Notes on Basque Comparative Phonology

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The genetic classification of the mysterious Basque language has been a topic of vigorous discussion throughout the Twentieth Century, and this discussion continues to the present day. Some of the latest exchanges in this discussion are found in the journals *Mother Tongue* (especially issues I and V) and *Dhumbadji!* (see References). Impelled both by justified criticism and encouragement (see, e.g., Blažek 1995, Starostin 1996), I have worked intermittently for several years at establishing regular phonological correspondences between Basque and the languages that are most closely related to it, namely the (North) Caucasian languages, and Burushaski. In several articles published previously I have used the terms “Macro-Caucasian” or “Vasco-Caucasian” for this hypothetical language family. In the present paper comparisons will primarily be made within the Macro-Caucasian family (Basque + Caucasian + Burushaski). Lexical comparisons involving only Caucasian and Burushaski (and not Basque) will be set aside for the time being.

The Sound System of Basque

A common Basque consonant inventory is as follows (modified from Hualde, 1991):

<table>
<thead>
<tr>
<th>labial</th>
<th>dental/alveolar</th>
<th>palatal</th>
<th>velar</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>t</td>
<td>c</td>
<td>k</td>
</tr>
<tr>
<td>b</td>
<td>d</td>
<td>ĵ</td>
<td>g</td>
</tr>
<tr>
<td>f</td>
<td>š, ž</td>
<td>š, ž</td>
<td>x</td>
</tr>
<tr>
<td>Ć</td>
<td>Ė</td>
<td>Ė</td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>n</td>
<td>ņ</td>
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<tr>
<td>l</td>
<td>ñ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>ř</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In standard Basque orthography the phonemes /p, t, k, b, d, g, f, m, n, ſ, ř/ are written with the corresponding Latin or Spanish letters: p, t, k, b, d, g, f, m, n, ſ, ř. The remaining phonemes are represented as follows:

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1 This paper consists of excerpts from a much longer paper written for the Linguistic Databases and Linguistic Taxonomy Workshop at the Santa Fe Institute as part of the Evolution of Human Language Project (January 2003).
2 Based on lexical and morphological evidence, only a small part of which is presented here.
3 I consider Macro-Caucasian to be a sub-group of the larger family (macro-family) “Dene-Caucasian” (Starostin’s “Sino-Caucasian”) that also includes the Sino-Tibetan, Yeniseian, and Na-Dene families. There is substantial evidence that the Salish and Wakashan language families may also be part of Dene-Caucasian. (See Vitaly Shevoroshkin’s article, “Salishan and North Caucasian,” in this issue.)
4 /t, d/ are dental; /l, n, ř, ř/ are alveolar; /š, Ė/ are dorso-alveolar (= lamino-alveolar); /ť, Ė/ are apico-alveolar.
c = tt as in ttipi ‘very small, tiny’ (dim. of tipi)
j = dd as in onddo ‘toadstool, fungus’
š = z as in zazpi ‘seven’
č = tz as in hotz ‘cold’
š = s as in sei ‘six’
č = ts as in huts ‘fault, empty’
š = x as in xexen ‘small bull’ (dim. of zezen)
č = tx as in txizar ‘grasshopper, cicada’
ł = ll as in bello ‘hot’ (dim. of bero)
ř = rr as in harri ‘stone’
x = j as in jan ‘to eat’ (but only in western Basque, mainly Gipuzkoa)

Elsewhere the letter j is pronounced [dž] (Bizkaia), [jj] (Alto Navarro), [ž] (Lapurdi, Basse Navarre), [ž] (Zuberoa), or even other variants.5

Northern (“French” Basque) dialects (Lapurdi, Basse Navarre, Zuberoa) also have a phoneme /h/, generally corresponding to orthographic h. These same dialects lack the phoneme /x/, and also tend to have aspirated consonants, such as Zuberoan phiper ‘pepper’ (but BN, L bipher), thu ‘spit’, khedarre ‘soot’, anhua ‘provisions’, inhar ‘a little’, alhaba ‘daughter’, ýrhe ‘gold’, etc.
The voiced obstruents written b, d, g have stop [b, d, g] or fricative [β, δ, γ] allophones, depending on their position in the word or phrase.6 Trask (1997) prefers to call the latter “continuants” (approximants with no audible friction).
The Basque vowel system is a simple 5-vowel system: /a, e, i, o, u/. Only the Zuberoan (Souletin) dialect differs in also having the front-round vowel /ü/. Zuberoan and Roncalese also have a contrastive set of nasal vowels /ã, ë, î, ô, ū, (û)/.

The Sound System of Proto-Caucasian

In this paper the Proto-Caucasian (PNC) reconstruction by Nikolayev and Starostin is accepted as a baseline, while recognizing that some details are open to correction or modification. Nikolayev and Starostin (1994: 40) postulate the following consonant phonemes:7

<table>
<thead>
<tr>
<th>Occlusives</th>
<th>Fricatives</th>
<th>Resonants</th>
<th>Glides</th>
</tr>
</thead>
<tbody>
<tr>
<td>voiceless</td>
<td>voice</td>
<td>glottized</td>
<td>voiceless</td>
</tr>
<tr>
<td>labial</td>
<td>p</td>
<td>b</td>
<td>ź</td>
</tr>
<tr>
<td>dental</td>
<td>t</td>
<td>d</td>
<td>ź</td>
</tr>
<tr>
<td>hissing</td>
<td>c</td>
<td>ʒ</td>
<td>ʃ</td>
</tr>
<tr>
<td>palatal</td>
<td>ʒ</td>
<td>ʒ</td>
<td>ʃ</td>
</tr>
<tr>
<td>hushing</td>
<td>ʒ</td>
<td>ʒ</td>
<td>ʃ</td>
</tr>
</tbody>
</table>

5 See the map presented by Trask (1997, p. 86).
6 This pattern is similar to, but not identical with, the pattern in Castilian Spanish. (See Hualde 1991.)
7 “Two more very rare voiced fricatives are reconstructed for PEC (lateral L and velar γ), as well as the supposedly interdental fricatives ʒ and ʒ: These phonemes have no correspondences in PWC, and their existence in PNC is dubious.” (NCED, p. 41)
Nikolayev and Starostin (NCED, p. 72) reconstruct 9 vowels for Proto-Caucasian, each of which may be short or long:

\[
\begin{array}{cccccccc}
i & ü & ū & u \\
e & ō & o \\
ä & ä & a \\
\end{array}
\]

1. Vowel Correspondences between Basque and Proto-Caucasian

Although some details remain to be resolved, numerous examples verify the usual correspondences.

