published papers reviving these ideas, though this time with strict scientific methods (including glottochronology, phonological correspondences, and reconstructions) that finally put the deep genetic relationship of the Caucasian family with the Sino-Tibetan and Yeniseian families on firmer ground. STAROSTIN called the family “Sino-Caucasian,” and his colleague Sergei L. NIKOLAYEV extended the family to include the Na-Dene family of North America. English translations of these papers were published in a book edited by Vitaly SHEVOROSHKIN (1991) entitled Dene-Sino-Caucasian Languages, and the term “Dene-Caucasian” became widely current among both proponents and opponents of the hypothesis, though STAROSTIN still uses “Sino-Caucasian.”

Also in the 1980’s the Abkhaz scholar Viacheslav A. CHIRIKBA published a brief article in which he attempted to revive the hypothesis of a genetic relationship

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1 The leading proponent of this point of view was R.L. TRASK (e.g., 1994, 1995, 1997).
2 “Caucasian” as used in this paper is restricted to the “North” Caucasian family (Abkhazo-Adygean + Nakh-Dagestanian). The Kartvelian (formerly “South Caucasian”) family belongs to the Nostratic macro-family.
5 NIKOLAYEV (1991). In an addendum to the article NIKOLAYEV proposed cognates from Algonkian and Salishan languages, “which, as it seems, also belong to Sino-Caucasian.” Vitaly SHEVOROSHKIN (e.g., 2003) has pursued this line of research.
6 CHIRIKBA (1985).
between Basque and the Caucasian languages. CHIRIKBA’s essay inspired others, including Václav BLAŽEK and the present writer, to explore the hypothesis that Basque belonged to the Dene-Caucasian family in a series of articles published throughout the 1990’s and since.

In a forthcoming article on Sino-Caucasian phonology STAROSTIN makes this observation:

It is always pleasant for a comparative linguist to discover some new, non-trivial rule of correspondence. In the case of macrofamilies like Nostratic or Sino-Caucasian, this is still more exciting, because non-trivial correspondences are actually the main subjective proof of relationship (while general correspondences and statistic considerations supply the objective evidence).  

STAROSTIN then goes on to describe several types of “non-trivial” correspondences. For example, he demonstrates a correlation between Caucasian tenseness (indicated below by underlining) and the Yeniseian glottal stop /ʔ/:

Caucasian (PNC) *="čʌɛ ̄ ‘half, middle’ (Avar b-ʌʌ’: uʌ= b-ʌʌ’ uʌ ‘between’)  
~ Yeniseian (PY) *aʔl ̄ ‘half, middle’; cf. Bsq *ɛrdi ‘half, middle’; PST *T-ʌj ‘middle, navel’

PNC *cʌɾɡwɨ  ‘mouse, squirrel, weasel’ (Avar caʌ’: u = caʌ’ u ‘weasel’)  
~ PY *saʔqa ‘squirrel’; cf. Bsq *šagu ‘mouse’; PST *sɾɛŋ ‘squirrel’

PNC *wɪnɛ ‘spring (of water)’ (Avar ic: = ic)  
~ PY *sìʔn- ‘spring, water-hole in ice’; cf. Bsq *fiοśin ‘well, depth’; PST *ciɾɛŋH ‘well, pond’

STAROSTIN cites no fewer than fifty-eight examples of this correspondence. Conversely, in words where Proto-Caucasian had no tense consonants, the cognate Yeniseian words also lack the glottal stop:


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7 For a critique of CHIRIKBA’s paper, see TRASK (1997: 395ff.).  
8 STAROSTIN (forthcoming).  
9 (c) erdi ‘half, middle’.  
10 (c) sagu, (BN-Aldude) sabu ‘mouse’, (c) sagu-zar ‘bat’ (lit. ‘old mouse’), sat-itsu ‘shrew’ (lit. ‘blind mouse’), etc.  
11 (L) hosin, (c) osin ‘deep place in a river, well, pool’, (G) ‘sea’. Proto-Basque *fi (voiced laryngeal fricative?) became /h/ in Lapurdian and Low Navarrese, but 0 in Zuberoan. Proto-Basque *h became /h/ in all three “French” dialects of Basque. Both *fi and *h were lost in the “Spanish” dialects of Basque (except in very early recordings).  
*še[m] ‘wool’; PST *chūm ‘hair, wool, eyebrow’
PEC *čhaš ‘fence, enclosure’ ~ PY *čOL- ‘wicker hurdle’; cf. Bsq *šale ‘net, grill, grate’

There are 83 examples of this correspondence. STAROSTIN remarks that the “Yenisseian parallels, however, do not tell us much about the phonetic nature of this feature in PSC … and reconstructing an additional laryngeal … in PNC does not seem very reasonable.” A clue might be found in an analogous correspondence in the Scandinavian languages, where “Accent 1” (stress) in Swedish and Norwegian corresponds to the presence of Danish *stød (glottal stop /ʔ/), and “Accent 2” (a kind of circumflex) corresponds to the absence of *stød:

Swed. /úllɔn/, Norw. /úlla/ ‘the wool’ = Dan. /úlʔɔn/ ‘the wool’
Swed., Norw. /drégŋeŋ/ ‘the hired man’ = Dan. /dręgʔeŋ/ ‘the boy’
Swed. /ýllɔn/, Norw. /úllɔn/ ‘woolly’ = Dan. /úlɔn/ ‘woolly’
Swed., Norw. /dręŋŋar/ ‘hired men’ = Dan. /dręŋɔ/ ‘boys’

Possibly the Caucasian-Yeniseian correspondence discovered by STAROSTIN is the result of a suprasegmental feature of PDC, such as pitch or stress accent.

We have made significant progress in the comparative phonology of Basque, within the framework of Dene-Caucasian. In 2003 I presented a paper at the Santa Fe Institute summarizing my work with Basque comparative phonology, with Dene-Caucasian etymologies for about 300 Basque words. During the course of this work with Basque I have discovered several non-trivial correspondences of the type STAROSTIN refers to. In my opinion, these not only help to solidify the position of Basque within the Dene-Caucasian family, but also to refine our understanding of the nature of the Dene-Caucasian proto-language. Basque, as the sole survivor of a formerly widespread “Vasco-Iberian” language family, retains some archaic features of great value for PDC reconstruction.

In the comparisons that follow “PDC” refers to Proto-Dene-Caucasian. The PDC proto-forms are based on those found in STAROSTIN’s work, which were made on the basis of four families (Caucasian, Burushaski, Yeniseian, and Sino-Tibetan). Some of STAROSTIN’s PDC forms have been modified below on the basis of information supplied by Basque. It is my expectation that modification and refinement of the PDC proto-forms will be an ongoing process, just as is the case for hypothetical proto-forms for all language families.

Where PDC proto-forms are not yet available, or supplemental to PDC, other

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13 (H,N,Y) še, (H,N) pl. šeᵐiš.
14 (B,BN,R) lapar ‘bramble = zarza / ronce’.
16 (c) sare, (B) sale ‘net, grill, grate, stockade, manger’.
17 BENGTSON (2003a); a portion was published as BENGTSON (2003b).
reconstructions are cited: PNC (Proto-Caucasian),\textsuperscript{18} PEC (Proto-East Caucasian), PWC (Proto-West Caucasian),\textsuperscript{19} PY (Proto-Yeniseian),\textsuperscript{20} PST (Proto-Sino-Tibetan).\textsuperscript{21} In the comparisons < denotes “derived from,” > denotes “ancestral to,” and ~ indicates “compared with.” Because of the vast amount of linguistic material, most of the attested forms are cited in the endnotes. Since some comparisons are repeated in the text, subsequent repetitions may have no endnotes and the reader is referred to the previous citation of the same comparison.

