

Introduction

In the present paper, evidence is put forward demonstrating the relationship between the North Caucasian and Na-Dene languages. This implies that the Na-Dene family is genetically related to the Sino-Caucasian macro-family which also includes the Sino-Tibetan and Yenisei languages. In fact, the present work should be considered a follow-up to the pioneering article by S.A. Starostin in which the existence of the Sino-Caucasian macro-family was first substantiated (Starostin: 1984).

It has been proven that the Sino-Caucasian macro-family is not confined to Eurasian languages alone, but extends far to the east, since the Na-Dene family, which belongs to Sino-Caucasian, is distributed throughout a large part of North America. Its boundaries will extend even further eastward if it can be proven that the Algonquian-Ritwan languages belong to Sino-Caucasian.

The Na-Dene language family is comprised of the following:

1. Haida
2. Tlingit-Athapascan
 - A. Tlingit
 - B. Eyak-Athapascan
 - a. Eyak
 - b. Athapascan (Navaho, Sarsi, Hupa and others)

¹ The author wishes to express his deepest gratitude to S.A. Starostin for his valuable remarks made during discussions of the present work.

The dissolution of the Na-Dene proto-language (PNaD) occurred approximately 7,000-7,500 years ago. The original homeland of this family, judging from the evidence, must be central or eastern Alaska (cf. Krauss:1979).

In the present paper I make use in most cases of an Eyak-Athapascan reconstruction (PEA), because only for languages of this group did I have sufficient materials (Krauss' Eyak dictionary and H. Hoijer's Navaho dictionary, as well as information on other Athapascan languages from morphological and phonetic descriptions, basic word lists, comparative-historical articles and other sources). The PEA reconstruction cited below is my own. It differs in certain important details from E. Sapir's reconstruction used by American linguists (see Krauss:1979).

As regards Tlingit and Haida, sufficiently comprehensive dictionaries of these languages have unfortunately been unavailable to me. However, in all cases of which I am aware, I have generally taken Tlingit data from texts in Tongean dialects. Tlingit forms can for the most part be derived from PEA (it is however possible that Tlingit differentiates old uvulars and velars which have merged in PEA).

Certain doubts have been expressed regarding the inclusion of Haida in the Na-Dene family, but they should be considered unsubstantiated. Certain complex and non-trivial phonetic correspondences between Haida and other Na-Dene languages give rise to some difficulties. Because of the extremely fragmentary nature of the Haida data, I was unable to determine whether using this material adds anything to the reconstruction of PNaD. Under the heading PNaD I cite those protoforms where at least Tlingit data are present.

Below are the regular correspondences between consonants in the North Caucasian and Eyak-Athapascan proto-languages. I do not give the Sino-Caucasian interpretation of these correspondences, since they are given by Starostin. The PNC-PEA correspondences match poorly with his proposed PSinC system which, it seems to me, does not in all cases

reflect the true state of affairs. A binary comparison similar to that proposed in the present work does not generally allow for a reliable reconstruction (such reconstructions are unfortunately quite common in American linguistics).

Reflexes after the old sonants (sounds which have partially disappeared in PEA) are given in square brackets. Single slanted lines separate those correspondence pairs whose origin can be explained. The PNC system is considered to be the more archaic because of the large number of phonemes. Vocalic correspondences are not given because their reconstruction has been inadequately worked out in PEA (in my PEA reconstructions, pre-Athapascan vowels are given from which the Eyak vowels are derived).²

PNC	PEA	PNC	PEA
b, p, p̄	w-	c ^w	ć-
p', w	w	c' ^w	[č ^w]
m	w-, m//θ	ʒʒ ^w	č' ^w -/č ^w -
d	d	c c ^w	ć-
t, t̄	t-, d	c' c' ^w	c'-/č ^w -
t'	t' [d]	z (w)	č ^w -
n	l-//w-, n//m//θ	s ^w	č ^w -
c	c-, ʒ	č	č-
c̄	s	č̄	-č
c'	c'	ć'	ć-(//č)
ʒʒ	c'-/s	ć'ć'	c'-[č]
c' c'	c'	č	č-
s, s̄	s	š	s
ć ^w	L'-(//ć'-)	x	g-
ćć ^w	-č	x̄	x-
ć'ć' ^w	ʔ-	ɠ (w)	g (w)-
č ^w	s	q	k-/x-
ok	š-	q̄ (w)	x (w)-
č'	č' [č]	q' (w)	k' (w)
ok̄	-č'	GG (w)	g (w)/x
č'č'	č'/č-	qq	k-/x
č	š-	q'q'	x
č̄, č̄̄	š	q'q' (w)	k' (w)
č̄č̄ (w)	-č'	R	g-

² The transcription has the following features. Lateral stops and affricates: L, t, L'; lateral spirants: ʔ, L; the "back" lateral sonant: ɰ. Consonantal labiality is designated by the diacritic ^w to the right of the phoneme, abruptness by the sign '. Vocalic nasality is indicated by the sign ⁿ to the right of the letter. The medio-lingual sonant is represented by the letter ɣ. The voiced uvular stop is rendered by the letter G, the voiced spirant with the letter R, and the voiceless spirant as X. The symbol I denotes pharyngealization of the preceding sound. Superscript numerals indicate possible variants of the correspondingly ordered sound in the preceding example. For instance, *xɣd (-č², t'³) means the ɣ may vary with č, and d may vary with t'. These remarks should be taken into account when comparing the material given above with that in Starostin's papers.

PNC	PEA	PNC	PEA
šw	š	χ(w), ǰ(w)	x
L	-L	ʔ	ʔ- [h]
L'	L'	ʔ	k'-, x/? [H]
LL	L-, ʔ/1'	ʔ	y-/x-
L'L'	ʔ/L'	ħ	x-, x/?
l	l-	h	ʔ-//h- [h]
ʔ	ʔ-	ʔw	w-, x [h]
ʔw	ʔ-	ʔw	-x ^w [h]
LLw	-ʔ	ʔw	w-/x ^w
ʔʔw	ʔ-	ħw	-x
L'L'w	ʔ	l	l-//š-, l//θ
ʔw	ʔ-	l	ʔ
g	g	r	d-, y//θ/n
k	k-/x-	ɣ	w-
k̄(w)	g(w)	y	y-//ʔ-, y
k'(w)	k'(w) [g]		
k'k'(w)	k'(w)-		

The comparative material is given below. For the sake of convenience, the comparative lexicon is divided into semantic groups as in Starostin. PNC reconstructions are given according to my and Starostin's "Comparative-Historical Dictionary of North Caucasian languages" (MS; see also Nikolaev & Starostin:1984).