Basque /a/ regularly corresponds to Caucasian *a (*/ā, *ā*):

1.1. Basque (h)ar,-a (article, demonstrative) ~ PEC *hā demonstrative stem (NC 436)
1.2. Basque sare, sale ‘net, grate; stockade’ ~ PEC *čatā ‘enclosure, fence’ (NC 343)
1.3. Basque hatz ‘finger, paw’, be-hatz ‘toe, thumb’ ~ Avar kʷač ‘paw’, etc. < PNC *kwān Vče (NC 704)
1.4. Basque (B) apo ‘hoof’ ~ Bezhta, Hunzib ap’a ‘paw’, etc. < PNC *HapV (NC 545)
1.5. Basque (BN, Sal) udagara ‘otter’ ~ PEC *daráwV > Andi darča ‘weasel, marten’, etc. (NC 399)
1.6. Basque izar ‘star’, etc. ~ PNC *zvāhrī ‘star’ > Tindi c:arù, etc. (NC 1098)
1.7. Basque sabel ‘belly, stomach’ ~ PNC *žābV ‘kidney, liver’ (NC 1106)
1.8. Basque lasto ‘straw’ ~ PEC *łača ‘leaf; a kind of plant’ (NC 773)
1.9. Basque lamika-tu, lamizka-tu ‘to lick’ ~ Andi lam- ‘to lick’, etc. < PEC *tamV (NC 754)
1.10. Basque sagu ‘mouse’ ~ PNC *cərgwī ‘weasel, martener’ etc. (NC 322)
1.11. Basque (B, G) apal ‘shelf’ ~ PEC *apV ‘pole; board, cover’ (NC 202)
1.12. Basque hari, hal- ‘thread’ ~ PEC *gχāV ‘sinew, thread’ > Chechen χal, etc. (NC 1067)
1.13. Basque handi ‘big, great’ ~ Proto-Circassian *kβa(n)də ‘much, many’ (Kuiipers 1975)
1.14. Basque tak-oin(n) ‘heel (of a shoe)’ ~ PNC *HāgwA ‘back of head’, etc. (NC 399)
1.15. Basque (R) atze ‘tree’ ~ PNC *Hâ(r)irwī ‘tree’ > Khwarshi aža, etc. (NC 549)
1.16. Basque gaur(h) ‘thin’ ~ PEC *gwarHV ‘narrow’ (NC 933)
1.17. Basque har, (R) ṣhr ‘worm’ ~ PEC *fiharV ‘worm’ (NC 508)
1.18. Basque gau ‘night’ ~ Proto-Lezgian *χ:am: > Agul χaw-aq ‘evening’, etc.

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8 Lezgian forms from the Starling Caucasian Database (companion disk to NCED). *χ: represents a tense voiceless pharyngealized uvular fricative (NCED).
1.20. Basque *haka ‘long pole’ ~ PEC *hākwV > Karata hak‘a ‘branch’, etc. (NC 485)
1.21. Basque har-tu ‘to take, receive’ ~ Archi kar- ‘to take with’, etc. < PNC *i(k)Ar (NC 632)

In several cases Basque /a/ corresponds to Caucasian *e, in the environment of a liquid or (original) lateral affricate. Note some convergent forms (*e > a) in Caucasian languages:

1.22. Basque belarri (be-larri) ‘ear’ ~ Proto-Nakh *lari ‘ear’, etc. < PNC *šeHše ‘ear’ (NC 756)
1.23. Basque (Z) k(h)arats ‘bitter’ ~ Archi q’ala ‘bitter’, etc. < PNC *šeHwV ‘bitter’ (NC 912)
1.24. Basque zahar ‘old’ ~ PNC *sweHrho ‘old, year’ (NC 968)
1.25. Basque harri ‘stone’ ~ PNC *»HeHrV ‘small stone, gravel’ (NC 1073)
1.26. Basque larri ‘sadness, anguish’ ~ PNC *ž_weHrV ‘hard, severe, stern’ (NC 792)
1.27. Basque (Z) lape ‘shelter of a shed’ ~ Chechen laba ‘shed, peak of cap’, etc. < PEC *e¢pV (NC 777)
1.28. Basque laino, lanbro ‘fog, mist’ ~ PEC *renHwV ‘cloud, fog’ (NC 947)
1.29. Basque (L) hardo, (c)arda- ‘tinder’ ~ PEC *€wŒrV ‘a kind of grass’ (NC 230)
1.30. Basque (BN,L) bek(h)o ‘forehead, beak’ ~ PEC *beHwo ‘part of face, mouth’ (NC 289)
1.31. Basque leka ‘bean pod, husk’ ~ PNC *leHwV ‘seed, grain’ (NC 744)
1.32. Basque bel(h)ar ‘grass, hay’ ~ PEC *u¸el’V ‘nettle, burdock’ (NC 1013)
1.33. Basque erdi ‘half, middle’ ~ PNC *=eHœE¢ ‘half, middle’ (NC 412)
1.34. Basque el(h)e ‘speech, word’ ~ PEC *leHwV ‘word’ (NC 744)
1.35. Basque negar (~ nigar) ‘tear(s), weeping’ ~ PEC *neHwªu¢ ‘tear, pus’ (NC 848)
1.36. Basque gore ‘hunger, hungry’ ~ PNC *gaHwV ‘hunger’ (NC 431)
1.37. Basque habe ‘pillar, beam’ ~ PEC *hwêbê ‘post, pole, tower’ (NC 497)
1.38. Basque sare, sale ‘net, grate, stockade’ ~ PEC *eHahê ‘enclosure, fence’ (=1.2)
1.39. Basque zelai ‘field, meadow’ ~ PEC *zoHwV ‘plain, plateau’ (NC 1092)
1.40. Basque (B-arc) ze ‘not’ ~ PEC *xo ‘not’ (NC 1101)
1.41. Basque lema ‘rudder’ ~ PEC *œmiv ‘roof’ (NC 777)
1.42. Basque herri ‘inhabited place, people’ ~ PNC *wôhr ‘people, troop’ (NC 249)
1.43. Basque behi ‘cow’ ~ PEC *bhêrgV ‘cattle’ (NC 296)
1.44. Basque hegî ‘ridge’ ~ PEC *fiwôrgê ‘mountain ridge’ (NC 536)