1. Resonant and sibilant affricate clusters

This is the first set of non-trivial correspondences between PDC and Basque that will be discussed here. PDC had a rich phonological system, including medial clusters of liquid resonants and sibilant affricates. These PDC clusters produce different results in Basque, depending on the eventual syllabic structure of the Basque word:

1.a. When the Basque word is multisyllabic, and the second vowel is /a/, /e/, /o/, or /u/, or before a consonant, the liquid disappears:

\begin{itemize}
\item PDC *b\i\l\j\V\ ’hair (feather, whiskers)\textsuperscript{22} > Bsq *b\i\s\a-\r ‘beard’ > (c) \b\i\s\ar ‘beard’, \b\i\s\arra ‘the beard’
\item PDC *\?w\a\r\e\w\o/ ‘skin’\textsuperscript{23} > Bsq *\a\sa-l ‘skin, bark’ > (c) az\a1, (R) k\a\zal\textsuperscript{24}
\item PDC *\i\l\c\w\i ‘girl, woman’\textsuperscript{25} > Bsq *\i\s\e- ‘aunt’ > (c) \i\ze\ba, (BN-Aldude) \i\ze\a. (B) \i\ze\ko
\item PDC *HV\j\w (PNC *H\a\(r)\j\w\i) ‘tree’\textsuperscript{26} ~ Bsq *\h\a(i)ce ‘tree’ > (R) at\ze ‘tree’, (BN, L) zu-
\h\a\i\z, etc.
\item PDC *\b\h\e\r\c\i ‘a large predator’\textsuperscript{27} > Bsq *\o\c\o ‘wolf’ > (c) \o\t\s\o
\item PEC *\a\w\l\c\w\V ‘dirt; bog, marsh’\textsuperscript{28} ~ Bsq *\li\s\u-n ‘moldy, musty, dirty’ > \li\z\u (c) ‘moldy, musty, mustiness’, (AN,B,G) ‘dirty, untidy’
\item PEC *\=\i\r\c\V\i ‘to twirl, turn round’\textsuperscript{29} ~ Bsq *\i\c\u\l i ‘to turn, turn over, return’ > (c) \i\t\z\u\l, (R) \u\t\z\u\l, (Z) \u\t\z\u\l
\end{itemize}

\textsuperscript{18} NCED (NIKOLAYEV & STAROSTIN 1994). In many cases the PNC form is very close to PDC.
\textsuperscript{19} CWC (CHIRIKBA 1996).
\textsuperscript{20} SSEJ (STAROSTIN 1995).
\textsuperscript{21} STD (PEIROS & STAROSTIN 1996).
\textsuperscript{22} Hunzib bilaž-ba ‘beard’, Bezhta bizal-ba ‘mustache’, Agul mužur ‘beard’, etc. (NCED 303); Bur. *biš-kē ‘(animal) hair, fur’ > (H,N,Y) biškē; PY *pis ‘(bird’s) tail’ (SSEJ 249).
\textsuperscript{23} Abaza č\a\r ‘skin, bark’, Budukh ši\c\ ‘skin (of cattle)’, Hurrian aš\i\ ‘skin’, etc. (NCED 228); PY *\?=\e\se ‘scale (of fish)’ (SSEJ 188).
\textsuperscript{24} The initial k- in the Roncalese variant is a mystery.
\textsuperscript{25} Chechen d\-\c\a ‘paternal aunt’, Lak du\s\ ‘daughter’, Tsakhur i\d\i ‘girl’, etc. (NCED 952).
\textsuperscript{26} Karata e\l a ‘pine tree’, Khwarshi a\ža ‘tree’, Adyge č\a\-\g\o ‘tree’, etc. (NCED 549); PY *\?\j\i ‘tree trunk’ (SSEJ 310; LDC #65).
\textsuperscript{27} Andi bo\c\co, Lak barc ‘wolf’, Chechen borz ‘wolf’, etc. (NCED 294); PST (Old Chinese) *pr\ats ‘mythical predator’; PY *per(?)s-tap ‘wolverine’ (SSEJ 247).
\textsuperscript{28} Lak kunc\a, Andi lenc\i\c ‘bog, marsh’, etc. (NCED 770).
\textsuperscript{29} Agul icle- ‘to turn (on an axis)’, Tabasaran b-ilcun-ag ‘whirligig, humming-top’, etc. (NCED 649).
PDC *mHärčwV ‘snot’ ~ Bsq *moʃu ‘nose’ > (G) musu ‘nose, face, kiss, point’, (B) mosu ‘kiss’, etc.
PEC *țiVrçwV ‘dirt, bog’ ~ Bsq *təš-ka ‘(fine white) clay’ > (c) toska, (L) thoska
PDC *xHvř’V ‘a carnivore’ ~ Bsq *has-koin ‘badger’ (cf. *haɾc ‘bear’, below)

1.b. When the Basque word is disyllabic, and the final vowel is /i/, the liquid-affricate cluster results in Basque /h/, probably by way of a hypothetical development of *š or (retroflex) *ʃ > (velar fricative) *x > /h/. The /h/ is subsequently lost in southern Basque dialects (AN,B,G,R):

PDC *meɬ-nil ‘tongue’ > [mishi] > *mixi > Bsq *mihi ‘tongue’ > (BN,L) mihi, (Z) [miʃ], (G) mi, (AN,R) mi, (B) min
PEC *tVler ‘weed’ > [iʃi] > *ixi > Bsq *ihi ‘rush’ (water plant) > (BN,L) ihi, (Z) [iʃ], (B,G) ii
PDC *boɬcw ‘a cereal’ ~ [biʃi] > *bixi > Bsq *bihi ‘seed, grain, fruit’, (AN-Baztan) bigi [biyi] ‘fruit’, etc.
PPEC *bær-wV ‘cattle’ ~ *[besi] > *bexi > Bsq *behi ‘cow’ > (BN,L,Z) behi, (AN,B,G,R) bei

While the stage represented by [*miʃi], etc. is entirely hypothetical, the stage represented by *mixi [miçi], *bexi [beçi], etc., is attested: see, for example, the recordings of Low Navarre dialects by MOUTARD (1975): [mih(ç)ja] ‘la langue’, [beh(ç)ja] ‘la vache’ (cf. BENGTSON 1995b: 100-101).

1.c. When the Basque word is monosyllabic, both liquid and affricate remain

30 Chechen marš, Chamalal maš ‘snot’, etc. (NCED 816); Bur. (H,N) –maš ‘snot’ (also ‘nose’ in Y), (Y) –maš-puş-i ‘nostrils’, etc.
31 Hunzib tae ‘bog’, Chechen t’q’arš ‘slush, mire’, etc. (NCED 992).
32 Chechen geşt ‘otter’, Dargwa xar ‘marten, squirrel’, etc. (NCED 1073); PY *ga(?)-s ‘badger’; Na-Dene: cf. Haida (Alaskan) xúuc ‘brown bear, grizzly bear’, Tlingit xúuc id..
33 (Z) harzk, hazk, (R) azkoñ, (L) azkuin, (AN, L) azkona, (AN, B, G) azkonar, etc. It seems to be a compound of hartz + *ko(i)n, the latter of which may be cognate with Yeniseian *k-ŋ ‘wolverine’ (SSEJ 242).
35 Obviously we dispute the reconstruction *bini ‘tongue’ (e.g., TRASK 1997: 141, following MICHELENA). That reconstruction cannot account for the strong fricative in [mih(ç)ja] recorded by MOUTARD.
36 Godoberi hanč’ir, Khварshi ɬe’ila, Lezgi eč’el ‘weed’, etc. (NCED 223).
37 Godoberi buča ‘millet’, Avar muč, Kabardian maš ‘millet’, etc. (NCED 307); Bur. *baž ‘(small-grained) millet’ > (H,N) ba ɬ (Y) ba; PST *pbrë(s) ‘rice, buckwheat’ (STD I: #302).
38 Godoberi purc:i, Avar bóč’i ‘cattle’, Lezgi bəɾ’ak ‘young buffalo’, etc. (NCED 296).
39 Possibly the standard Basque orthography influenced MOUTARD to write [mih(ç)ja], [beḥ(ç)ja] rather than simply [miçja], [bečja].
intact (the latter as /c/ [orthographic tz]):

