# Establishment of sound-corresponce laws of word-initial consonants between Finnish/Uralic and Malayo-Polynesian/Proto-Austronesian languages: Towards making comparative analysis of word-initial consonant frequencies

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**Abstract**

In order to make comparative analysis of word-initial sound (or consonant) frequencies among different languages or language families, it is most important for us to find basic knowledge concerning consonant-correspondence laws among related languages. However, we have very few knowledge about such laws useful for comparing distantly related language families. In this paper, Finnish-Austronesian sound-correspondence laws were analyzed by using comparative dictionaries, and Finnish (Uralic)-Austronesian sound correspondence laws were established for most of word-initial Finnish (and proto-Uralic) consonants, as shown in Tables 1 and 2. This establishment provides us with a very important tool not only for evolutionary Uralic language studies, but also for comparative analyses of word-initial sounds (or consonants) among distantly related Eurasian languages.

Word-initial consonant frequencies in Finnish suggested an interesting phenomenon, which however needs more evidence based on detailed comparative and statistical analyses.

## 1. Introduction

Comparative linguistics has had shown that sound-correspondence laws are most important for comparative and evolutionary analyses of languages. Whether Zipf's law can be found or not in the distribution of word-initial consonants is an interesting problem of theoretical linguistics. In order to begin comparative analyses of word –initial sound-(or consonant-)frequencies between Uralic (URA) and Austronesian (AN) language families, we attempted to elucidate sound-correspondence laws between these two language families. This approach is based on the findings of Austronesiian origins of various Eurasiatic and Pacific-rim languages (Ohnishi, 1999).

## 2. Establishment of word-initial sound-correspondence laws between URA and AN

For finding sound-correspondences in cognate words ("evolutionarily related words"= "homologous words" ) between URA and AN, cognates were extensively searched by using "Uralisches Etymologisches Woeterbuch", "Austronesian Comparative Dictionary" and others. which are listed in the "References" portion of Table 1.

Extensive comparative search for cognates between Finnish (Finn.) (and other Uralic languages such as Hungarian (Hung.), etc.) and Austronesian languages has revealed that many basic Urklic words have their own cognates in Austronesian, especially in Malayo-Polynesian (MP) subfamily consisting of Western MP (W.MP), Central MP (C.MP) and Oceanic (OC). Based on these cognate relations listed in Table 1, sound-correspondence-laws between Finn.(, URA and prpto-URA) and AN (mostly MP) for word-initial consonants were analysed and elucidated, as summarized in Table 2. Very beautiful sound-correspondence laws have now been established for nearly all Finnish word-initial consonants, which means that Uralic language family have evolved from a branch of MP subfamily of the AN language family.

## 3. Analyses of word-initial consonant frequencies

In the next step of our research, sound-frequencies in word-initial positions were analyzed in representative URA and AN languages. By letting $x_N$ denote the number of pages of the words(in A. Wuolle "Finnish–English and Emglish-Finnish Dictionary", Helsinki, 1978) for the N-th most frequent consonant in word-initial position, the relationship between N and $x_N$ was found as shown in Fig. 1, suggesting a simple relation, $\ln x_N = a - k N$, i.e., $x_N = A\, e^{-kN}$, where a, A, k are constants ($> 0$). Further analyses are needed for confirming this phenomenon.

**4. References:** See references in Table 1.

$N = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$

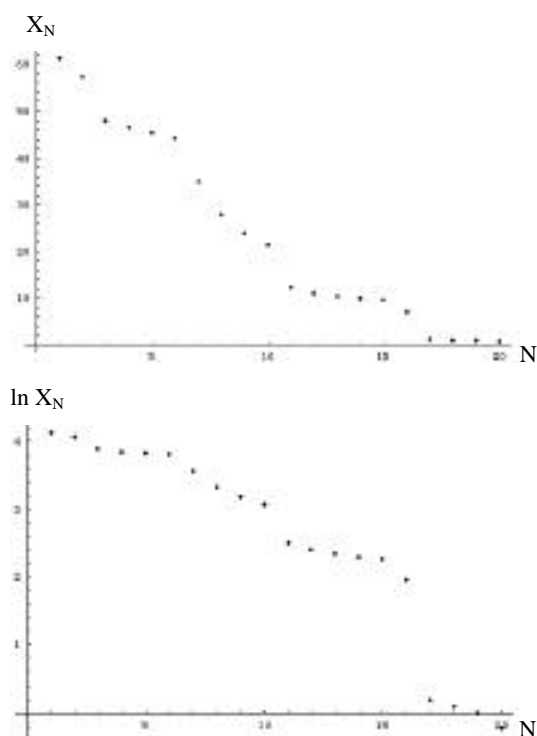$= \{k, \#, s, t, p, v, h, l, m, r, n, j, o, i, y, u, b, d, f, g\}$