Basque /e/ also corresponds to the infrequent Caucasian phoneme *u:

1.45. Basque beso ‘arm’ ~ PEC *wûsV ‘hand, finger’ (NC 315)
1.46. Basque aberes / abel- ‘cattle’ ~ PNC *bûfV ‘horned animal’ (NC 314)

Basque /i/ corresponds to Caucasian *i and *i:

1.47. Basque hil ‘dead; die; kill’ ~ PNC *i.nlêE ‘die; kill’ (NC 661)
1.48. Basque bizar ‘beard’ ~ PEC *biHšyV ‘beard’ (NC 303)
1.49. Basque ipini, iminõ ‘to put’ ~ PEC *ima(n) ‘to stay, be’ (NC 210)

9 Common Basque ez ‘not’ (negative particle).
10 Standard ipini, (AN, B, G) ipiñi, (B, BN, Sal) imiñi ‘to put, place’. Cf. Burushaski man- ‘to be, become’, etc.
1.50. Basque ezeba 'aunt' ~ PEC *izwî 'girl, woman' > Tsakur iči 'girl', etc. (NC 952)
1.51. Basque bi-zi 'life, alive' ~ Lak sîh 'breath, vapor', etc. < PNC *šHWV (NC 961)
1.52. Basque zikro 'castrated ram' ~ Karata c':ik:er 'kid', etc < PNC *zikV 'goat, kid' (NC 1094)
1.53. Basque hitz 'word' ~ Chechen =ic- 'to tell', etc. < PNC *i[jmeU (NC 642)
1.54. Basque (BN,L) miko 'little (bit)' ~ PEC *mikwV 'small, young one' (NC 821)
1.55. Basque tipi 'little, small' ~ Avar hit'/ina-b 'small', etc. < PNC *tiHV / HiV (NC 1001)
1.56. Basque lizun 'moldy, musty, mustiness' ~ PEC *liwkâwV 'dirt; bog, marsh' (NC 770)
1.57. Basque itzuli 'to turn, turn over, return', etc. ~ PEC *ircVI 'to swirl, turn round' (NC 649)
1.58. Basque zimitz, zimintza 'bedbug' ~ PNC *miţÁ / *zimízÁ 'stinging insect' > Dargwa (Chirag) zimizal 'ant', etc. (NC 823)
1.59. Basque tximitxa [čimča] 'bedbug' ~ PEC *čimVčV 'butterfly' (NC 379)
1.60. Basque hiri 'village, city' ~ PNC *kî̆ 'farmstead, hut' (NC 692)
1.61. Basque ilindi, ihinti 'firebrand' ~ PEC *λwindV 'firewood' (NC 764)
1.62. Basque (G) lirdi 'drivel, saliva' ~ PEC *wâridi 'manure, pus' (NC 763)
1.63. Basque (BN,L) k(h)ino 'bad odor' ~ PNC *kâwâhV 'smoke' (NC 738)
1.64. Basque ihintz 'dew' ~ Tindi hic:u 'bog, marsh', etc. < PEC *wâmcwâ (NC 1065)
1.65. Basque (B,G,L) lirain 'slender' ~ PNC *iLIV 'thin' (NC 639)
1.66. Basque ahizpa 'sister (of a woman)' ~ PNC *iči 'sister, brother' (NC 669)
1.67. Basque (h)osin 'depth of water' ~ PEC *wâmcV < *wicinV 'well, spring' (NC 232)

Basque /o/ corresponds to Caucasian *o, also to Caucasian *e, *ə, *i, and *i (in labial environments). Note the convergent developments (> o) in some Caucasian languages:

1.68. Basque oso 'whole, complete' ~ PNC *=hocardV 'full, fill' (NC 525)
1.69. Basque aso 'old woman' ~ PNC *ćwôjV 'woman, female' (NC 374)
1.70. Basque *khol in (BN) gar-kola, gar-khoro 'nape' ~ PEC *qHwôhwV 'neck, collar' (NC 894)
1.71. Basque ontzir (~ untzi) 'vessel, container; boat, ship' ~ PEC *bông(w)V 'vessel' (NC 311)
1.72. Basque zor(h)i, (B) zoli 'fortune, luck', etc. ~ PNC *zôV 'healthy, whole' (NC 1095)
1.73. Basque hobi 'gum(s) (of mouth)' ~ PNC *hômGwî 'throat, mouth' (NC 526)
1.74. Basque sor- 'body' (in compounds) ~ PEC *ôgxrV 'body' (NC 346)
1.75. Basque oro 'woman' ~ PNC *bhêcê 'woman' > Andi boc'o, etc. (NC 294)
1.76. Basque or, (Z) hor ho 'dog' ~ PEC *žHwêjrV 'dog' > Budukh χor, etc. (NC 1073)
1.77. Basque erdol, erdoj 'rust' ~ PEC *xwêHPê 'mould' (NC 770)
1.78. Basque gogor 'hard' ~ PEC *GwêrV 'stone' (NC 467)
1.79. Basque (B) txoru [ĉoru] 'root of hair' ~ PEC *ĉhwârV 'hair' > Avar ē'or, etc. (NC 378)
1.80. Basque (G) alon-za 'mixture of grain' ~ PEC *liwîn?î 'seed' > Avar xon (NC 1021)
1.81. Basque txor [cori] 'bird' ~ PEC *xHwîV > Chamalal ē'or 'bird', etc. (NC 388)
1.82. Basque aho 'mouth' (< *a-x-o) ~ PNC *xwi-m(V)pV 'mouthful' > Khinalug χob (NC 1082)
1.83. Basque ol(h)o 'oats' ~ PNC *çwîwV 'millet' > Chechen ho?, etc. (NC 763)

Basque /u/ (Zuberoan /ũ/) corresponds to Caucasian *u, *wV, *Vw. Note the convergent developments (> u) in some Caucasian languages:

1.84. Basque zumar 'elm' ~ PEC *šhumV 'bush, quince', etc. (NC 1107)
2. Lateral Affricates

It is clear that lateral affricates existed in Proto-Dene-Caucasian (PDC), and indeed are some of the most characteristic sounds of Dene-Caucasian. They are definitely reconstructed for Proto-Caucasian (where some languages retain them to the present) and for Proto-Na-Dene (where almost all languages retain them). The original pattern, which is still found in many or most Na-Dene languages, was a contrast of voiceless or fortis *X [tʃ] with glottalized *X’ [tʃʰ] and voiced or lenis *λ [dl]. In Basque the reflexes of all three fall together, though patterned in an interesting way:

In initial position all PDC lateral affricates *X, *X’, *λ > Basque /l/

In medial position all PDC lateral affricates *X, *X’, *λ > Basque /rd/ [ɾ̪d̪]

In final position all PDC lateral affricates *X, *X’, *λ > Basque /l/

This pattern is structurally similar to that of Basque reflexes of PDC *tı, q.v., where the contrast

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11 Basque words of the type muin ‘marrow, brain’ (q.v.) are of separate origin (PEC *máhnû ‘brain, head’), but in Basque have been associated and contaminated with this word. The semantic series ‘blood ~ flesh ~ marrow ~ brain ~ kernel’ is well documented.