PNC *?w(ĩ)nircE ‘insect’\(^{40}\) \(\sim\) Bsq *baɾe ‘nit’ > (B) bartz, (R,Z) bartz, (AN,BN,G,L) partz, (BN) phartz\(^{41}\)
PEC *parcê ‘water jug’\(^{42}\) \(\sim\) Bsq *Peɾc ‘cauldron’ > (L) phertz, (AN,G) pertz, (AN,BN,R,Z) bertz
PDC *₸HVe’tV ‘a carnivore’ \(\sim\) Bsq *₸Ve’t > ‘nit’ > (B) bartz, (AN,BN,G,L) partz, (BN) phartz

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<th>2. PDC clusters of nasals and dental or (post-)velar occlusives</th>
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<td>As a general rule, nasals are preserved in Basque in this position. The occlusives tend to become voiced (/nd/, /ng/), with some exceptions (/nt/, /nk/), mainly in Eastern Basque (esp. Zuberoan, Roncalese):</td>
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<td>PDC *?ntV ‘earth, sand’(^{46}) (\sim) Bsq *fionda- ‘sand’ &gt; (L) hondar ‘sand, bottom’, (B,G) ondar ‘sand’, etc.(^{47})</td>
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<tr>
<td>PEC *?ntV ‘sickness, defect’(^{48}) (\sim) Bsq *ondiko &gt; (AN,BN,L) ondiko ‘misery, misfortune’, (Z) ondika-tu ‘to insult, outrage’, etc.</td>
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<td>PDC *xHwintV ‘knee, elbow’ &gt; Bsq *u-kondo ‘elbow’ &gt; (L) ukhondo, (AN,B,Sal) ukondo, (BN-Aldude) ukhundo (^{49})</td>
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<tr>
<td>PDC *λwŋdV ‘wood, firewood’(^{51}) &gt; Bsq *i-lhinti ‘firebrand, ember’ &gt; (Z) ilhinti,</td>
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Proto-Circassian *kʰwā(n)da *‘much, many’ ~ Basq *haundi ‘great, big, large’ > (BN,L) haundi, (c) handi, andi
PDC *cʰîndV ‘stump, stick’ > Basq *sendo- ‘load of firewood’ > (G) zendor
PDC *qʰômdV / *qʰîntV ‘joint, bone’ > Basq *ondo > (AN,B,G) ondo ‘tree trunk’, (R,Z) ondo ‘trunk, stump’, etc.
PDC *[s]HwîntV ‘sniff’ > Basq *Sunda ‘sniff, smell’ > (B) zunda, sunda ‘sniffing, odor’
PDC *fimkwV ‘fist’ ~ Basq *hu(n)ki ‘touch, feel’ > (BN,L,Z) hunki-, (AN,G,L) uki-
PDC *[t]Hânko ‘drop, spray’ > Basq *tanka ‘drop’ > (R, Z) tanka, (B) tanga
PDC *čânkV ‘‘drop’, etc. (NCED 1000); PST *pu¢k ‘lap, breast’ > (R) ‘lap, border of a garment’, (BN) ‘wing’, etc. : (cf. Abkhaz a-mg=a belly)
PDC *[G]wVnGwV ‘neck’ > Basq *gonga- ‘windpipe’ > (AN-Baztan) gongar

However, the PDC sequence /b(H)Vn(x)K/ results in Basque /mVK/, convergent with some Caucasian developments:

PDC *bVn(x)kwA ‘belly’ > Basq *maga-l ‘lap, breast’ > magal (R) ‘lap, border of a garment’, (BN) ‘wing’, etc. : (cf. Abkhaz a-mg=a belly)
PDC *bôns(x)ôjô ‘back, side’ > Basq *moko- ‘bottom, buttocks’ >

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52 Adyge kʰwânda, Kabardian kʰâd ‘much, many’ (CWC 149, LDC #203).
53 Avar c’adäri ‘fuel’, Lak c’inna ‘dry stalks as fuel’ (NCED 366); PST *sîŋ ‘tree, wood’ (STD IV: #385);
PY *sV(ŋ-gVI- ‘stump’ (SSEJ 279; cf. LDC #64).
54 Avar hod ‘spine’, Dargwa (Ak.) ñîmd ‘knee’, Agul ad ‘shin, shank’, etc. (NCED 247); Yen. *ʔaʔd ‘bone’ (SSEJ 178).
55 Avar s:unt ‘sniff’, Tsakhir syunt ‘dried snot’, etc. (NCED 961); PST *chût (*T-sūt ?) ‘sniff, breathe’
(ST IV: #146).
56 Since the phonemes z /s/ and s /s/ have merged in Bizk., it is difficult to know the original sibilant.
58 Rutul t’ank ‘drop’, Avar t’ink ‘drop’, etc. (NCED 1000); PST *tëk ‘drop’ (STD II: #441); PY *teK-
’drop’ (SSEJ 283).
60 Khinalug ãña ‘field’, Bezhta õ’â ‘small plot of land’, etc. (NCED 561); PY *loGV ‘meadow’ (SSEJ 197).
61 Tabasaran q’aman ‘knee’, Abkhaz a- qʰwáqw’a ‘hip-bones’, etc. (NCED 908); PST *kûk ‘bend’ (STD V: #270; cf. LDC # 43).
62 Andi q: ‘awq: ‘gullet’, Bezhta bab ‘crop, craw’, etc. (NCED 473); PST *qìg ‘neck’ > Tibetan gong-
ba ‘collar’, etc. (STD V: #566).
63 Abkhaz a-mqw’a ‘belly’, Avar bakh’ali ‘belly’, etc. (NCED 318); PST *pûk ‘belly’ (STD I: #226).
64 Chechen buq’, Hinukh moqoli, Dargwa maq ‘back’, etc. (NCED 310); PST *pûh ‘side, back side’ >
Burmese phâq ‘buttocks, bottom, behind’, etc. (STD I: #183); ? Bur. *pa[n] ‘side’ > (H,N,Y) ‘(by) side’,
While PDC *\(n\xi\)- yields Basque /g/, phonetically /ŋ/. Tindi and some other Caucasian languages convergently have a uvular fricative reflex:

PDC \(\xi\) 'to search, ask' > Bsq \(\xi\) 'to know (a person)' > (c) \(\xi\) : (cf. Tindi c'i'x-i 'to search')

PDC *\(\xi\)wV 'a kind of stone' > Bsq *\(\xi\) 'ulcer; rennet' > (AN,L) \(\xi\) : (cf. Tindi \(\xi\)a-r 'pus' < *\(\xi\)w\(\xi\)a-r < *\(\xi\)\(\xi\)o\(\xi\)o-r)

PNC *\(\xi\)w\(\xi\) 'river' ~ Bsq \(\xi\) 'river' > (BN,L) \(\xi\), AN,B,G,Z) \(\xi\)

3. PDC liquids and lateral affricates

Proto-Dene-Caucasian had abundant liquids and lateral affricates whose developments are very interesting in the daughter languages. There were at least five liquid resonants or fricatives, *\(r\), (palatal) *\(i\), *\(l\), (velar) *\(t\), and (voiceless) *\(\lambda\) [f], and three lateral affricates, voiceless *\(\lambda\) [tf], voiced *\(L\) [dl], and glottalized *\(\lambda\) [t'].