I. Human and animal body parts³

- 1.1. E. GəG 'thigh' /< PEA *g^Λ(M)g/ PEC *G^ΛR^Λ(~q¹) 'id.'
- 1.2. E. Gə^Λnš 'mustache, beard' /< *g^Λnš/ ~ PNC *k̄^Λ(n)š^Λ 'id.'
- 1.3. E. o'ə^ΛnX 'eyebrow' /< PEA *c'ΛnX/ ~ PNC *c'əHə^Λm^Λ (~c'c'¹) 'eyebrow, eyelash'
- 1.4. PNaD *lš⁷x / *xš⁷l 'eye' ~ PNC *ʔw⁷l h i 'id.'
- 1.5. Nav. -γ⁷d /< PEA *x⁷d (~š², t'³) / ~ PEC *X^Λt^Λ (~ d³, q¹) 'breastbone (sternum), brisket'
- 1.6. PEA *dš⁷ 'lip, beak, bill' ~ PEC *t̄^Λh^Λ (~d¹, h³) 'gum/cheek' (apparently, primarily 'front part of the mouth')
- 1.7. PNaD *k^wΛh(M)d 'lip' ~ PEC *k'wə^mt'ī (~ō⁵) 'id.'
- 1.8. PEA *š⁷l m 'stomach, belly, uterus (womb)' ~ PNC *c^cwš⁷ym i 'bile, gall'.
Regarding the validity of the comparison see "Commentary".
- 1.9. PEA *š'í⁷Λk'w 'gut intestines' ~ PEC *š'š'ə⁷q'w^Λ 'id.'
- 1.10. PNaD *xš⁷ 'fat, grease, suet, lard' ~ PEC *X^wī l (H) i (~ e⁴, l³) 'fat, suet, lard'
- 1.11. PEA *təx 'fat, grease' ~ PEC *t^tw⁷m(H)Λ (~ō²) 'suet'
- 1.12. PEA *k'ú^m? 'roe, milt, kidney (anat.)' ~ PEC *k'k'ə^mp^Λ 'kidney (anat.)'
- 1.13. PNaD *kə^hL^Λ 'skin (hide), bark' ~ PEC *q̄q̄š^ΛL^Λ (~t̄³) 'id.'
- 1.14. PEA *gú⁷(n)d 'knee' ~ PEC *q'wə⁷l n t^Λ (~q'q'^{w1}) 'knee, elbow'
- 1.15. PNaD *ʔ^Λn h 'bark' ~ PEC *l^el/n/?w^Λ 'hide' (thick)
- 1.16. PEA *xš⁷(?)k' 'large skeletal bones' ~ PEC *k^š/l/k'^Λ 'bone, leg bone'
- 1.17. PEA *c'ém(?) 'bone, leg, foot' ~ PNC *yē^c'c'wə^Λm^Λ 'id.'
- 1.18. PEA *dèʔ 'blood' ~ PNC *rš^ΛL'š⁷ 'flesh'

³ In the PEA form, sonants *m and *l may be either present or absent, and in such instances are denoted by the symbol (M). The symbol N = *n/*m/*l.

- 1.19. PNaD *t'əx (h³) 'foot' ~ PEC *t'wəh^hw^h 'id.'
- 1.20. PNaD *k^wh^hč' 'thumb' ~ PNC *k'(^w)h^hč' (~ k^wh^h(^w)¹, n^č³) 'finger/toe'
- 1.21. Sarsi -γūš 'leg' / < PNaD *xūš (~ s³); cf Tlingit x'ūš / ~ PEC *k^wh^hč' (~ 1³, č⁴) 'leg, foot, paw'
- 1.22. PNaD *k'w^h(M)š 'leg, foot' ~ PEC *q'q'w^ol^lš 'leg, foot, heel'
- 1.23. PEA *čřNš 'nose' ~ PEC *š^umš^h (~ š^{1,4}) 'face, muzzle, snout' (??)
- 1.24. E. guč' 'penis' / < PEA *g^wh(M)c' / ~ PEC *k'ə1č' (~ č^{1,4}) 'genitalia'
- 1.25. PNaD *t'ā(n)h 'feather' ~ PNC *t'ī[?]ī^hm^h 'feather, wing'
- 1.26. PEA *k'ēhž 'armpit' ~ PEC *q'q'w^hč'w^h (~ č'č^w³) 'elbow, armpit'
- 1.27. PEA *c'ř[?] (~ e²) 'umbilical cord, placenta' ~ PEC *žžōh^hū 'navel'
- 1.28. PEA *c'ēk' 'navel' ~ PNakh *c'onk' (~ g³) 'id.'
- 1.29. PEA *t'ə[?] 'hand' ~ PNC *Hu^loL'L'ē / *HoL'L'o^lē 'hand, arm, shoulder'
- 1.30. E. ʔuG 'heart' / < PEA *ʔ^h(M)g / ~ PNC *yēr^rk'wē 'id.'
- 1.31. E. tux 'saliva, phlegm' / < PNaD *t^hxw (~ lx^w, mx^w³) / ~ PNakh *tūg / *tūk' 'saliva' (derived from the PEC verb *tūy^h 'to spit')
- 1.32. E. dē[?] 'spine, backbone, spinal column' / < PEA *d^h(M)ʔ / ~ PNC *rēhēL'L'w^h 'bone'
- 1.33. E. Ge[?]t' 'body' / < PEA *g^hʔ(M)t' / ~ PEC *Gwā[?]t'ī 'stem; 'trunk (body), torso'
- 1.34. PNaD *žēhx(^w) 'ear' ~ PNC *lēh^l 'id.'
- 1.35. PEA *q'ēMgš 'cartilage' ~ PNC *q'əmq'āš^h (~ q'q'^{1,4}) 'id.'
- 1.36. E. q'ə[?]c' 'jaw' / < PEA *k'ʔ(M)c' / ~ PEC *q'əc'o (~ q'q'^{1,2}, c'³) 'mouth'
- 1.37. PEA *k'w^hš 'neck, back of the head, throat' ~ PEC *k'w^hš^h (~ š³, k'¹) 'throat, back of the head'