12 A rather obscure word used by the Basque writer Oihenart.

13 Peiros & Starostin (1996) also reconstruct a lateral affricate *X for Proto-Sino-Tibetan.

14 In some Caucasian (mainly Avar-Andi-Tsezian) languages lateral affricates are retained, but not in the original * | ~*X | ~*X’ pattern. Akhwakh, for example, has a fourfold contrast based on the features ± tense [ː] and ± glottalized [ː]: [ː ~ ː ~ ː ~ ː].
between /l/ and /lh/ only occurs between vowels. It is also structurally similar to the pattern of reflexes in Burushaski.\textsuperscript{15}

In initial position all PDC lateral affricates *\textalpha*, *\textgamma*, *\lambda > Burushaski /t/, /d/
In medial position all PDC lateral affricates *\textalpha*, *\textgamma*, *\lambda > Burushaski /t/, /d/
In final position all PDC lateral affricates *\textalpha*, *\textgamma*, *\lambda > Burushaski /l/.

PDC *\textalpha*, *\textgamma*, *\lambda > Basque initial /l/:

2.1. Basque *\textit{li}zun* (c) ‘moldy, musty, mustiness’, (AN,B,G) ‘dirty, untidy’ ~ PEC *\textlambda*\textit{wilc}wV ‘dirt; bog, marsh’ > Andi \textit{tenc}’u ‘bog, marsh’, etc. (NC 770)


2.3. Basque (B, Sal, G) *\textit{la}i\textit{n}o, lai\textit{n}o, (Z) *\textit{l}\textit{\textalpha}n\textit{h}ú, (AN-Baztan, BN-Aldude, G, L) *\textit{lan}b\textit{r}o ‘fog, mist’\textsuperscript{16} ~ PEC *\textit{r\textalpha}h\textit{\textalpha}wV ‘cloud, fog’ > Chechen *\textit{do}\textit{\textbeta}k ‘fog’, Khinalug *\textit{unk} ‘cloud’, etc. (NC 947) ~ Burushaski *\textit{har\textalpha}l\textit{t} ‘rain, cloud’

2.4. Basque (B,G) *\textit{lo}ki, (R) *\textit{lo}ku\textit{n}, *\textit{lo}ku\textit{n}e ‘temple (of head)’ ~ PEC *\textit{\textalpha}r\textit{\textalpha}w\textit{\textbeta} ‘Khwarshi *\textit{\textalpha}o\textit{q}’o ‘forehead’, Avar *\textit{t\textalpha}y\textit{\textalpha}r ‘cap’, etc. (NC 775)

2.5. Basque *\textit{la}s\textit{t}o ‘straw (of wheat, etc.)’ ~ PEC *\textit{\textalpha}c\textit{\textalpha} ‘leaf; a kind of plant’ > Akhwakh *\textit{\textalpha}c\textit{\textalpha} ‘a kind of edible plant’, etc. (NC 773)

2.6. Basque (B, G, L) *\textit{l}\textit{\textalpha}r\textit{\textalpha}in ‘sleender, svelte, lithe’ (‘esbelto [de personas y animales]’) ~ PNC *\textit{\textgamma}b\textit{\textalpha}wV ‘thin’ > Avar *\textit{t\textalpha}r\textit{\textalpha}n\textit{\textalpha}-b, Khinalug *\textit{k\textprime}r ‘thin’, etc. (NC 639) ~ Burushaski (H, N) *\textit{\textalpha}hr\textit{\textalpha}n ‘narrow, tight (of clothes)’

2.7. Basque (c) *\textit{l}\textit{\textita}r\textit{\textalpha} ‘line, file, row’ ~ PEC *\textit{\textgamma}w\textit{\textalpha}r(b)\textit{\textalpha} ‘boundary’ > Avar *\textit{x}:r ‘garden bed, terrace, row, rank’, Dargwa *\textit{\textalpha}r\textit{\textalpha} ‘furrow’, etc. (NC 782)

2.8. Basque (Z) *\textit{l}\textit{\textalpha}p\textit{e} ‘shelter under the eaves of a shed’ ~ PEC *\textit{\textalpha}p\textit{\textbeta}V ‘stone plate or shed’ > Chechen *\textit{\textalpha}ba ‘shed, peak of cap’, etc. ~ Burushaski (H, N) *\textit{\textalpha}p\textit{\textalpha} ‘(smaller) stone terrace’ (1.27)

2.9. Basque (L) *\textit{l}\textit{\textalpha}z ‘beam, rafter’ ~ PEC *\textit{\textalpha}V\textit{c}V ‘log, pole’ > Akhwakh *\textit{\textalpha}:e\textit{\textalpha} ‘log’, etc. (NC 781)

2.10. Basque (AN, B, G, L) *\textit{l\textalpha}m\textit{e} ‘rudder’ (< *\textit{\textalpha}board, plank’) ~ PEC *\textit{\textalpha}m\textit{\textnu}wV ‘roof’ > Karata *\textit{\textalpha}:me ‘roof’, etc. (NC 777)

2.11. Basque (BN, L) *\textit{l}\textit{\textalpha}h\textit{\textalpha}r, (AN, B, G) *\textit{l\textalpha}r, (AN, G) *\textit{l\textalpha}r, (Z) *\textit{na}h\textit{\textalpha}r, (Sal) *\textit{na\textalpha}r, (R) *\textit{na\textalpha}r ‘bramble, creeping plant’ ~ PNC *\textit{\textgamma}w\textit{\textalpha}rV ‘leaf’ > Andi *\textit{x}ol\textit{\textalpha} ‘leaf’, etc. (NC 784)