In Basque the phonetic picture was simplified, so that all original lateral affricates merged. However, the developments are peculiar, depending on their eventual position in the Basque word, and are excellent examples of the “non-trivial” correspondences referred to by STAROSTIN above.

3.a. In initial position all three PDC lateral affricates (along with PDC *\(l\), *\(t\), and...
*λ₁*) merged as Basque /i/:  

Bsq *lisun ‘moldy, musty, dirty’ (see above) ~ PEC *λwilçwV ‘dirt; bog’  

Bsq *limuri ‘wet, slippery’ < PDC *λHwêmV ‘liquid, wet’  

Bsq *leña ‘slipping, sliding; to slip, slide’ > (c) lerra- ~ PEC *rVλV(r) ‘to crawl, glide’  

Bsq *lanbro ‘fog, mist’ < PDC *λënwrV / *rēñλwV ‘cloud, fog’  

Bsq *lanho ‘cloud, fog’ < PDC *λemliwA / *fiwemλA ‘cloud, dream’  

Bsq *leher ‘to burst’ < PDC *HǐwVr / *λiHwVr ‘to burst, tear’  

Bsq *lai ‘two-pronged fork for loosening soil’ ~ PEC *lVzwV ‘rake’  

Bsq *las ‘beam, rafter’ > (L) laz ~ PEC *λVeV ‘log, pole’  

Bsq *lokV ‘temple, forehead’ ~ PEC *λarqwē ‘forehead, cap’  

Bsq *lirain ‘slender, svelte, lithe’ > (B,G,L) lirain < PDC *=iHIV ‘thin’

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71 Lak kunc’a, Andi kene’u ‘bog, marsh’, etc. (NCED 770).
72 limuri (Z) ‘moist, humid, slippery’, (AN,G) ‘soft, smooth’, etc.
73 Avar X:ami-ja-b ‘liquid’, Dargwa (Chirag) šgm-ze ‘wet, liquid’, etc. (NCED 768); Bur. *tam ‘bathe, wash, swim’ > (H,N) tam dél-; etc.; PST *lom ‘to soak’ (STD III: #82); Na-Dene: Proto-Eyak-Athabaskan *ke:Tzh ‘wet’, to swim’.
74 Avar (Chad.) kors- ‘to glide’, Hunzib taka-X ‘to crawl’, etc. (NCED 224); Na-Dene: Haida (Alaskan) xunuug ‘to crawl’; Tlingit šix ‘to creep, crawl’.
75 (B) lanbro ‘fog, mist, vapor’, (L) lanbro ‘fog, mist’, etc. The Basque words *lanbro and *lanho (next comparison) are very similar, phonetically and semantically, and have probably contaminated each other and merged in some dialects. (Cf. LDC #94, where both words are conflated.) However, in some dialects they are opposed, e.g. (AN-Baztan) lanbro ‘fog / bruma’ vs. lano ‘cloud / nube’ (according to AZKUE).
76 Chechen do’k ‘fog’, Khinalug unk ‘‘cloud’, etc. (NCED 947); Bur. *harâlt ‘rain, cloud’ > (H,N,Y) harâlt (apparently influenced by *harâ- ‘urinate’); PST *rög ‘rain, drop’ (STD II: #190).
77 (B,G) laili ‘fog, mist’, (BN,L) lanho ‘vapor’, etc.; see the note to *lanbro.
79 (BN,L,Z) leher; (AN,B,G,R) ler.
80 Hunzib –uk’ ‘to burst, tear’, Agul t’ulk’an- ‘to burst, split’, etc. (NCED 413); Bur. *-tûr ‘to fall to pieces, disintegrate’ > (H,N) –tûr-, (Y) tûr-, du-tûr-; PST *rût ‘dismolish, ruin, tatter’ (STD II: #391); PY *tûl ‘to break’ (SSEJ 193).
81 (AN,B,G,L,R) lai < *laHia? Also found in Spanish laya, which “has no Romance etymology. … that the word is Basque in origin … appears plausible, though by no means certain.” (TRASK 1997: 418).
82 Avar X:oq:örç:o, Bezhta xax-dami ‘rake’, etc. (NCED 781); Na-Dene: Haida (Alaskan) xax̲adáaw ‘file’, Tlingit x̀xa ‘herring rake’.
84 (B,G) lokí, (R) lokon, lokune ‘temple (of head)’, (B-Ubideia) loki ‘middle of forehead’.
85 Khwarshi X:og’o ‘forehead’, Avar t’a’úr ‘cap’, etc. (NCED 775); cf. PST *T-lekʷ ‘back, back of head’ (STD II: #228); Na-Dene: Navajo X:ah ‘sides of the face, temples, side of head’, Carrier –X:a- ‘temples’.
86 Avar t’erēna-b, Khinalug k’ir ‘thin’, etc. (NCED 639); Bur. *tharën- ‘narrow, tight [of clothes]’ > (H,N) tharën-um; PST *riiål ‘thin, watery (STD II: #269); Na-Dene: Haida X:a- ‘thin flat object’. 
Bsq *lahər ‘bramble, creeping plant’87 < PDC *λwirV ‘leaf’88
Bsq *lapa-r ‘bramble, thorn’ > (B, BN, R) lapar < PDC *λapi ‘leaf’89
Bsq *lU6- ‘corral, fence’90 ~ PEC *lawi6V ‘stall, barn, shed’91
Bsq *lega-r ‘small stone, pebble, gravel92 < PDC *λaŋgV ‘a kind of stone’93
Bsq *leño ‘line, file, row’ > (c) lerro ~ PEC *lawar(h) ‘boundary, row, furrow’94
Bsq *lo ‘sleep’ > (c) lo ~ PNC *=HVw2Án ‘to sleep’95
Bsq *lega-r > (AN, L) legar ‘ulcer (in the mouth)’, (B) legar ‘rennet’ < PDC *lwēn̂xV ‘pus’96
Bsq *lape ‘shelter under the eaves of a shed’ > (Z) lapes < PDC *λu[p]jV ‘flat, slab’97
Bsq *lařu ‘skin, leather’ > (c) larru, (B) narru < PDC *Lõri / *Lirõ ‘skin’98
Bsq *luf ‘earth’ > (c) lUr (lurra ‘the earth’) < PDC *lwēŋ’hI ‘earth’99
Bsq *lařa ‘meadow, pasture’100 < PDC *L(w)erV ‘pasture, yard, fence’101
Bsq *lař ‘sad, anxious, worried’, etc. > (B) larru ~ PNC *LwērV ‘hard, severe,