Fig.1. Relationship between N and $x_N$, where $x_N$, denotes the No. of pages (proportional to the No. of words) in Finnish–English Dictionary for the N-th most frequent word-initial consonants. "#"(in N={ })= None.

$x_N = \{61.1, 57.2, 48., 46.3, 45.3, 44.2, 34.8, 27.7, 23.7, 21.3, 12.2, 11., 10.3, 9.9, 9.6, 7., 1.2, 1.1, 1., 0.8\}$

Table 1.   Sound-correspondence laws of Finnish/Uralic word-initial consonants to Austronesian consonants.   List of Uralic-Austronesian cognate words.

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**Abbreviations:**
   <u>General</u>: *xxxx = reconstructed form, "A < B", "B > A" = A has/had been derived from B, B has/had converted to B,  "A < > B" = A is phylogenetically related to B. ; pXX = proto-XX (e.g., pURA, pAN, pEsk), dial.= dialect , Wr.= Written, Mod.= Modern, Mid.= Middle
   **Language nanes:**
      # URA=Uralic: (1) FU=Finno-Ugric ( Finn.= Finnish, Est.= Estonean, Lapp.= Lappish ( N = Norwayish-Lappish dial.), Zyr.= Zyrian, Hung.= Hungarian), FV= Finno-Volgaic, FP= Finno-Permian. (2) SAM= Samoyedic.
      # AN= Austronesian :  (1) FORM.= Formossan.
   (2) MP = Malayo-Polynesian: W.MP= Western MP { Taga. = Tagalog, Kal.L.= Kalinga Limos, Sar.Blaan= Sarangani Blaan, Bang.Sama= Bangingi Sama, Goron. = Gorontaro, SND= Sundic ( Minang.= Minangkabau, IndoN= Indonesian, Java.= Javanese, Bali.= Balinese) ; SLW= Sulawesi }, C.MP = Central MP (Mangg.= Manggarai, SHWNG = South Halmahera-West New Guinean, OC. = Oceanic {ADMI= Admiralties, W.OC.= Western Oceanic, C.E.OC= Central-Eastern OC {NwCAL= New Caledonian, C.Pac.= Central Pacific (E.Fiji./W.Fiji. = Eastern/Western Fijian, MelN= Melanesian, PolyN= Polynesian)} ].
      # Other languages: Esk= Eskimo, Esk-AL.= Eskimo-Aleut, ALT= Altaic, Trkc= Turkic, MONGc= Mongolic (Wr.Mong.= Written Mongolian), TNG= Tungus, JR= Japanese-Ryukyuan (Ml.Jpn.= Mailland Japanese, RYU= Ryukyuan), KOR= Korean, IE= Indo-European, MxZq= Mixe-Zoquean, STb= Sino-Tibetan, TbB= Tiberto-Burman
   **References**: Most materials are obtained from; CAD*= Comparative Austronesian Dictionary ( Tryon, 1995), UEW*= Ualisches Etymologisches Wörterbuch (Rédei, 1988), CED*= Comparative Eskimo Dictionary, YH* = Nihongo no Tanzyou ("The Birth of the Japanese Language") Yasumoto and Honda, 1978), MelL*= The Melanesian Languages (Codrington, R., Oxford, 1885), EML*= "Evolution of Mongoloid Languages" (Ohnishi, 1999)
   **Reconstructions**: Redi* (from UEW*), Zorq*(from CAD*), Coh* (Cohen, E.M.K., "Fundermentals of Austronesian Roots and Etymology", ANU, Camberra, 1999), K.O.* (by Koji Ohnishi). ||| See EML* for other abbreviations not shown above.