2.12. Basque (c) *\textit{l\textalpha}r\textit{\textalpha}ru, (B) *\textit{n\textalpha}ru ‘skin, hide, leather’ > Dargwa (Akshii) *\textit{gul\textalpha} ‘skin, sheepskin’, Avar *\textit{x}:r ‘color’ (< *\textit{\textalpha}skin’) ~ PNC *\textit{\textalpha}\textlambda\textit{oli} (NC 789) ~ Burushaski *\textit{\textalpha}r\textit{\textalpha}n-i\textit{\textalpha} ‘skin bag’

2.13. Basque (B) *\textit{l\textalpha}r\textit{\textalpha} ‘sadness, anxiety, anguish; sad, anxious, worried’, etc. ~ Chechen *\textit{\textalpha}ra ‘severe, dangerous’, Bezhta =\textit{\textlambda}\textit{aro} ‘hard’, etc. < PNC *\textit{\textnu}w\textit{\textalpha}rV ‘hard, severe, stern’ (NC 792)

2.14. Basque (c) *\textit{\textlambda}h\textit{\textalpha}i\textit{\textalpha}, *\textit{\textlambda}i\textit{\textalpha} ‘want, wish, desire, eagerness, zeal, haste’ ~ PEC *\textit{\textnu}w\textit{n\textalpha} ‘to love, want’ > Chechen *\textit{\textalpha}\textlambda\textit{\textalpha} ‘to want, wish’, Avar *\textit{\textalpha}h ‘to love, want’, Archi *\textit{\textalpha}:\textit{\textalpha}n ‘to love, want’, etc. (NC 644)

\textsuperscript{15} See Bengton 1997a.
\textsuperscript{16} Assuming metathesis: Basque *\textit{lan}b\textit{r}o matches well with metathesized PEC *\textit{\textlambda}\textit{\textnu}wV. It is not entirely clear that *\textit{\textalpha}n\textit{\textalpha} and *\textit{lan}b\textit{r}o are one and the same word. Aulestia & White (1992) have separate entries for *\textit{\textalpha}n\textit{\textalpha} ‘fog, mist’ and *\textit{lan}b\textit{r}o ‘dense fog’. If the Burushaski word belongs here, it may be an old compound (? *\textit{\textalpha}h- + *\textit{\textalpha}\textit{r}lt), or influenced by *\textit{\textalpha}r\textit{\textalpha} ‘to piss’.
PDC *ʎ, *ʎ̩ > Basque medial /rd/ [rõ]:

2.15. Basque (B) erdu ‘come!, come ye!’ ~ PNC *=gɔrʎU ‘to go, walk, enter’ > Archi a=χi ‘to come’, Lak ulu ‘let’s go!’, etc. (NC 422)
2.16. Basque erdol, erdoi ‘rust’ (of plants: AN, G), ‘rust’ (of iron: AN,BN,L,R,Z) ~ PEC *ʎwɛhɬi ‘mould’ > Akhwakh xali ‘mould’, Lezgi x=el ‘boil, furuncule’, etc. (NC 770)\(^7\)
2.17. Basque (c) adar (a-dar < *a-ða español) ‘horn’\(^18\) ~ Avar ʎ:ar, Chechen kur ‘horn’, etc. < PEC *ʎw
ɾV (NC 771) ~ Burushaski (H) -lúr, (Y) tur ‘horn’
2.18. Basque (c) erdi ‘half, middle’ ~ PNC *=ʎŁE ‘half, middle’ > Bezhta =aχo ‘middle’, =aχo-kos ‘half’, Lak =ači ‘half’, etc. (NC 412)
2.19. Basque (c) ardaí, arda-, (L) hardo, (Z) ardaí, (Alava) erdai, etc. ‘tinder (made from a kind of dried fungus)’ ~ PEC *pɔwɬV ‘a kind of grass’ > Chechen jol ‘hay’, Lezgi weq ‘grass’, etc. (NC 230)\(^19\)
2.20. Basque (AN, BN, L) herde, erde, (B, BN, L, R, Z) helder, elder ‘drivel, drool’ ~ PNC *fámʎa ‘sweat’ > Tindi hanla, Lezgi heq’ etc. (NC 509)\(^20\)
2.21. Basque (c) izerdí, (B) izardi ‘sweat’, (AN,BN,R also) ‘sap’ ~ PEC *cåŁwV > Chechen c’ij ‘blood’, Avar ç’ago-b ‘alive’, etc. ~ Burushaski (Y) cel, (H,N) chil ‘water; sap (of trees)’, etc. (NC 376)
2.22. Basque urdaíl (AN, B, G, L) ‘stomach’, (B) ‘abomasum’, (B, G) ‘womb, uterus’\(^21\) ~ PEC *
ɾV ‘stomach, abomasum, rennet’ > Tindi b-ɛɬ:u, Archi b-aɬ, etc. (NC 670) ~ Burushaski -lil ‘abdomen, bowels’
2.23. Basque erdera, erdara\(^22\) ‘foreign (of language)’ / (combinatory form) erdel-, erdal-, as in erdel-dun, erdal-dun ‘non-Basque-speaker, foreigner’ ~ Khwarshi ʎar ‘guest’, Chechen ʃuła-χo ‘neighbour’, etc. < PEC *LɔɬV (NC 790)

PDC *ʎ, *ʎ̩ > Basque final /ʎ/. At present I can cite only two secure examples:

2.25. Basque (BN, L, Z) oihal, (AN, B, G, R) oial ‘cloth, fabric’ (< *o(i)-xal) ~ Bezhta ʎiðo

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17 The Basque word presupposes the development *erdolI < *e-ʎɔti, or the like. *e- is thought to be a fossilized prefix (see, e.g., Bengtson 1995b).

18 The dissimilation of *ardar > adar is the same as in adore ‘courage’ < Latin ardo, ardore- (Trask 1997, p. 145). For Basque adar ‘branch’ (a homonym) see 3.2.b.

19 Basque hardo, arda- is contaminated in some dialects with words derived from Latin cardu(us) ‘thistle’. For both phonetic and semantic reasons it is clear that hardo, arda- ‘tinder’ and Basque words such as kardu, gardu ‘thistle’ are of entirely distinct origins.

20 The Basque word (h)elder above is easily confused and contaminated with Basque lerde, lirdi ‘drivel, saliva’, q.v., of a quite separate origin ~ PEC *
ɾwirdi (LDC #19). Note also Basque (G) bilder (bi-lder) ‘drivel’, which apparently incorporates an old class marker (*bi- /be-) + helder.