87 (BN, L) lahar; (AN, B, G) laar; (AN, G) lar; (Z) nahar; (Sal) naar; (R) nar ‘bramble, creeping plant’.
88 Andi Χ’oli, Dargwa k’a ‘leaf’, etc. (NCED 784); PST *T-lā(κ) ‘leaf’ (STD III: #212). For the semantics of this (and the following) comparison cf. the Indo-European etymology including English thorn, Sanskrit tīfā- ‘straw, grass’, etc.
89 Lak c’ap’i, Adyge thāp, etc. ‘leaf’ (NCED 774); Bur. *ltap ‘leaf’ > (Y) tap ‘leaf’, du-ltápi- ‘to wither’; (H, N) tap ‘petal, page’, du-ltápu- ‘to wither’; PST *lāp ‘leaf’ (STD III: #46); PY *jōpe ‘leaf’ (SSEJ 232).
90 (B) laban ‘enclosure’, (BN) lobiro ‘farmyard, corral’, (L) lobbio id.
91 Chadokolob t’wi ‘calf-stall’, Hunzib Χ’iber ‘shed, hayloft’, etc. (NCED 783).
92 (BN, G, L) legar.
93 Akhwakh Χ’axa ‘ruins’, Hinukh Χ’ix̂’in ‘cobblestone’, etc. (NCED 774); PST *T-liāy / *T-liāk ‘stone’ (STD III: #250); Na-Dene: Haida ɫ̃oa: ‘stone’ (SD 219).
94 Avar Χ’:er ‘garden bed, terrace, row, rank’, Dargwa jara ‘furrow’, etc. (NCED 782).
95 Akhwakh Χ’:unu-, Kabardian ŋe, etc. ‘to sleep’ (NCED 619); in nominal form cf. PEC *mhewlā. PST *m̃̂a†, Proto-Eyak Athabaskan *wet ‘sleep’ (SD 224). Cf. LDC #124: Bsq lo + Sumerian ɫu ‘lie, sleep, stand’.
96 Andi loq̩o ‘pus’, Khwarshi ɣi’ ‘snot’, etc. (NCED 783); PST *lîŋ ‘pus, abscess’ (STD III: #94).
97 Chechen laba ‘shed; peak of cap’, Avar lyeb ‘stone’, etc. (NCED 777); Bur. *tápi ‘stone terrace’ > (H, N) tápi; PST *T-lēp ‘flat, slice’ (STD III: #234); PY *j[e]p ‘shovel, plank’ (SSEJ 232). Cf. LDC #151, with somewhat different comparanda.
98 Dargwa (Akushii) guli ‘skin, sheepskin’, Avar Χ’:er ‘color’ (< ‘skin’), etc. (NCED 789); Bur. *tar-ŋ ‘skin bag’ > (H, N, Y) tarŋ.
99 Avar rAč₃!: ‘earth, ground’; Lak luq̩č:i ‘earth, land’, etc. (NCED 747); PST *lîŋ ‘field’ (STD III: #99), or PST *luug ‘interior; valley; (land, field)’ (STD III: #153). It seems likely that the original PDC form was *łwēŋ’hI or *łwēŋ’hI, altered by assimilation in Caucasian.
100 (c) larru, (B) larru.
101 Avar lol ‘an open enclosure (for sheep)’, Archi Χoli ‘yard, place in front of the house’, etc. (NCED 792); Bur. *tər ‘mountain pasture, summer pasture’; PST *rāl ‘fence, framework’ (STD II: #204).
3.b. Between vowels all PDC lateral affricates result in the cluster */ɾd/-phonetically [ɾo]- in Basque. (See below for the developments */ɾ/ and */l/.)

PDC *ɔ JoyV'V 'a kind of grass' > Bsq *fiako 'tinder (made from fungus)'111
PDC *=DjE 'half, middle' > Bsq *eardi 'half, middle' > (c) erdi
PDC *HwJoyV'V ~ *nHJoyV'V 'dark, blue; iron' > Bsq *uirdin 'blue', *buirdin 'iron' > (B) urdin 'blue, gray', etc., burdiña 'iron', (L) urdin, burdina, etc.
PDC *caJoyV'V 'blood, life, red' > Bsq *i-sirdi 'sweat, sap' > (c) izerdi, (B) izardi

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102 Chechen lüra 'severe, dangerous', Bezhta =l'aro 'hard', etc. (NCED 792).
103 (c) larrain, (B) larrin, larren, (R) larren, llarne.
104 Avax lol, Archi xorom 'threshing board', etc. (NCED 1031); Bur. (N) dalın- 'to thresh (millet, buckwheat) < *rVlVn-
105 Tindi bid 'i-da '8', Archi meke '8', etc. (NCED 314); PWC *p'X' o '4' (CWC 395); Bur. *alt- 'duad' > (H) alt '2' (with different class forms), walto '4', altámbo '8'; PST *p'luj '4' > Old Chinese *s-lih-s, Tibetan bži, Thulung blī, Dimasa bīrī, etc. (STD III: #91).
106 Akhwakh xali 'mould', Lezgi x vel 'boil, furuncle', etc. (NCED 770); PST *T-růt 'dust' > Tibetan r dul, etc. (STD II: #456); PY *p'ult 'mud' (SSEJ 199); Na-Dene: Sarsi -lūi, lūi: 'to be moldy'.
107 (AN,BN,L,Z) erdoil, (AN,G) erdoi. 'rust (of iron) in (AN,BN,L,R,Z), 'rust of plants' in (AN,G).
108 Andi a=t-in 'similar', Dargwa (Ak.) mešu-si 'similar, alike' (< *mixV < *b-ixVn-), etc. (NCED 261); PST *T-lūm 'the same, accompany' (STD III: #274); Na-Dene: Haida lūu 'the same as, equal to', Sarsi -lūu 'to seem'.
109 bardin in (B,Z), berdin in (G), bardin in (G), both variants in (BN,L,R). Note the probable presence of fossilized class prefixes (b-, r-, j-) in several of these comparisons. Originally denoting grammatical class distinctions, they sometimes became lexicalized.
110 Chechen jol 'hay', Lezgi weq 'grass', etc. (NCED 230); PST *l'jjwH 'weed' (STD III: #157); Na-Dene: *X'ul'w 'grass' > Navajo X'ōh, etc. (LDC #89, with a different Bsq comparison).
111 (c) ardaï, ardaï-, (L) hardo, (Z) ardaï, (Alava) erdaï, etc. 'tinder (made from a kind of dried fungus)'.
112 Bezha =a'ho 'middle', =a'ho-kos 'half', Lak =a'dli 'half', etc. (NCED 412); PY */a'lj 'half, middle' (SSEJ 178); PST *T-lūj 'middle, navel' > Tibetan l-te, etc. (STD III: #205; LDC #166).
113 Arche naksdu 'blue', Ubykh wacʷ 'á 'iron', etc. 'The concept of iron being a 'blue metal' ... goes back to one of the earliest varieties of tempered iron (steel), which was in Greek called kíanos (cyan) and was dark blue in colour ...' (NCED 851); PST *nok 'dark, black' > Tibetan nag, gnag 'black', etc. (STD II: #75).
114 Chechen c'ij 'blood', Avar č'ágo-b 'alive', etc. (NCED 376); PY *sur 'blood, red' (SSEJ 278).
PDC *LōlV ‘neighbor’\(^{115}\) > Bsq *eřdara /*eřdal ‘foreign (of language)’\(^{116}\)

PDC internal clusters of resonant /l,r,n,m/ + lateral affricate produce the same result in Basque as the simple affricates:

PDC *jālāwV ‘shovel, pitchfork’\(^{117}\) > Bsq *ša-hařde ‘(two-pronged) fork’\(^{118}\)
PDC *hālāwV ‘branch, bough’\(^{119}\) > Bsq *ařda-r > *adař ‘branch’ > (c) adař\(^{20}\)
PNC *=ařlūų ‘to go, walk, enter’\(^{121}\) ~ Bsq *VřdV ‘come, go’ > (B) erdu ‘come ye!’ (2nd pers. pl.); (Z) orde-zū ‘go!’ (2nd pers. sg.)
PDC *bůhVřrV ‘intestine’\(^{122}\) > Bsq *bařda ‘belly, paunch’ > (AN-Baztan) barda ‘belly’, barda-ki ‘tripe (as food)’ (cf. Chechen bšara ‘liver sausage’)\(^{123}\)
PDC *wHāržwō ‘pig’\(^{124}\) > Bsq *uďre ‘pig’ > (c) urde ‘(male) pig’
PDC *e(r)ǚwVř- ‘to deceive’\(^{125}\) > Bsq *lařde > (Z) larde ‘apprehensive’, larderia ‘intimidation, fear’, etc.
PDC *=třl- V ‘stomach, belly’\(^{126}\) > Bsq *uďdail ‘stomach, abomasum, womb’\(^{127}\)
PEC *mōrLv ‘male’\(^{128}\) ~ Bsq *mařdo, *mařdul ‘strong, robust, fertile’\(^{129}\)

\(^{115}\) Khwarshi \(\text{šar} \) ‘guest’, Chechen \(\text{l’-la-7d} \) ‘neighbor’, etc. (NCED 790); PST *řt ‘friend, neighbor’ (STAROSTIN, p.c.).