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**1. [Finn.] m-** |||| **$ 1.1. [Finn.][Hung.] m-** < **[pURA] *m-** < **[pAN] *m-** ;  (**W.MP**) **m-** /[pEsk] *m-** ||| # DAUGHTER-IN-LAW: [pURA] *minä ‖ FU: [Finn.] miniä /[Hung.] měny ‖ SAM: [Yurak] mí̇eje ||| W.MP: (SLW)[Uma] minia /[Wolio] mania

   # EARTH: [Finn.] maa "earth, land, country" ‖ OC: (PolynN) [Tongan] maamani, maama  "world" (< *maa-ma < *maa-maa < *maa )
   # to GO: [pURA] *mene- "to go" ‖ FU: [Finn.] mene- /[Est.] min- /[Zyr] mun- /[Ostyak] měn- /[Hung.] měn- "to go" ‖ SAM: [Kamas] mən- "to go" ‖ W.MP: [Bugis] menreʔ "to go up" (< *men-reʔ < *men- "to go" + *-reʔ )) ‖ OC: (W.OC)[Kilivila] -mʷena "to go up" (< * -mʷen-a ), [Yabem] -meŋ /[Kaulong] me "to come"  ||| Esk-AL: [pEsk] *mənət- "to leave someone out during distribution", [Altiiq Alaskan Yupiq] məŋtə- "to go strait to destination without stopping"
   # to WASH: [pURA] *muśke- (mośke-) "to wash" ‖ FU: [Finn.] ? /[Est.] möśke- /[Hung.] mos "to wash" ‖ SAM: [jenisey samojedisch] musua- /[Selkup] muselǯa- "to wash" (UEW*, p.289) ||| W.MP: [pPHIL] *hiDamʔus /[Aklanon] hilaʔmus "to wash face" (< *hiDa-mʔus )

**2. [Finn.] p-** |||| **$ 2.1. [Finn.] p-** /**[Hung.] f-** < **[pURA] *p-** < (**W.MP) p-** < **[pMP] *p-** < **[pAN] *p-** ||| # to BLOW: URA: [pURA] *puwɜ- (*puɣɜ-) /[Mordvin] puva- /[Hung.] fúj "to blow" (<*puwa < *pua ) ‖ SAM:   ||| OC: (W.OC)[Mekeo] e-pua /[Roviana] ivua /[Maringe] ifu "to blow" (< *i-pua ~ *e-pua ) ||| [Ainu] pui-se "to blow as out of the mouth, to spray"
   # to DIG: [Finn.] päivä < *paiwa < *pai-a ~ *ßai-a ) ||| OC: (W.OC) [Motu] ßai-a "to hollow out"(< *pai-a )
||| North Halmahera: [Sahu] paiti "to dig" (< *pai-ti ).
   # HEAD: [pURA] *pǎŋe ~ *pǎŋ(e)a "head"  (*pǎŋe, UEW*, p.365) ‖ FU: [Finnish] pää /[Est.] pea "head" (< *pea < *peŋa, [Mordvin] pe, pä "end", [Hung.] fey, fő (accisative form: fejet ) (< *peŋe- ) ||| OC: (W.OC) [Manam] peŋa-na, paŋa-na  "head" ; [Tolai] pepe "hair", pepe-ŋa-ulu "hair of head"
   # "HASELHUHN": [pURA] *piŋe (pǎŋe) "Haselhuhn"  (< [pURA] *pǎŋe < *pəŋŋə < *pəŋŋə < *pǎŋnə < *pəŋinə "hen" ) ‖ FU: [Finn.] pyy /[Moldovin] povo "Haselhuhn", [Est.] pǔǔ "Feldhuhn",  [Hung.] fogoly "Red- or Feldhuhn" ‖ SAM: [Selkup] pēke, pēkǎ "Haselhuhn" (UEW*, p.383) ||| W.MP: (SND) [Bali.] pəŋinə "hen" (< *pəŋ-ninə < *pəŋ- "bird" + ninə "female" ; Cf. [Sasak] manuk ninə "hen = female chicken", manuk "bird". ) ||| Gilyak: (Amur dial.) pəjŋa "bird"