21 Caucasian has *=ɾɬV, so assimilation or dissimilation is assumed. Lak ġarlu ‘kidney’ requires metathesis (< PEC *=ɬarV), and assimilation would produce PEC *=ɬalV, close to the Basque form. The Basque word also has the fossilized class prefix u-.

22 Generally, erdera / erdel- to the south and west of Basque country, erdara / erdal- to the north and east.
In the following cases we find the unusual (non-trivial) correspondence of Basque /l/ = Burushaski /t/ (~ /th/):

2.27. Basque limuri (Z) ‘humid’ ~ Burushaski tam ‘dèl- ‘to bathe’, etc. ~ PEC *₂HWemV ‘liquid’ (~ 2.2)
2.28. Basque li'rain ‘slender’ ~ Burushaski (H) tharén-um ‘narrow’ ~ PNC *=iYIV ‘thin’ (~ 2.6)
2.29. Basque (Z) lape ‘shelter under the eaves of a shed’ ~ Burushaski tápi ‘Felsterrasse’ ~ PEC *₂ţpV ‘stone plate or shed’ (~ 2.8)
2.30. Basque larru ‘skin, leather’ ~ Burushaski tar-iŋ ‘skin bag’ ~ PNC *₂ōli ‘skin, color’ (~ 2.12)
2.31. Basque leku, lekhu ‘place’ ~ Burushaski tik ‘earth, ground; rust’
2.32. Basque larre (AN,BN,G,L,Z), larru (B) ‘grassland, pasture’, also (BN) ‘heath’ ~ Burushaski (Y) ter ‘summer pasture’ (Berger: ‘Hochweide, auf die das Vieh im Sommer etrieben wird.’)

In five of the six cases there is evidence from other Dene-Caucasian languages that the original initial consonant was a lateral affricate. In the sixth case (2.32) the pattern of correspondence suggests that the original initial was a lateral affricate, though I have found no direct evidence of one, since I do not know of any cognate in Caucasian or Na-Dene.

3. Basque Homonyms

We are dealing with comparisons between a language with a relatively simple phonetic system (Basque), and languages that are much more complex (Caucasian: especially as regards consonants). As seen at the beginning of this paper, Basque has about 23 consonant phonemes, while Proto-Caucasian had about twice as many. It is thus to be expected that some words that have phonetically merged in Basque would correspond to words that are distinct in Proto-Caucasian, and this is indeed the case, according to my findings. The examples discussed here are Basque bel(h)ar ‘forehead’ : bel(h)ar ‘grass, hay’; adar ‘horn’ : adar ‘branch’; eho ‘grind’ : eho ‘beat’ : eho ‘weave’; hobi ‘gum(s)’ : hobi ‘grave’. The distinct origins of these homonyms are shown by the comparisons below:

3.1.b. Basque (BN, L, Z) belhar ‘(first mowing of) hay’, (AN, G, L) belar ‘grass, hay’, (B, G) berar, (B) bedar ‘grass, hay’ ~ Lezgi werg ‘nettle’, Archi urki ‘burdock’, etc. < PEC *gelYV (NC 1013)

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23 Cf. also: PST *k’iak’ ‘iron’ > Tibetan kṣag-s ‘iron’, etc. (ST III:68); Na-Dene: Haida (A) kax ‘land, place’, (S) k’ga ‘land’; Tlingit k’êχ’kw ~ k’âχ’kw ‘soil’; Sarsi k’is ‘earth’.
24 NCED proposes the reconstructed meaning ‘edge, end’, whence ‘forehead, horn’ in some languages.
3.2.a. Basque adar (a-dar < *a-ðaɾ) ‘horn’ ~ Avar x:ar, Chechen kur ‘horn’, etc. < PEC *aɾV (NC 771) ~ Burushaski (H) -lůr, (Y) tur ‘horn’
3.2.b. Basque adar ‘branch’ (< *aɾðaɾ) ~ Avar ʃark ‘branch, bough’, Tsez a:iru ‘pod’, etc. < PEC *hů_android (NC 508) ~ Burushaski (H, N) yáltar ‘the upper leafy branches of a tree’

3.3.a. Basque (c) eho, (B) eio ‘to grind’, (c) eihera ‘mill’, etc. ~ Ingush a:hr ‘to grind’, hajra ‘mill’, Andi ʔi:ɾ=qi- ‘to grind’, etc. < PNC *Hemgwiɾ ‘to grind’ (NC 559)
3.3.b. Basque (c) eho ‘to beat’, (Z) ‘to kill; put lights out’, (AN) eo ‘give (someone) a thrashing, beat (someone) soundly’, (B) eio ‘to get very tired, get fatigued’, etc. ~ Avar u:ɾ ‘to beat, hit’, Rutul a:ɾ= ‘to beat, hit’, etc. < PNC *Hirxh (NC 581)
3.3.c. Basque (c) eho, ‘to weave’, ehu ‘to weave; cloth’, (B) eio ‘to braid’ ~ PEC *iɾ CVn ‘to knit, weave, spin’ > Chamalal χ:iin- ‘to spin’, Dargwa =imɾ= ‘to plait, weave’, Agul ruɾ ‘to knit’, etc. (NC 655)

3.4.a. Basque (BN, L, Z) hobi, (B, G) oi ‘gum(s) (of mouth)’ ~ Akhwakh oq ‘throat’, Tsez haqu ‘(inside of) mouth’, Circassian ʔ=ɾ ‘mouth’, etc. < PNC *Hοɾwill (NC 526)
3.4.b. Basque (c) hobi ‘grave, tomb’ ~ PEC *fiw ‘grave’ > Avar ɣob, Tindi hoba, Lak haw, etc. (NC 428)

In the case of 3.2.a. and 3.2.b. both words are preserved in all three Macro-Caucasian branches, but only in Basque do the words merge phonetically


Conclusions

Luis Michelena (1961, et al.) provided us a tremendous service in cataloguing the diverse phonetic forms of the Basque dialects, and giving us some direction in understanding the changes. Michelena did not accept the relationship between Basque and Caucasian, and thus could not apply external comparison to the problems of Basque phonology. In Michelena’s defense I would point out that in his lifetime the Basque-Caucasian comparisons that had been published were very uneven in quality and haphazard, and even the available materials on Caucasian languages were very sparse, with no deep reconstructions. We now have a significant advantage because of new sources and reconstructions of Caucasian languages that are now available (e.g., Nikolayev & Starostin 1994, Chirikba 1996). For Burushaski we now have the definitive books by Berger (1974, 1998). With these materials we now have a solid basis of what to compare from the Caucasian and Burushaski side.