\(^{116}\) Generally, erdera, erdel- in the south and west, erdara, erdal- in the north and east of Basque Country.

\(^{117}\) Bezhta āko. Lezgi jįř ‘wooden shovel’, etc. (NCED 673); Bur. *ja(j)alt- > (H,N) gi ǰált ‘spoon, scoop’; PST *jok ‘spoon, ladle’ > Burmese yauk, etc. (STD IV: #320).

\(^{118}\) (L) saharde, (AN,G,R,Z) sarde, etc. This appears to be an old compound, of which the first element is unknown. In some dialects the word is also used for ‘dinner fork’. *ři is a hypothetical laryngeal that results in /h/ in Lapurdi and Low Navarre, but 0 in Zuberoan. Ordinary *h becomes /h/ in all three dialects, while in the others (AN, B,G, R) both *h and *ři disappear.

\(^{119}\) Avar BarButton: ‘el ‘branch, bough’, Tsez aš’iru ‘pod’, etc. (NCED 508); Bur. *jáltar ‘the upper leafy branches of a tree’ > (H,N) yältar; cf. (H,N,Y) gáltar ‘small twig’.

\(^{120}\) adar ‘branch’ is apparently a homonym of adar ‘horn’ (see a separate comparison for the latter).

\(^{121}\) Archi a=ǰi ‘to come’, Lak ǰi ‘let’s go!’, etc. (NCED 422).

\(^{122}\) Avar baž ‘intestine’, Udi buq:un ‘belly’, etc. (NCED 297); Bur. *bal > (H,N,Y) bal ‘marrow; walnut kernel’; PST *Pik ‘bowels’ > Mikir phek. Garo bi-bik (STD I: #12); PY *piṭu ‘guts’ (SSEJ 250). (For Bur., ‘marrow’ is the ‘guts’ of the bone, ‘kernel’ is the ‘guts of the nut, quite usual.)

\(^{123}\) A nasal variant marda in (BN,R,Z).

\(^{124}\) Tsez beʃo, Lezgi wak ‘boar, pig’, etc. (NCED 1047); PST *wāk ‘pig’ > Burmese wak, Tibetan phak, etc. (STD I: #438; LDC #45, with a different Bsq comparison).

\(^{125}\) Chechen lė-dan, Ubykh ša ‘to deceive’, etc. (NCED 651); PST *T-lōl ‘to miss, fail’ (STD III: #273); PY *ʔa(j)ɐɾ(u) ‘deceive, deceit’ (SSEJ 183).

\(^{126}\) Tindi b-eš:u ‘stomach, rennet, abomasum’, Archi b-aľ ‘rennet, abomasum’, etc. (NCED 670); Bur. *uľ ‘belly, abdomen’ > (H,N,Y) -uľ; PST *T-lōw ‘belly, stomach’ > Tibetan lio, etc. (STD III: #284); Na-Dene: Haida s-láan ‘intestines’.


\(^{128}\) Chechen mar ‘husband’, Kryz miyi ‘male’, Archi mečle ‘male’, etc. (NCED 830).


PEC *tsənɬɬV ‘spindle, pivot’\(^{130}\) ~ Bsq *ař-d-ac ‘axle, spindle’ > (c) ardaz
PNC *r-VmɬA ‘night, evening’\(^{131}\) ~ Bsq *b-ařT(a) ‘last night’, *b-eřd-anca ‘night before last’\(^{132}\)

In a minority of cases (perhaps due to different prosodic conditions) Basque has *ff rather than *fd in this position:

PDC *ʔV̥wV ‘last year’\(^{133}\) > Bsq *uřte ‘year’ > (c) urte, (BN,L,Z) urthe
PDC *=VmɬV ‘to come, go’\(^{134}\) > Bsq *uřten ‘to go out, leave’ > (B) urten, (G) irten
Burushaski *hultas ‘barefoot’\(^{135}\) ~ Bsq *oʃ-tə > *oʃtul > *oʃtul ‘snout’\(^{138}\)
PNC *mɪłɬɬV ‘husband, male, worker’\(^{139}\) ~ Bsq *mutil > *multil > *mutil ‘boy, servant, worker’ > (c) mutil, (R) mìtil, (Z) mìthil
PEC *̥wɔdwi ‘corn, grain’\(^{140}\) ~ Bsq *aɾtø ‘millet’\(^{141}\)

When the Basque word has a strong /ɾ/ in a syllable following or preceding the original lateral affricate, dissimilation may take either of two forms: (a) the first /ɾ/ is dropped (*V̥dV̥ > *VdV̥ or *VtV̥ > *VtV̥) or (b) the cluster /ɾd/ changes to /ld/:

\(^{130}\) Bezhta, Hunzib aɬ ‘spindle’, Agul ʰark’il ‘pivot of a spindle’, etc. (NCED 236).
\(^{131}\) Avar noɬr ‘yesterday evening’, Dargwa (Ak.) dugi ‘night’, etc. (NCED 955); cf. Bur. *khú-ulто ‘today’, *b-ultú ‘day’, *alt-úl ‘2 days’, etc. > (H,N) khúulto, (Y) bultu, (H,N,Y) altul, respectively.
\(^{132}\) (BN,L,R,Z) barda ‘last night’, (AN,B,G) barid id., (AN,B,G) berdantza ‘the night before last’.
\(^{133}\) Avar aɬ ‘i-sa, Bezhta iɬ ‘e, etc. ‘last year’ (NCED 225); Bur. *el-den ‘vor-vor-voriges Jahr’ > (Y) əlden.
\(^{134}\) Avar (Chad.) t’wèn ‘to go away’, Bezhta =ɛɬ ‘- to go, walk’, etc. (NCED 1026); Bur. *-lú ‘to follow, reach’, etc. > (H,N) tás- /-lú-, (Y) tás-; PST *T-lú(H) ‘to come’ > Burmese la ‘come’, lah ‘go’, etc. (STD III: #196); Na-Dene: Haida (Alaskan) -ʔaa ‘arriving’.\(^{135}\) (Y) hultas, holta ‘barefoot’; related to *-ltu ‘to put on (shoes, socks)’.
\(^{136}\) (B) ortoz, (G) ortuz, (BN,L) orthus, etc. Cf. PEC *̥mʊɬ V ‘to put on (trousers, shoes)’ > Andi =iʔ ‘in-, etc. (NCED 861); Bur. *-lú ‘to put on (shoes, socks)’ > (H,N) ‘lú-, (Y) –lú-; PST *luam(H) ‘shoe, boot’ > Tibetan lham, etc. (STD III: #181); Na-Dene: Navajo -ʔé, -ʔéʔ ‘socks, stockings, leggings’.
\(^{137}\) Chechen mara ‘nose’, Avar bet ‘er ‘head’, Udi buł ‘head’, etc. (NCED 1041); Bur. *-múltur ‘nostril’ > (H,N) -mṽltur; PST *luH ‘head’ > Old Chinese *s-luí, Lushai lu (STD III: # 156).
\(^{138}\) (B) mutur ‘snout, muzzle; end, edge’, (Z) múthur ‘snout, muzzle’, etc. A fossilized suffix *f frequently comes into play in some of these words. It is probably to be identified with PDC *r; a plural or collective suffix.
\(^{139}\) Dargwa murul, murgul ‘man, husband’, Kabardian ʰǝ ‘man’, etc. (NCED 826).
\(^{140}\) Chechen jalta, Lezgi gad ‘corn’ (grain), etc. (NCED 789). Comparison with PEC *φ sûrV ‘a kind of cereal’ (wheat, oats) is also possible (NCED 950).
\(^{141}\) (c) arto denotes ‘maize’ in modern Bsq, while millet is now arto-txiki, arto-xehe ‘little maize’.
3.c. In Basque final position the few examples suggest that PDC lateral affricates merge as /l/, as they did in initial position:

PDC *HiwɛV ‘to die, kill’ > Bsq *hil ‘die, dead, death’ > (c) hil, il
PDC *(b)=VɛnɛV ‘all’ > Bsq *b-il ‘to assemble, amass, unite’ > (c) bil, bil-du
PEC *χwɛlɛV ‘clothes’ > Bsq *oihal ‘cloth, fabric’ > (BN,L,Z) oihal, (AN,B,G,R) oial

In the case of a cluster of rhotic + lateral affricate, the rhotic element dominates in Basque. The same is true for the PDC cluster *rɛ:\n
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142 Avar Ӧ:aj, Chechen kur ‘horn’, etc. (NCED 771); Bur. *-ltur ‘horn’ > (H,N) –ltur, tur; (Y) tur.
143 adar ‘horn’ is apparently a homonym of adar ‘branch’ (next comparison).
144 Chechen nilʒu ‘thin, sparse’, Hunzib ʰamu ‘thin, narrow’, etc. (NCED 521).
145 (AN,G) medar; other dialects have forms influenced by *mehe ‘thin’: (BN,L,Z) mehar; (B,R) mear.
146 Tindi hanla, Lezgi heq ‘etc. ‘sweat’ (NCED 509).
147 The distribution in the dialects is roughly: herde (BN, L), erde (AN), helder (BN, L, Z), elder (B, R). The words (h)erde, (h)elder have naturally become confused and contaminated with another word for ‘drivel’: Bsq lerre, lirdi. However the latter appears to be of distinct origin – PEC *χwɛrdi > Archi t:wit ‘manure, dung’, Avar xɛr’d ‘pus’, etc. (NCED 763; LDC #19).
148 Avar X’:er-, Tsez =oɑ, ‘to be frightened’, etc. (NCED 1031).
149 Batsbi bali ‘shoulders’; Adyge, Kabardian p’k’a ‘upper part of back’, etc. (NCED 313); Bur. *-wáld-‘back’ > (H,N) –wáldas, (Y) wáldes; *bal- ‘place between the shoulders’ > (H) bálbal, (N) bábal (LDC #32).
150 Chechen =al- ‘to die’, Bezhta -iƛ ‘to kill’, Adyge ƛ’a-n ‘to die’, etc. (NCED 661); Old Chinese *hij ‘corpse’; Na-Dene: Haida ƛ’a-dáa ‘to kill (several)’ (LDC #130).
151 Andi hilu-, Chechen –errig ‘all’, etc; PST *T-lų-g ‘all, everything’; PY *bišl- ‘all’ (SSEJ 211).
152 Here as often b- appears to be a fossilized class prefix. Cf. the identical formation in PY *b-ųl- ‘all’.
153 Bezhta ƛiƛo ‘trousers, breeches’, Lak harD:ala ‘cuff, trouser leg’, etc. (NCED 1081).
3.d. In PDC words that contain two liquids, or a lateral affricate and a liquid, Basque frequently has the sequence /lV/ (most of the comparisons are repeated from above):

Bsq *luŋ ‘earth’ < PDC *lweŋx ‘earth’
Bsq *luɾun ‘steam, vapor’ < PDC *λwŋtV ‘wind, to blow’
Bsq *leŋa ‘slipping, sliding; to slip, slide’ ~ PEC *?VλV(r) ‘to crawl, glide’
Bsq *leño ‘line, file, row’ ~ PEC *λwŋ(ŋ) ‘boundary, row, furrow’
Bsq *laɾu ‘skin, leather’ < PDC *λœɾi / *λœi ‘skin’
Bsq *laɾa ‘meadow, pasture’ < PDC *λ(ŋ)œrV ‘pasture, yard, fence’
Bsq *laɾi ‘sad, anxious, worried’, etc. ~ PNC *λœrV ‘hard, severe, stern’
Bsq *laɾain ‘threshing floor’ < PDC *λV rV ~ *rVlV ‘to thresh’

Note also the Basque sequence /lVŋf/:

Bsq *lehoɾ ‘pine-(tree)’ > (Z) hoɾ, (BN,R) ier ~ PEC *λɦawŋ ‘a kind of tree’
Bsq *laɾa ‘bramble, creeping plant’ < PDC *λwŋ ‘leaf’ (see above)
Bsq *lehoɾ ‘to burst’ < PDC *λHwVr / *λHwV ‘to burst, tear’ (see above)

And the Basque pattern /VdVl/:

Bsq *uɾdail ‘stomach, abomasum’ < PDC *=ɾλ̂V ‘stomach, belly’ (see above)
Bsq *eɾdara / eɾdal ‘foreign (of language)’ < PDC *λœlV ‘neighbor’ (see above)
Basque *eɾdoil ‘rust (of plants, iron)’ < PDC *λwVŋV ‘mould, dust’ (see above)

3.e. In the following examples (repeated from above) the evidence from Basque and Burushaski suggests that the original second consonant in PDC was *r, which was
assimilated to *l or *ʃ only in Caucasian. In words of this type Sino-Tibetan tends to have the sequence /rVl/, the reverse of Bsq /lV(hV)>(V/:

PDC *Ł̄r̄i / *Ł̄r̄õ ‘skin’, Bur. *ltar- > *tar-ɲ ‘skin bag’, PNC *Ł̄l̄i ‘skin, color’
PDC H̄žčwV́r / H̄žčẂV́r ‘to burst, tear’ > Bsq *lehe ‘to burst’, Bur. *-ltúr- ‘to disintegrate’, PEC *ž(_w)ečr̄v ‘pasture, yard’; PST *račl ‘fence, framework’

4. Basque syllabic structures

4.1. In the following cases Basque has the structure VSCV corresponding to PDC *SV(R)CV (where S = sibilant / sibilant affricate):

Bsq *eštu ‘narrow’ > (AN,B,G) estu < PDC čH̄VrdV ‘narrow, shallow’
Bsq *astto ‘donkey’ > (c) asto ~ PWC *č(’)aďo ‘donkey’; Bur. *čhardV ‘stallion’
Bsq *ešku ‘hand’ > (c) esku, (Z) eskū ~ PEC *čagwV / *gacwV́arm’
Bsq *esko ‘wax’ > (BN,G,L,Z) ezko < PDC čH̄xqwaÁ ‘dirt, resin’ (< *žH̄xqwaÁ’?
Bsq *aško ‘much, many’, *aški ‘enough’ > (c) asko, aski < PDC čH̄qwV́ ‘big’
Bsq *aška ‘crib, manger, trough’ > (c) aska < PDC čäxqwaÁ’ ‘scoop, spoon’
Bsq *aškar ‘strong, swift’ > (c) azkar < PDC č(a(’)qV́(r) ‘strong’
Bsq *oški ‘shoe’ > (c) oski < PDC šwògHwV́ / *gHwošwV́ ‘heal, ankle’