- 1.38. E. ʔ1əhG 'intestines' / < PEA *ʔ1^h(M)g / ~ PEC *l'əg^h 'stomach, belly, entrails, intestines'
- 1.39. E. quh 'lung' / < PEA *k^h(M)h / ~ PEC *q^wə1ō^h 'id.'
- 1.40. E. q'āk' 'fish bone' / < PEA *k'ʔ(M)k'w' / ~ PNC *q'wəmq'q^h (~ q'q'(^w)^{1,4}) 'bone'
- 1.41. PEA *g^wē[?]k' (~ ā²) 'throat' ~ PEC *GG^hmGG^w 'id.'
- 1.42. E. gi^hž 'to show teeth (an animal), teeth' ~ PEC *gə^hé' 'fang, canine tooth'
- 1.43. E. Xə[?]ž 'diarrhea; defecate, urinate' / < PEA *x^hʔ(M)x' / ~ PEC *GG[?]lGG[?] 'excrement, dung'
- 1.44. PEA *c'īk' 'hair (on the head)' ~ PWC *s[?]qIə 'head'
- 1.45. PEA *g^hə^h 'arm' ~ PNC *GG^wi^h / *n[?]iGG^w 'id.'
- II. Terms denoting kinship and social organization
- 2.1. PEA *w^hžž 'older brother', *dē^hžž 'younger sister' ~ PNC *w-[?]i[?]é[?]w^h 'brother', *r-[?]i[?]é[?]w^h 'sister' (root with alternating prefixed class markers)
- 2.2. PEA *ʔw^hřž (~ ə³) 'uncle/nephew' ~ PEC *mə[?]é^h the name of a distant relative or relative by marriage ('fiance', 'distant cousin', etc.)
- 2.3. PEA *č'w^hīy 'woman' ~ PNC *žžw^hy^h 'id.'
- 2.4. PEA *žā^l 'woman' ~ PEC *ž^hh^wh^l (~ 1⁵) 'female'
- 2.5. PEA *tā[?] 'father; father-in-law' ~ PEC *ʔə[?]ə(y^h) 'father'
- 2.6. PNaD *wə[?] 'father' ~ PNC *ʔob^h(y^h) 'id.'
- 2.7. PEA *(y)ā^hš 'nephew (sister's son)' ~ PNC *-^hr^hš^h 'son, daughter' (with alternating class markers, including *y-)
- 2.8. PEA *lā^hž (~ ē²) 'relative by marriage (father-in-law, son-in-law, brother-in-law)' ~ PEC *n[?]ī[?]w^c(^w)^h 'son-in-law, brother-in-law, husband'
- 2.9. PEA *šā^hNč' 'father-in-law' ~ PEC *s^wī[?]ē[?]č^h 'father-in-law; first cousin (male)'

- 2.10. PNAD *ʔiŋh 'woman, wife' ~ PEC *ʔiŋh (~ ʔi) 'id.'
 2.11. PEA *k'ēy 'brother-in-law' ~ PEC *q'arh 'first cousin; uncle'
 2.12. PEA *ʔiŋhg 'enemy, foreigner' ~ PNC *iēk (~ i) 'slave; man, person'

III. Fauna

- 3.1. PNAD *k'āʔhg 'butterfly' PEC *k'aʔhk' 'id.'
 3.2. Sarsi miʔ 'moth' / < PEA *wʔʔ (~ ʔ) ~ PEC *pēʔh 'butterfly'
 3.3. PEA *cʔʔh 'squirrel' ~ PNC *c'ʔ/ʔʔh (~ c'ʔ, ʔ) 'weasel, marten, rat'
 3.4. PNAD *gʔʔ 'dog, wolf' ~ PNC *k'wāʔē 'id.'
 3.5. Kiowa-Apache ʔāʔ 'crow' / < PEA *xāʔʔ ~ PNC *q'wēiʔh (~ Gʔ)
 'jackdaw, rook'
 3.6. E. čid 'nit' / < PEA *čʔ(M)d / ~ PEC *č'ʔmt' 'flea, (bed-)bug'
 3.7. PNAD *gāx 'hare, rabbit' ~ PEC *Gʔwōʔrʔh 'hare'
 3.8. Hare -déd-ì 'a type of fly' / < PEA *dʔʔt' (~ ʔ , ʔ) ~ PEC t'əmt'ō 'fly'
 3.9. PEA *wāʔʔ (~ xʔ) 'fly' ~ PEC *pāʔh (~ rʔ) 'fly, bee'
 3.10. PEA *Lūnh (~ l,mʔ) 'mouse, squirrel' ~ PNC *LLar(H)h 'hare'
 3.11. PNAD *wēh (~ xʔ) 'sheep/goat' ~ PEC *w/o/hh 'sheep, lamb'
 3.12. Slave goʔ-oh 'elk' / < PEA *gūʔʔ ~ PEC *Rwāʔh (~ Gʔ) 'deer'
 3.13. Nav. bʔiŋh 'deer' / < PEA *wʔiŋxʔ ~ PEC *wʔiʔh (~ rʔ) 'mountain goat'
 3.14. PEA *k'ʔʔh (?) 'large predator (wolf, sea lion)' ~ PEC *ʔamʔh (~ ʔ)
 'wolf'
 3.15. PNAD *šūk' 'robin redbreast' ~ PEC *čāq'ʔh 'a type of sparrow'
 3.16. PEA *šāš 'a small bird' ~ PEC *šʔrʔh (~ iʔ) 'id.'
 3.17. PEA *xāk' 'crow' ~ PNC *q'q'wāʔh (~ iʔ) 'crow, jackdaw'
 3.18. PEA *k'ʔ(M)k' 'waterfowl (duck, loon)' ~ PEC *q'q'ʔʔʔq'ʔh 'crane'

- 3.19. E. liŋliŋ 'small wild goose' / < PEA *liŋw-ʔliŋw / ~ PEC *liŋ-liŋh (~ li, ʔ) 'stork, heron'
 3.20. PEA *wʔiŋxʔ 'nightjar (goatsucker)/(sea-)gull' ~ PNC *bʔʔh 'large predatory bird'
 3.21. PNAD *ʔūk' 'fish' ~ Plezg *č'ek' 'id.'
 3.22. E. Xəwā 'dog' / < PEA *xʔh / ~ PEC *xwēhye 'id.'
 3.23. PEA *č'ūč (~ č', ʔ) 'worm' ~ PNC *č'ʔrʔh 'snake, lizard'
 3.24. E. ciL' 'otter' / < PEA *cʔ(M)L' / ~ PNC *cʔrLLwā 'weasel'
 3.25. Tl. s'ik 'black bear' / < PEA *c'ʔ(ʔ)xʔ (~ gʔ) ~ PEC *c'ūʔiʔq'ʔh
 'lynx, leopard'
 3.26. PEA *c'ʔx 'a type of (small?) bird' ~ PEC *c'ʔuhmʔh 'a type of bird'
 3.27. E. ʔniq' 'seagull' / < PEA *ʔiʔ(M)k' / ~ PEC *iēʔiʔh (~ i, q'ʔ)
 'large predatory law'
 3.28. E. gāʔq' 'heron, crane' / < PEA *gʔʔ(M)k' / ~ PEC *q'q'wēq'q'ʔh 'id.'
 3.29. E. wēx 'crow' / < PEA *wʔ(M)xʔ / ~ PEC *p'wōʔiʔqʔh 'crow'