This essay is only a beginning. The extensive comparisons involving consonants will be published separately.27 (Only the reflexes of PDC lateral affricates were discussed in depth here.) However, I suggest that the evidence presented here is already strongly indicative that the proposed genetic relationship between Basque and Caucasian is highly probable, and that it can

25 The dissimilation of *ardar > adar is analogous to that in Basque adore ‘courage’ < Latin ardor, ardore- (Trask 1997, p. 145).
26 There is also a Basque variant with /b/, abar ‘branch’, which is difficult to explain.
27 These would add about 60 pages to this paper.
be verified by numerous recurrent phonological correspondences.²⁸

Abbreviations

AN  Alto Navarro = Nafarroa Garaia = High Navarrese (Basque dialect)  arc  archaic
B  Bizkaia = Biscayan (Basque dialect)  BN  Basse Navarre = Nafarroa Beherea = Low Navarrese (Basque dialect)
c  common (Basque) = Euskara Batua
CWC  Common West Caucasian = Chirikba 1996  DC  Dene-Caucasian = Sino-Caucasian
G  Gipuzkoa = Guipúzcoa (Basque dialect)  H  Hunza (Burushaski dialect)
L  Lapurdi = Labourdin (Basque dialect)  LDC  “Lexica Dene-Caucasica” = Blažek & Bengtson 1995
N  Nagiri, Nagari (Burushaski dialect); northern (Basque)  NC  North Caucasian; in reference citations = NCED
NCED  North Caucasian Etymological Dictionary = Nikolayev & Starostin 1994
PA  Proto-Athabaskan  PDC  Proto-Dene-Caucasian
PEA  Proto-Eyak-Athabaskan  PEC  Proto-East Caucasian (= Proto-Nakh-Daghestanian)
NCED  Proto-(North) Caucasian  PND  Proto-Na-Dene
PST  Proto-Sino-Tibetan  PWC  Proto-West Caucasian (= Proto-Abkhazo-Adygean)
PY  Proto-Yeniseian  R  Roncalese = Erronkari (Basque dialect)
S  southern (Basque)  Sal  Salazarese = Saraitza (Basque dialect)
SSEJ  “Sravnitel’nij slovar’ enisejskix jazykov” = Starostin 1995
ST  (A Comparative Vocabulary of Five) Sino-Tibetan (Languages) = Peiros & Starostin 1996
Y  Yasin(i) = Werchikwar (Burushaski dialect)  Z  Zuberoa = Souletin (Basque dialect)

References


²⁸ See the index of Basque words (Appendix B), in which many words exhibit more than one correspondence with Caucasian.

**Appendix A:**
**Key to Phonetic Characters**

<table>
<thead>
<tr>
<th>Character</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>åêëî û</td>
<td>nasal vowels</td>
</tr>
<tr>
<td>c: k: p: s: t, etc.</td>
<td>tense obstruents</td>
</tr>
<tr>
<td>c’ k’ p’ t’, etc.</td>
<td>glottalized obstruents (NCED ç ê š ñ t, etc.)</td>
</tr>
<tr>
<td>č č’ ţ</td>
<td>hissing-hushing affricates (NCED č č’ ţ)</td>
</tr>
<tr>
<td>č č’ ţ</td>
<td>hushing affricates (NCED č č’ ţ)</td>
</tr>
</tbody>
</table>
| δ         | voiced dental fricative: e.g., Basque *adar* [ađaɾ] ‘horn’, 
|           | *erdi* [eɾđi] ‘half, middle’ |
| g         | voiced uvular stop |
| γ         | voiced velar fricative (Caucasian, Na-Dene); 
|           | voiced uvular fricative (Burushaski) |
| γ         | voiced uvular fricative (NCED ґ) |
| h         | voiceless emphatic laryngeal fricative |
| ĥ         | voiced laryngeal fricative |
| ĭ         | lateral resonant or glide (in PNC and PST reconstructions) |
| ĭ         | voiceless lateral fricative (NCED ɬ) |
| L         | voiced lateral fricative in NCED (= ʰɬ) |
| Ł         | voiced lateral affricate (NCED) |
| λ         | voiceless lateral fricative in NCED (= ĭ) |
| ł         | voiceless lateral affricate |
| ħ         | palatalized voiceless lateral affricate |
| ħ’        | glottalized voiceless lateral affricate (NCED ħ) |
| ħ’        | palatalized glottalized lateral affricate |
| ħ         | palatalized lateral resonant |
| ʰɬ        | voiced lateral fricative (NCED L) |
| ɾ         | palatalized rhotic resonant |
| ɾ         | rhotic trill (= Basque *rr*) |
| ʰ         | voiced uvular fricative (= Burushaski ħ) |
| š         | voiceless hissing-hushing fricative |
| ʂ         | voiceless hushing fricative |
| ʂ         | voiceless retroflex fricative (Burushaski) |
| ɭ         | voiceless retroflex stop (Burushaski) |
| ɾ         | labial glide (in Caucasian reconstructions) |
| x         | voiceless uvular fricative (Burushaski);
|           | voiceless velar fricative (Caucasian, Na-Dene) |
Appendix B:
Index of Basque Words Cited

Words are generally cited in their common Basque (*euskararen zenbaita*) form, following Aulestia & White (1992). Some dialectal forms, especially Bizkaian and Zuberoan, are also cited with a cross-reference to the common Basque form (e.g., *aizta* see *ahizpa*). Phonemic /h/ that is pronounced in northern Basque dialects but not found in standard Basque spelling is shown as (h), e.g., *k(h)arats* ‘bitter’, *ol(h)o* ‘oats’.