161 Ubykh čoda, Ablkhazian čoda, Circassian čeďa ‘donkey’ (CWC 314).
162 (H,N) čhardá, (Y) čardé.
163 Tsakhur gub’arm’, Khinalug čigin ‘shoulder’, etc. (NCED 448).
164 Budukh č’uq ‘eye secretion’, Ubykh c’aq ‘cattle dung’, etc. (NCED 387); Bur. *čhiki ‘musk’ > (H) čiki, (N) čiki; cf. also PY *čjik ‘resin, pitch, tar’ (SSEJ 310); Na-Dene: PAth *čjik ‘pitch, gum’ > Navajo žéézh, etc. (SD 226; LDC #80; BENGTSON 1999d).
165 Kabardian -šx-a ‘big’, Lak č’uq ‘many’, etc. (NCED 386); Bur. *šoq- ‘loose, broad, roomy’ > (H,N,Y) šoq-um; PST *čok ‘enough’ > Tibetan čhog, etc. (STD IV: #194; LDC #197).
167 Dargwa, Lak c’aq’, Chechen nic’q ‘strength, power’, etc. (NCED 356); PST *čuk ‘firm, hard’ > Lushai sak, etc. (ST IV: #68); PY *saj(k)kar- ‘hard, stiff’ (SESEJ 270).
168 Dargwa (Ak.) q’qš ‘foot, leg’, Tabasarán šaq ‘‘heel’, etc. (NCED 926); Bur. *šoq > (H,N) šoq ‘sole of
It appears that the original stem vowel was transposed in Basque, to initial position.

4.2. In the following cases PDC *(H)r(H)VCV has been restructured as Basque /H)e(H)VCV/. (Initial rhotics are not permitted in Basque.)

<table>
<thead>
<tr>
<th>PDC</th>
<th>Basque</th>
</tr>
</thead>
<tbody>
<tr>
<td>*(H)rVxwA</td>
<td>*efgi ‘steer, young ox’ &gt; (c) ergi</td>
</tr>
<tr>
<td>*(H)rHêcV</td>
<td>‘stomach’ &gt; Bsq *fieRSe ‘intestine’</td>
</tr>
<tr>
<td>*(H)egovA</td>
<td>‘a kind of rodent’ &gt; Bsq *erbi ‘hare’ &gt; (c) erbi</td>
</tr>
<tr>
<td>*(H)rVjcwê</td>
<td>‘(back) end, edge’ &gt; Bsq *e新京 ‘corner, edge, border’ &gt; (B,G) ertz</td>
</tr>
</tbody>
</table>

4.3. Note the recurrent Bsq structure /CahaR/ corresponding to PDC /CVRHV/, /HCVRV/, or /HRVCV/:

<table>
<thead>
<tr>
<th>Bsq</th>
<th>PDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>*lahaf ‘bramble, creeping plant’</td>
<td>*(H)lêwirV ‘leaf’</td>
</tr>
<tr>
<td>*sahaf ‘old’</td>
<td>*(H)lêwirV ‘leaf’</td>
</tr>
<tr>
<td>*cáhal ‘calf’</td>
<td>*(H)lêwirV / *(H)lêwirV ‘heifer’</td>
</tr>
</tbody>
</table>

Summary

TRASK (1997: 404) has derided the Dene-Caucasian hypothesis as an “enthusiastic hoovering up of isolates,” and VOVIN (2002: 167) calls it an “imaginative but futile attempt of human mind” motivated by “a religious belief in macro-families” rather than by scientific rigor.

I suggest that the open-minded linguist consider whether the phonological shoe’.

169 Avar rexé’d ‘cattle, herd’, Chechen dâxni ‘cattle’, Abkhaz á-rač ‘cattle’, etc. (NCED 956); PST *ria ‘ox, yak’ (STD II: #279); PY *IV(?x)ra ‘cow’ (SSEJ 293).
170 Andi ručol ‘intestine’, Abkhaz á-ca ‘abomasum, rennet’, etc. (NCED 339); Bur. *rçi > (Y) ‘-rçi ‘kidney’.
171 (BN, L) hertz, (AN, L, R) ertz, (Z) ertz, erze [érše], (AN, B, G) este. Because the change to /rç/ was secondary, Eastern Bsq *fiéce was not subject to the rule discussed in section 1. Western Bsq *fiéce represents a change seen also in Eastern Bsq *boç / Western Bsq *boçt ‘5’.
172 Tindi rek’u ‘weasel’, Ubykh da’aw ‘mouse’, etc. (NCED 951); PST *ruak ‘rat’ > Burmese k-rwak, Chepang k-yu (STD II: #367; LDC #54).
173 Chechen =ist ‘edge, end’, Avar roc: ‘lower side, anus’, Agul ajs ‘bottom’, etc. (NCED 221); PST *rjet(s) ‘hind end, behind’ (STD II: #312); PY *rós ‘cunnus, vulva’ (SSEJ 268).
175 (Z) txaial [čahal], (BN, L, Z) xahal [šahal], (B) txal [Daal], (B, G) xal [Daal], (BN) xal [šal], (R) x+1 [š+1] ‘calf’.
177 Hoover is the brand name of a common American vacuum cleaner.
patterns described in this paper, and the other non-trivial correspondences discovered by STAROSTIN, are all merely imaginary and based on coincidental resemblances, as TRASK and VOVIN claim. If so, why and how would anyone “imagine,” for example, that PDC lateral affricates become Basque /ɾd/ between vowels, but /l/ in initial and final position? I propose instead that recurrent correspondences of this type serve to confirm the lexical evidence that affirms the real existence of a Dene-Caucasian macro-family of languages.

I further suggest that we approach the problem of Dene-Caucasian, not as a theory to “prove” or “disprove,” but as an explanatory model, subject to constant modification and correction. In this light my colleagues and I offer Dene-Caucasian as a powerful model that helps to explain the dispersal of human beings and their cultures over Eurasia and the Americas. In details it is constantly being modified, as for example when evidence from Basque is added and compared with the existing evidence from the three families compared by STAROSTIN. We can then view the recurrent non-trivial correspondences described above as the linguistic equivalent of the replicated experimental evidence of the physical sciences.

John D. BENGTSON
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ABBREVIATIONS

AN
Alto Navarro = High Navarrese (Bsq dialect)

B
Bizkaian (Bsq dialect)

BN
Bas-navarrais = Low Navarrese (Bsq dialect)

Bsq
Basque = Euskara

Bur.
Burushaski

c
common (Basque), found in all or most Bsq dialects

CWC
Common West Caucasian (CHIRIKBA 1996)

DC
Dene-Caucasian (= Sino-Caucasian)

G
Gipuzkoan (Bsq dialect)

L
Lapurdian = Labourdin (Bsq dialect)

LDC
“Lexica Dene-Caucasica” (BLAŽEK & BENGTSON 1995)

NCED
North Caucasian Etymological Dictionary (NIKOLAYEV & STAROSTIN 1994)

PDC
Proto-Dene-Caucasian

PEC
Proto-East Caucasian

PNC
Proto-North Caucasian

PST
Proto-Sino-Tibetan

PWC
Proto-West Caucasian

PY
Proto-Yeniseian

R
Roncalese (Bsq dialect)

SD
“Sino-Dene” (BENGTON 1994b)

SSEJ
“Sravnitel’nuyi slovar’ enisejskix jazykov” (STAROSTIN 1995)

STD
Sino-Tibetan Dictionary (PEIROS & STAROSTIN. 1996)
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Zuberoan = Souletin (Bsq dialect)

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