IV. Flora

- 4.1. PEA *ʔiʔ 'branch' ~ PEC *Hāʔh 'id.'
 4.2. PEA *dēs 'driftwood' ~ PNC *r/ʔ/šwʔh 'tree, firewood'
 4.3. E. ʔid 'deadwood, firewood' / < PEA *ʔʔ(M)d / ~ PEC *ʔwimʔh (~ ē, ʔ)
 'firewood'
 4.4. PEA *xūʔš 'thorny plant' ~ PEC *Rāʔc' (w)ʔi 'thorny shrubs'
 4.5. PNAD *gāʔ 'stump, root' ~ PNC *gūrdh 'log, stump, block'
 4.6. E. sʔiŋs 'moss, lichen' / < PEA *sʔh / ~ PEC *šāš 'moss; mold'
 4.7. PEA *gʔš (~ ʔ) 'stick' ~ PEC *q'wērʔh (~ Gʔ) 'stick, twig, stalk'
 4.8. PEA *č'ʔʔ 'plant, bush, tree' ~ PEC *č'ʔiʔwū 'log, beam, girder, tree'
 4.9. Nav. tēʔ 'reed' / < PEA *tēʔ / ~ PEC *tēʔi 'stick, post (a type of tree)'

- 4.10. E. tug 'rice' /<PEA *t_l(M)g^w/ ~ PEC *t_lk'w_l / *t_l'i_lw_l 'millet (> rice)'
 4.11. PNaD *L'ù[?]x^w 'grass' ~ PEC *ʔwēL' _l 'grass, hay'
 4.12. E. q'əGš 'a type of berry' /<PEA *k'_l(M)gš/ ~ PEC *k'_liš_l / *š_lik'_l
 (~ š_l^{3/1}) 'sweetbrier (eglantine)'
 4.13. PEA *xāy 'edible root' ~ PEC *q'q'ā[?] _l (~ q'_l) 'plant with edible root
 (turnip, beet, etc.)
 4.14. E. wēč' 'wooden spit for roasting fish' /<PEA *w_l(M)č'/ ~ PNC
 *m/urč'w_l 'sharp stick'

V. Natural phenomena and objects

- 5.1. E. q'əc' 'bog, swamp' /<PEA *q'_l(M)c'/ ~ PNC *qāmc'_l 'bog, swamp,
 mire, dirt, filth'
 5.2. E. sē[?]ʔ 'twilight, evening' /<PEA *s_lʔ[?]/ ~ PNC *š_lwi_l _l (~ e², r³)
 'evening, night'
 5.3. E. -duk'- 'hump, hump-backed' /<PEA *d_l(M)k'w/ ~ PNC *r_laq'_l(w)_l
 'mountain, hill'
 5.4. E. q'əma[?] 'fog' /<PEA *k'_lm/ ~ PNC *k'_lwōm_l 'cloud, fog'
 5.5. PEA *sū_lH (~ m, n³) 'star' ~ PEC *š_ll_lH_l (~ _l³) 'sunlight, ray, beam'
 5.6. PEA *č'ī_ld 'earth, dirt' ~ PEC *č'w_ll_lτ_l _l (~ d(w)³) 'id.'
 5.7. PEA *lēhk' 'earth, soil, ground' ~ PEC *nēq'w_l _l (~ q'_lw³) 'id.'
 5.8. PEA *ž'wí_lmh 'day' ~ PEC *y_līGG(w)ī_ln_l 'id.'
 5.9. PEA *š_lū^(?)x 'hoar(-)frost' ~ PNC *s(w)ī_lH_l _l (~ _l⁴) 'hoarfrost, cold (adj.),
 to freeze'
 5.10. PEA *ʔū_l (~ *ʔū_w) 'hail, hoarfrost, ice' ~ PEC *y_lī_lī_w _l (~ ī, ā, ē², ʔ)
 'snow'
 5.11. PNaD *wē_l(h) 'ocean, lake, pond' ~ PEC *ʔwē_l _l 'river/sea'
 5.12. PEA *xí[?]ʔL' 'night, darkness' ~ PEC *ʔeImL' _l 'fog, cloud; sleep'

- 5.13. PNaD *k'ùhs 'cloud, sky' ~ PEC *ʔāmē_l 'sky, cloud; deity'
 5.14. PEA *sáy 'sand' ~ PND *sūre 'sand; soot'
 (5.15.) PNaD *xān[?] 'water, river' ~ PEC *xān[?] 'id.'
 5.16. PEA *ʔī_lh (~ m, n³) 'river, brook' ~ PNC *H_lʔw_lrī / *H_lr_lʔw_l 'sea'
 5.17. E. šī 'brook, stream' /<PEA *š_ly/ ~ PEC *šōr_l _l (~ š_l¹) 'river, stream, lake'
 5.18. PEA *šāhs (~ c'⁴) 'snow' ~ PEC *š_lrš_l _l (~ š_l¹, ʔ) 'hoarfrost'
 5.19. PEA *šwš_l(H) 'sun/moon' ~ PNC *ž_lwš_lh_lrī _l (~ ē[?]) 'star'
 5.20. PNaD *t'ē[?]ʔc' 'coal' (> 'black') ~ PEC *t'ir_lč_lwē _l (~ č_lw⁴) 'coal'
 5.21. E. xu_lʔL' 'winter, snow' /<PEA *xw_l(M)L'/ ~ PEC *h_li'L'i(n_l) _l (~
 h_l, L'L'w³) 'winter'
 5.22. E. qih 'prairie; forest clearing' /<PEA *k_l(M)h/ ~ PNC *q_lw_lrH_l 'field'