a-, -a *see* ha-0
abere ‘domestic animal(s), cattle’ 1.46
adar ‘branch’ 3.2.b
adar ‘horn’ 2.17, 3.2.a
ahizpa ‘sister (of a woman)’ 1.66
aho ‘mouth’ 1.82
ahuña, ahuñe ‘kid’ 1.91
ahur ‘palm, hollow (of hand)’ 1.99
aizta *see* ahizpa
al(h)o *see* ol(h)o
alontza ‘mixture of grain’ 1.80
apal ‘shelf’ 1.11
apo ‘hoof’ 1.4
ardai ‘tinder’ 1.29, 2.19
ar(h)e ‘harrow, rake’ 1.19
atso ‘old woman’ 1.69
atze ‘tree’ 1.15
aundi *see* handi

beharri *see* belarri
behatz ‘toe, thumb’ 1.3
behi ‘cow’ 1.43
bek(h)o ‘forehead’ 1.30
belarri ‘ear’ 1.22
bel(h)ar ‘forehead’ 3.1.a
bel(h)ar ‘grass, hay’ 1.32, 3.1.b
beso ‘arm’ 1.45
bilder *see* elder
bizar ‘beard’ 1.48
bizi ‘to live; alive; life’ 1.51
budar *see* bul(h)ar
bul(h)ar ‘breast, chest’ 1.102
edur see el(h)ur
eho ‘to grind’ 3.3.a
eho ‘to beat’ 3.3.b
eho, ehun ‘to weave’ 3.3.c
eihera ‘mill’ 3.3.a
eio see eho
elder, erde ‘drool, drivel’ 2.20
el(h)e ‘speech, story, word’ 1.34
el(h)ur ‘snow’ 1.104
erde see elder
erdera, erdara ‘foreign language’ 2.23
erdi ‘half, middle’ 1.33, 2.18
erdiel ‘rust’ 1.77, 2.16
erdu ‘come ye!’ 2.15
ez ‘not’ 1.40

fuiñ see (h)un, hün

gar(h)i ‘thin’ 1.16
garkola, garkhora ‘nape’ 1.70
gau ‘night’ 1.18
gogor ‘hard’ 1.78
gor(h)i see gurin
gose ‘hunger, hungry’ 1.36
gune ‘place, space’ 1.96
gurin, gur(h)i, gor(h)i ‘butter, fat’ 1.94

ha-, -a article, demonstrative 1.1
habe ‘pillar, beam’ 1.37
haga ‘long pole, rod’ 1.20
handi ‘big, great’ 1.13
har ‘worm’ 1.17
hardo see arda
dari ‘thread, string, wire’ 1.12
harri ‘stone, rock’ 1.25
har-tu ‘to take, receive’ 1.21
hatz ‘finger’ 1.3
hegi ‘edge, ridge’ 1.44
helder, herde see elder, erde
herri ‘town, people, nation’ 1.42
hezur ‘bone’ 1.90
hil ‘die; dead; death’ 1.47, 2.26
hiri ‘village, city’ 1.60
hitz ‘word’ 1.53
hobi ‘grave’ 3.4.b
hobi ‘gum(s)’ 1.73, 3.4.a
hor, ho see or
hosin see osin
(h)un, hün ‘marrow, pith, brain’ 1.88
hur see ur

idulki ‘block of wood’ 1.103
ihintz ‘dew’ 1.64
il(h)inti, ilindi ‘firebrand’ 1.61
imiñi see ipini
ipini  ‘to put, place’  1.49
itzuli ‘to turn’  1.57
izar ‘star’  1.6
izardi see  izerdi
izeba  ‘aunt’  1.50
izerdi  ‘sweat, sap’  2.21

k(h)arats  ‘bitter, sour’  1.23
k(h)ino  ‘bad odor, bad taste’  1.63

lahar  ‘bramble’  2.11
laino ‘fog, mist’  1.28, 2.3
lamika-tu  ‘to lick’  1.9
lanbro see  laino
lape  ‘shelter’  1.27, 2.8, 2.29
larre, larra  ‘grassland, pasture’  2.32
larri  ‘worried, serious’, etc.  1.26, 2.13
larru  ‘skin, leather’  2.12, 2.30
lasto  ‘straw, hay’  1.8, 2.5
laz  ‘beam, rafter’  2.9
lehia  ‘diligence, laboriousness’, etc.  2.14
leka  ‘bean pod, husk’  1.31
lek(h)u  ‘place’  2.31
lema  ‘rudder’  1.41, 2.10
lerde  ‘drivel, drool’  1.62
lerro  ‘line, file, row’  2.7
limuri  ‘slippery; humid’  2.2, 2.27
lirain  ‘slender, svelte’  1.65, 2.6, 2.28
lirdi see  lerde
lizun  ‘mold, mildew’  1.56, 2.1
loki, lokun  ‘temple (of head)’  2.4
luia  ‘adverse wind’  1.98

mardo  ‘luxuriant, vigorous; soft, smooth’  2.24
mardul  ‘robust, healthy, strong’  2.24
miko  ‘a little bit’  1.54
muin, muñ  ‘pith, marrow, brain’  cf. 1.88 (footnote)
mul(h)o  ‘heap, mound’  1.86

negar, nigar  ‘weeping, tears’  1.35

oi see  ohe, hobi
oihal  ‘cloth’  2.25
ol(h)o  ‘oats’  1.83
ontzi  ‘vessel’  1.71
or  ‘dog’  1.76
osin  ‘well, depth’  1.67
oso  ‘whole, complete’  1.68
otso  ‘wolf’  1.75

punpu(i)l(l)a  ‘tear, blister, bubble’  1.87

sabel  ‘belly’  1.7
sagu  ‘mouse’  1.10
sare, sale  ‘net(-work)’  1.2, 1.38
sor- ‘body’ 1.74
sor-balda ‘shoulder’ 1.74

takoin ‘heel (of shoe)’ 1.14
tipi ‘little, small’ 1.55
tuntun ‘Basque drum’ 1.97
tutu ‘tube, pipe’ 1.101

tximitxa ‘bedbug’ 3.53, 8.17, 9.59
txori ‘bird’ 1.81
txorru ‘root of hair’ 1.79

udagara ‘otter’ 1.5
ugabere, ugadara, ugadera see udagara
un see (h)un
une see gune
untzi see ontzi
ur ‘water’ 1.92
urdail ‘stomach, abomasum, womb’ 2.22
urde ‘(male) pig’ 8.100
uri see hiri
urin see gurin

xori see txori

zahar ‘old’ 1.24
ze ‘not’ 1.40
zelai ‘meadow, plain’ 1.39
zik(h)iro ‘castrated ram’ 1.52
zimitz, zimintza ‘bedbug’ 1.58
zoli see zor(h)i
zor(h)i ‘luck; mature’ 1.72
zu ‘you’ 1.85
zulo ‘hole, burrow’ 1.100
zumar ‘elm’ 1.84
zur, zul ‘wood, timber, lumber’ 1.89
zurzulo, zurzuil ‘nape’ 1.95
zuzun ‘poplar, aspen’ 1.93