VI. Terms relating to agriculture and manufacturing

- 6.1. E. Xeh[?] 'rope' /<PEA *x_lh[?]/ ~ PEC *X_lā_l _l (~ ā_l², ʔ³) 'thread, rope'
 6.2. PEA *L'ū[?]ʔ 'rope' ~ PEC *H_lč'_lwō_l _l 'leather, rope'
 6.3. E. ʔ_lah[?] 'comb' /<PEA *ʔ_lah[?]/ ~ PEC *y_lī_lr_ll_lwē 'id.'
 6.4. PEA *kē_l (~ n, m³) 'house' ~ PEC *qə_l _l 'house, nest'
 6.5. PEA *ʔēhs 'weir for catching fish' ~ PEC *ʔwī_l _l _l (~ ā²)
 6.6. E. k'uš 'scoop' /<PEA *k'_l(M)š/ ~ PEC *q'_lwīš_lw_l 'scoop, shovel'
 6.7. PNaD *x_lh(M)d 'basket' ~ PEC *k_lū_lτ_lw_l 'id.'
 6.8. PNaD *c'ā_lg(w) 'basket, bowl, dish' ~ PNC *c'ó'ā_lq'w_l 'spoon, scoop'
 6.9. PEA *tí_lMk'w 'bow, arrow' ~ PEC *t'əIm(ā)_l 'arc, bow'
 6.10. E. Ge[?]t' 'skirt' /<PEA *g_l(M)t'/ ~ PEC *k_lwī_lr_lτ_lw_l 'shirt, clothing'
 6.11. Nav. c'ī_l 'ruins' /<PEA *c'ī[?]/ ~ PEC *c'wā_l _l _l _l (~ ʔ³) 'id.'
 (6.12.) Nav. -š_lī_lnh 'salt' /<PEA *š_lī_lnh (~ š_lw_l) / ~ PNC *c'c'wē_ln_lʔ_l 'id.'
 6.13. E. q'əc' 'pair of tongs' /<PEA *q'_l(M)c'/ ~ PEC *qš_l(I)mc'_l _l 'id.'

6.14. E. Xaʔt 'handle; mollusc shell' /< PEA *xʌʔt/ ~ PEC *1wəI1L'L'wʌ

'handle'

6.15. E. gaʔc' 'ladder' /< PEA *gʷʌʔ(M)c'/ ~ PEC *k̄ōnɔɔɔ (~ cē, cēʔ) 'ladder;

door frame'

6.16. PNaD *wəgʷəɣ 'flint' (>'metal') ~ PNC *nōwqʌc'ʌ 'flint'

VII. Other nouns

7.1. PEA *s'f1d 'evil' spirit, the deceased' ~ PEC *c'c'w i 11 t(ʷ)ʌ 'tombstone'

(> 'tower')

7.2. TL. ʔat 'thing' /< PEA *ʔʌ(N)d/ ~ PNC *Hʌʔʌ (~ dʒ) 'thing'

7.3. PEA *wənh 'military detachment, group of warriors' ~ PEC *ʔwəʔIʔrʌ (~ ʔʒ)

'army'

7.4. PEA *xeʔs 'pus' ~ PEC *h/ə/mɔɔɔ 'saliva, pus, snot'

7.5. E. c'əʔq' 'diarrhea' /< PEA *c'ʌʔnk'/ ~ PNC *c'iIq'wʌ (~ c1) 'feces,

excrement, dung'

7.6. Hare -gi é r-eʔ 'road' /< PEA *ged/ ~ PEC *GGwəʔt'ʌ 'street'

7.7. Nav. k'iz 'chink, crack, split' /< PEA *k'(w)ic' (~ əʔ, sʒ)] ~ PEC *q'ʌc'ʌ

(q'q'1, c'c'3) 'hole'

7.8. Nav. -yèl 'sacrifice, offering (to the spirits)' /< PEA *xəʔt/ ~ PEC *q̄wəʔʔo

(~ əʔ) 'fate; verdict, gossip'

7.9. PEA *s(w)ih 'name' ~ PEC *zɔʔwəʔrʔi 'id.'

7.10. E. siʔhX 'tree gum' /< PEA *sʌhnX/ ~ PNC *s̄ūnq'q'i 'tree gum; ink'

7.11. PEA *wə1H (~ ʔ2, n, mʒ) 'round, to whirl, twist' ~ PEC *ʔwiI1hʌ (~ h4)

'wheel'

7.12. PEA *sūNs 'thorn, sting' ~ PNC *cə̄(ʌ)cə̄ 'thorn, thorny plant'

7.13. PNaD *wəʔʔ 'edge' ~ PEC *p̄əʔə̄ʔ 'id.'

7.14. E. GehG 'ring, circle' ~ PNC *gürɔɔ 'circle'

7.15. E. Xəɣ 'mark' /< PEA *xʌ(M)ɣ/ ~ PEC *ɣwə1c'i (~ eʔ) 'id.'

7.16. PEA *c'ūw 'female breast, nipple' >'milk' ~ PNC *c'c'ʌhʌrʔ'ʌ '(sharp) tip'

7.17. PEA *L'əh 'bottom, ground, buttocks' ~ PNC *HöL'öñü / *L'öñHü

'bottom, ground'

7.18. E. *yəX 'down, downwards' /< PEA *yʌ(M)x/ ~ PNC *-əXwʌ 'bottom' (with prefixes indicating classes including *y-)

7.19. E. ʔəg 'half' /< PEA *ʔʌ(M)ɣ/ ~ PNC *həmc'wʌ 'middle, half'

7.20. PEA *gə1- 'manner of walking' ~ PEC *yə1hʌ (~ əʔ, h4) 'step'

7.21. Nav. -k'ə1 'fork (in a road)' /< PEA *k'(w)əʔ (~ L', L3)] ~ PNC

*k'w/ə/1L'L'ʌ (~ LL4) 'pitchfork, fork (in a road)'

7.22. PEA *wəʔ 'sleep' ~ PNC *nəhəwL'L'u 'id.'

7.23. PEA *dəʔ 'edge' ~ PEC *-iʔwʌ 'edge, end' (with alternating prefixed class markers including *r-)

7.24. E. xəhʔ 'hothouse, bathhouse' /< PEA *xwʌhʔ/ ~ PEC *h/ə/1hʌ 'breath, steam'

7.25. E. xəhʔ 'bathhouse' (< PEA *xwʌhʔ) ~ PEC *h[ə]1hʌ 'breath, steam'

VIII. Numerals

(8.1.) PEA *ki 'two' (in compounds *1əʔd-k i, cf. E. 1əʔd 'two') ~ PNC * (t)q'wəʔI 'id.'

8.2. PNaD *dʔnk' 'four' ~ PEC *-əmq'ʌ 'id.' (with alternating class markers including *r-)

8.3. PNaD *gʌ 'ten/twenty' (E. Gə 'ten', TL. -qə 'twenty') ~ PNC *GGə 'twenty' (?)

IX. Pronouns and particles

9.1. PNaD *dʌ locative particle/affix ~ PNC *-ʔʌ locative affix (lative?)

- 9.2. PEA *1_{h-x} 'you (pl.)/we' ~ PNC *l/ǎ/ 'we (inclusive)'
- 9.3. E. k'u 'not, no' /< PEA *é'_h (~ e''_h1) / ~ PNC *é'_h (~ é''1) negative particle/affix
- 9.4. PEA *d'_h 'not, no' ~ PNC *ɛ'_h (~ d) negative particle
- 9.5. PNaD *h'_h demonstrative/personal pronoun (3rd/4th p. sg.) ~ PNC *h'_h stem of demonstrative pronouns and adverbs
- 9.6. PEA *d'_h 'this, these' ~ PEC *d'_h 'that, those'
- 9.7. PNaD *ʔ'_h stem of demonstrative pronouns and adverbs ~ PEC *ʔ'_h 'id.'
- 9.8. PNaD *w'_h stem of demonstrative and personal pronouns (3rd p.) ~ PNC *u'_h 'this, that'
- 9.9. PNaD *w'_ɥ 'thou' ~ PNC *u'_o 'thou'
- 9.10. PNaD *ʒ'_w 'I' ~ PNC *z'_(w)'_o 'I'

X. Verbs

- 10.1. PNaD *ʔ'_{yǎ}(H) 'to be, to become' ~ PNC *ʔ'_{əʔ}'_h 'to be'
- 10.2. PNaD *ʔ'_{yǎ}(H) 'to make, do' ~ PNC *ʔ'_{əh}'_w'_h 'to make, do'
- 10.3. PEA *-k'_(w)'_ɪm(h) (~ 1³) 'food, foodstuffs' ~ PEC *ʔ'_{ik}'_w'_h'_h 'to eat'
- 10.4. TL. -ʔ'_{ət} 'to go, walk' (pl.) /< PNaD *ʔ'_h(M) d/ ~ PNC *ʔ'_{ət}'_h 'to go, to move'
- 10.5. TL. -ʔ'_{us}' 'to wash' /< PNaD *ʔ'_h(N) c' / ~ PNC *ʔ'_{ɔ1}'_{ʒʒ}'_h (~ n³) 'id.'
- 10.6. PNaD *L'_ǎh 'to drink' ~ PEC *h'_hll'_(w)'_h(n'_h) 'id.'
- 10.7. E. sūt 'to suck' /< PEA *s'_h(M) t' / ~ PEC *ɛ'_w'_in't'_h 'to sniff (smell); to smoke'
- 10.8. E. q'əc' 'to bite' /< PEA *k'_h(M) c' / ~ PEC *q'_əc'ɪ (~ q'_q'₁, c'_c'₄) 'bite, piece'
- 10.9. PNaD *t'_h(H) 'to put' ~ PNC *ʔ'_et'_h(r'_h) 'to leave; to be'
- 10.10. PNaD *g'_w'_h(H) 'to know' ~ PNC *ʔ'_əm'_c'_(w)'_h 'to know, to see' (?)

- 10.11. PNaD *k'_ǎm (~ 1³) 'to burn; fire' ~ PEC *k'_w'_ɪ/m'_h / *ʔ'_ɪ/m'_k'_w'_h 'to burn'
- 10.12. PEA *x'_éw_h'_ɛ 'to itch, to scratch oneself' ~ PEC *h'_hǎǎ'_w'_h (~ ʒ³) 'id.'
- 10.13. E. L'əʔ 'to beat, to cut' /< PEA *L'_h(M) ʔ' / ~ PEC *H'_hl'_L'_h'_w'_h 'to beat, to butt'
- 10.14. E. cə 'to buy' /< PEA *c'_h(M) / ~ PEC *ʔ'_ə/c'_h(n'_h) 'to take, to buy'

XI. Adjectives and adverbs

- 11.1. TL. é'_{əʔ}'_k'_w 'long ago' /< PNaD *é'_h'_ʔ'_k'_w / ~ PNakh *č'_ə'_q'_h 'far'
- 11.2. PEA *é'_h'_h'_k'_h 'big' ~ PNC *(h'_h)é'_ə'_q'_w'_h 'id.'
- 11.3. PNaD *c'_ə'_x'_w 'yellow, green' ~ PEC *['é'é']ə'_k'_k'_w'_h 'id.'
- 11.4. PEA *ʒ'_h'_ʔ'_g'_w 'crooked' ~ PEC *č'_h'_h'_k'_w'_h (~ č'č'1) 'id.'
- 11.5. PEA *L'_ǎ'_h'_x 'left' ~ PNC *é'_(w)'_h'_(H)'_m'_h 'id.'
- 11.6. PNaD *y'_ǎ'_h'_š 'small' ~ PEC *ɥ'_hl'_š'_h (~ š⁴) 'small, few'
- 11.7. PNaD *k'_h'_(M)'_č'_h 'small; young animal, child' ~ PNC *k'_w'_ɥ'_r'_č'_h (~ č'4) 'young animal'
- 11.8. PEA *ɫ'_é'_ʔ'_x 'wet; to swim' ~ PEC *ɫ'_w'_eh'_(h)'_m'_h 'wet'
- 11.9. PEA *k'_w'_ú'_m'_ʔ 'fire, light' ~ PEC *k'_w'_ən'_h 'light (noun, adj.)'
- 11.10. PNaD *ɛ'_ə'_n'_h 'old (person, animal)' ~ PEC *ɛ'_ə'_n'_h 'year'
- 11.11a. PEA *g'_w'_ǎ'_N(H) 'dry, to dry' ~ PNC *ʔ'_ig'_w'_h'_r'_h 'id.'
- 11.11b. TL. -xuk 'to dry' /< PNaD *g'_(w)'_h(N) g'_w' / ~ PEC *g'_ig'_w'_h(r'_h) 'dry, to dry'
- 11.12. PEA *k'_h'_ǔ'_h'_š (~ m⁴) 'sour' ~ PEC *q'_(w)'_hl'é'é'h 'id.'
- 11.13. E. Xə 'hot', Xəⁿ 'to melt, thaw; warm (adj.)' /< PEA *x'_h(H), *x'_h(H) / ~ PNC *ʔ'_ə'_Iw'_x'_h(n'_h) (~ ə²) 'to be warm, hot'
- 11.14. E. č'_ə'_x'_w 'muddy' /< PEA *č'_h(M) x'_w' / ~ PEC *(č'1)č'o'I'r'q'w'h 'dirty, dirt, filth'

11.15. E. gá 'bad' [<PEA *gʷa(H)] ~ PEC */h̄/oḱʷa 'bad'

11.16. E. qēc' 'child, small animal' [<PEA *kʷa(M)c'] ~ PNC *kənc'c'a 'small;
puppy, child'

11.17. PEA *šǔmh 'good' PEC *hʷinžʷ (~h̄') 'id.'

A somewhat modified version of Swadesh's basic word list is given below for PEA and PEC cognates.

	PEC	PEA
1. big	* (hʷ)č'əqʷa	*čùhk'
2. eye	*ʔwǐlhi	*lǎʔx / *xǎʔl
3. to burn	*k'w/ī/mʷ	*k'ám
4. two	* (t)q'wǎl	*ki
5. gut (intestine)	*č'č'āq'q'wʷ	*c'íyʷk'w
6. woman	*žžʷʷyʷ	*č'wíy
7. this/that	*dʷ	*dʷ
8. yellow	* /č'č' / akkʷa	*cùxʷ
9. earth	*nēq'wʷ (~q'q'wʷ³) *lēhk'	
10. name	*žžʷǎrʔi	*ž(w)ih
11. bark (of a tree)	*q̄q̄aLʷ	*kǎhL
12. bone	*yēc'c'wǎm̄	*c'emʔ
13. four	*-ǎmq'ʷ	*dǐmk'
14. rope	*Hʷó'wɔlʷ	*L'úʔʔ
15. small	*ʔʷlǎšʷ	*yǎhš
16. we	*L'ǎ/	*lʷ-
17. not	*dʷ (~tʷ)	*dʷ
18. foot	*t'wēhʷa	*t'ǎx (~h³)
19. cloud	*ʔǎmšʷ	*k'ùhs
20. sand	*súre	*səy
21. feather	*t'íʔíʷmʷ	*t'ən(h)
22. to drink	*HʷLL(ʷ)u(nʷ)	*LǎNH

	PEC	PEA
23. arm	*GGʷiInʌ	*gǎn
24. fish	PLezg *č'ek'	*túk'
25. knee	*q'wəIntʌ (~q'q'wʷl)	*qúʔ(n)d
26. dry	*ʔiGGʷʌrʌ	*gʷǎN(H)
27. ear	*lǎhʷlʌ	*žǎhx(ʷ)
28. father	*ʔaʔa(yʌ), *ʔobʌ(yʌ)	*tǎʔ, *wǎʔ
29. good	*hʷinžʌ (~hʷl)	*šǔmh
30. I	*z(ʷ)o	*šwʔ
31. grass	*ʔwǎL'ʌ	*L'ùʔxʷ
32. fat	*tʌtʷi(H)mʌ	*tǎx

In accordance with my glotto-chronological calculations, the time-depth of the Eyak-Athapaskan family is approximately 2,500 - 2,700 years while the time-depth of PNC is around 6,000 years (according to Starostin). With corrections, this does not appear to be an obstacle for glottochronological calculations in determining the time when Sino-Caucasian started to deteriorate. But a great uncertainty in choosing one of the two proto-languages' synonyms for comparison keeps me from making these calculations. For example, in PNC, for every gloss in the word list, there are, in almost all cases, two lexemes, and it is not possible, in most instances, to decide which word is primary and which is not. The decision will usually be subjective (and therefore the age of the family will be either greatly overestimated or, on the contrary, underestimated).

What follows is a list of cognates from Sino-Caucasian languages and Algonquian and Salishan languages (which, as it seems, also belong to Sino-Caucasian). Numbers correspond to those in the preceding lists.

- 1.3. Cf. PST *cham 'head hair, eyebrow, eyelash', PY *cəŋe 'hair' (Starostin 1984, p.24), PSa *cəm (~ŋ³) 'eyebrow', maybe also N. chy/xiv-r 'eyebrow'
- 1.4. Cf. PY *de- 'eye' (Starostin 1984, p.23), PSa qə1-əŋʔ, Yurok -1-in 'id.'
- 1.8. Cf. PST *sǐn, PY *səŋ 'liver' (Starostin 1984, p.24). PNC meaning 'gall' is secondary. Cf. Twana ščə11əb 'liver', čə1ab 'lungs', etc. (< PSa *čə1əŋ). Cf. also Altaic *s[ə]1(ə)mə, Uralic *šudəmə 'heart' (a borrowing from a Sino-Caucasian substratum?).
- 1.30. Cf. PST *ʔrak/ŋ, PY *təga 'chest' (Starostin 1984, p.23), N. ŋi-rɣ-i-r 'id.'
- 1.32. Cf. PST *rak/ŋ 'bone', PAIg. *wə-θk- 'id.', Yurok (?)wəʔk-əʔ 'id.'
- 1.44. Cf. PY *ciGʌ 'head' (Starostin 1984, p.23), PAIg. *-štikw-, maybe also N. (Amur) čəŋ-r, (East Sakhalin) čəŋ-r 'head'
- 1.45. Cf. Old Chinese kēn 'shoulder', PY *ken- 'id.' (Starostin 1984, p. 28), PAIg. *-neθk- 'hand' (the PAIg. form fits PEC root variant *niGGʷʌ).
- 2.1. Cf. PST *čəyH 'elder brother/sister', PY *b-is(ə) 'brother, sister' (Starostin 1984, p. 28), PAIg. *-iʔθ- 'elder brother', PSa *qec- 'id.' Note possessive marker *b- in PY.
- 2.6. Cf. PST *pa(H), PY *ʔob 'father' (Starostin 1984, p. 29), PSa *χip 'grandfather', *pip 'father'.
- 2.11. Cf. PST *Kwriy 'nephew, son-in-law', PY *χ/qar 'grandchild' (Starostin 1984, p. 28).
- 3.5. Cf. PST *kri, PY *k/gor-UT- 'crawl' (Starostin 1984, p. 29)

- 3.13. Cf. PST *ryuk 'deer', PY *ʔiʔχ 'male reindeer' (Starostin 1984, p.29),
PAIg. *mah/ʔkw- 'deer'
- 3.15. Cf. Old Chinese éekw 'sparrow' (Starostin 1984, p. 29)
- 3.20. Cf. N. phisk 'kite', PAIg. *pīškw- 'goatsucker', PSa *pig'w 'id.' - Cf.
also Oroch pičaki 'id.'
- 3.21. Cf. PY *c[ī]k 'fish, snake' (Starostin 1984, p. 205), PSa *c'əq'w 'fish', N.
čho 'id.'
- 3.22. Cf. PST *qhwiy 'dog' (Starostin 1984, p. 23), PSa *Xweŋw 'fox'
- 3.24. Cf. PST *[s]raiq 'squirrel', PY *saʔqa 'id.' (Starostin 1984, p.29), PAIg.
šānkw- 'mink', šinkw- 'weasel', N. čhoŋsq 'polecat'
- 3.27. Cf. PST *lak/ŋ 'eagle, hawk', PY *dʌʔGʌ 'eagle' (Starostin 1984, p. 29);
maybe also PAIg. *kiliw- 'eagle' (with a metathesis?)
- 4.1. Cf. PST *yāi 'branch', PY *ʔul-an 'small twig, switch' (Starostin 1984, p.
30-31), PSa *xwəlk 'branch'
- 5.4. Cf. PST *mūk 'fog' (this corresponds to the PEC root variant *mōk'k'wʌ), PY:
Kotic Xoaŋ 'fog' (Starostin 1984, p. 30-31), (??) PSa *pum/ŋ 'smoke, to
smoke'
- 5.14. Cf. PST *sray 'sand' (Starostin 1984, p. 24)
- 5.15. Cf. PY *xur₁ 'water' (Starostin 1984, p. 25) - [Hardly to PEC *xǎnʔi.-V.S.]
- 6.8. Cf. PST *č/šekw 'to laddle', PY *sʔx (~k, gʰ) 'a dough trough' (Starostin
1984, p. 32)
- 7.3. Cf. PST *raH 'army; enemy', PY *har- 'slave, servant' (Starostin 1984, p.
32), PSa *xwər/1 'white man' (originally 'enemy, alien?')
- 7.6. Cf. PNC *ghwǎt (~kh¹) 'yard, passage', PY *q/Xoʔt 'path, road' (Starostin
1984, p. 32)
- 7.10. Cf. PST *smāk/ŋ 'ink', PY *suk 'paint' (Starostin 1984, p. 32), PSa
*éəməX 'resin, gum', PAIg. *šihkw- 'resin'
- 7.11. Cf. PST *qwəi, *qwəʔ 'round', PY > Ket ií-təp 'wheel' (Starostin 1984,
p. 31), PAIg. *kwat- 'rotate' (trans.) [As for PNC *1 versus PAIg. *t, cf.
also PNC *ccōy(U)wilHU 'winter/fall': PAIg. *kyēwēt- (~*kyēwēt-)
'north, northern wind']. - Cf. also N. kulku-s 'wheel'.
- 7.17. Cf. PST *nāikw 'drown, sink, submerge', PY *kən/n- 'bottom, low',
PAIg. *nēyhθ- 'down, below' (see Starostin 1984, p. 35, about PST and PY
cognates)
- 7.25. Cf. PST *la 'spirit', PY *ʔir 'spirit, breath' (Starostin 1984, p. 33), PSa
*hel 'soul; dream; to live', PAIg. *lēh1ē- 'breath' (redupl.)
- 8.1. Cf. PST *k-niy(s), PY *xi-nə 'two' (Starostin 1984, p. 25), PSa *tq'wU
'two' (cf. PNC *tǎIwU 'two' where *t- is unclear from the point of view of
the PNC level [*t- is a prefix, according to Starostin. - V.S.]), PAIg.: Cree na-
po 'two' (*nU- is a numeral prefix in PAIg.), with -p- < PAIg. *kw.
- 9.4. Cf. PST *ʔat-/*ta- 'not' (Starostin 1984, p. 24), N. tha 'not' (prohibitive
particle)
- 9.7. Cf. PST *ʔi 'this', *ʔa 'that' (Starostin 1984, p. 25), N. a- 'that'
- 9.9. Cf. PY *ʔu/*ʔaw 'thou' (Starostin 1982, p. 204), PSa *wU 'thou'.
- 9.10 Cf. PSa *cə, 'o'.
- 10.2. Cf. PST *qway, *Gway 'make, do' (Starostin 1984, p. 34), PSa *həʔw 'id.'
- 10.10. Cf. PST *sia, PY *ʔUt- 'know' (Starostin 1984, p. 24), PAIg. *kiθk-
'know', PSa *ʔəc'-əX 'see'
- 11.2. Cf. PST *čok 'sufficient' (Starostin 1984, p. 36). -Alt.. *čōk(U) 'much,
many' and Ural. *čōkkU 'thick, big' might represent borrowing from Sino-
Caucasian language.

- 11.9. CF. Old Chinese *kωāŋ, PY *gəʔn- 'light (noun), bright' (Starostin 1984, p.35), PAlg. *kωUn- 'day', PSa *qwin 'bright, shiny', N. khunu- 'be bright, transparent', khunu 'dawn'
- 11.10. Cf. PST *snīŋ 'year; old', PY *sin- 'old' (Starostin 1984, p. 33), N. ʌŋ 'year'.
- 11.11. PNC root in 11.11b [PEC GGᶦGGᶜU(ɾU) 'dry, to dry'] represents a reduced variant of 11.11a (PNC *ʔᶦGGᶜUɾU 'id.'). Na-Dene data confirm this identification. There is a reflex of a reduplicated root in PAlg. *kāhk- 'dry'; of simple forms in PST *q/kār, PY *qar /l 'id.' (Starostin 1984, p. 23), N. (East Sakhalin) qhau 'become dry'.

Abbreviations

E. - Eyak; N. - Niukh; Nav. - Navaho; PAlg. - Proto-Algonquian; PEA - Proto-Eyak-Athapascan; PEC - Proto-East Caucasian; PLzg - Proto-Lezgian; PNaD - Proto-Na-Dene; PNakh - Proto-Nakh; PNC - Proto-North Caucasian; PND - Proto-Nakh-Daghestanian; Psa - Proto-Salishan; PSinC - Proto-Sino Caucasian; PST - Proto-Sino-Tibetan; PWC - Proto-West Caucasian; PY - Proto-Yeniseian; Tl. - Tlingit.

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