bǒr "skin, shell" ( most plausibly,  < *pǒr, under the influence of r. UEW*, p.374) ; Probably related to; [Vogul] pǎr "Lappen",  šašpǎr "bark" (UEW*) ‖ SAM: [Koibal] pere "bark"  ||| OC: (C.-E.OC, NwCAL) [Aji'e] pʌřʌ "shell" ||| ALT: (MONGc)  [Wr.Mong.] arasu / [Mod.Mong] aris  "shell"  ( < *ara-su < *para-su  "bark ?" < *para-  "skin ~ shell" + *-su  "?" )
**3. [Finn.] v-** |||| **$ 3.1. [Finn.] v-** /[Hung.] ø- /[Kamas] b- < **[pFU] *v-** (~ ***w-)** /[pSAM] ***b-** < **[pURA] *b-** (~ ***ß- ~ *v- )** < **[pMP][pAN] *b-** |||| # ALL: [pURA] *ba(n)ć3 "all" (Cf. *we(n)ć3 , UEW*, p.568) ‖ [pFU] *weć3 / [Finn.] veśe, veśi, väśij /[Zyrian] vać  "all", [Ostyak] wotśa "zusammen", ot'aśa "ganz" ; [Hung.] őssze "together, all" ‖ SAM: [Twg] bansa "all", [Kamas] bɯšša "ganz"  (UEW*, p.547) ||| C.MP: [Roti] basa "all" ‖ OC: (C.-E.OC)[Paamese] vasī "all" (< *basī ),  ?[Xaracuu] wani "all".
   # BELLY: FU: [pFU] *waća ~ *watta (or, *vaća ~ *vatta) (Cf. *waća, UEW*, p.547) "belly" (< [pURA] *watta /*vatta ~ *batta) ; [Finn.] vatsa, (dial.) watta "belly, stomach, inside", [Est.] vats (Gen. vatsa) "belly" ; [Vogul] vaś  "stomach" ||| ?FORM: [Paiwan] vəȼakad-an "middle, center" (< *baCa- ~ *batta- ? ) ‖ W.MP: (SND)[Javanese] wətəŋ /[Balinese] basaŋ ///(SLW)[Konjo] battaŋ  "stomach" (< *battaŋ ) ‖ SHWNG: [Irarutu] φɔta "stomach"  ||| JR: [pJR] *batta /[RYU] (Yaeyaman) batta, bata, (Northern RYU) bata, wata "belly",  [Old Ml.Jpn.][Ml.Jpn.] wata "bowels, cotton" ||| IE: [Shinhalese] bada "belly"
   # FIVE: [pURA] *bii-sí ~ *biju- (K.O.*) ( < *bili- ~ *bili-su(g) "hand" < *bili- ) "five" ‖ FU: [pFU] *witte (UEW*) < *wit-te < *wiis-t ~ *viis-t )) : [Finn.] viisí /[Est.] viis / [Lapp.] (Lule dial.) viht(t)a /(Notozero dial.) vīht, viht /[Mordvin] vet'e ( < *viis-te ) /[Chremis] (Uržum dial.) wić, wizə̌t /[Votyak] vit /[Ostyak] wet "five" ; [Hung.] öt  "five" ) ‖ SAM: [Enets] biuʔ /[Kamas] bjəʔn /[Koibal] bet, bi /[Motor] bi (< [pSAM] *biet ~ *biit ) "five" (UEW*, p.577) ||| ALT: (Turkic) [Uighur] biyeši /[Turkish] beş  "five" (< *biy-eši < *bili- "hand" ) ||| ( [Finn.] vii-sí < *vili-sí < *vili- "five, arm"  < *bili ) OC: (Santa cruz)[Nifole] vili //(Banks Islands)[Santa Matia(Lacon dial.)] tivilem /[Vanua Lava] ʼevelem /[Melikolo] tavalim /[Santa Maria] tevelim //(New Hebrides)[Aurora] tavalima "five" (< *tava-lima < *tava "?" + *lima "hand" ) (Data from MelL*) ‖ W.MP: [Tagalog] bīsig "arm" (< *biisig < *biisugi < *bili-sigi < *bili- "hand" + *siku(h) (= [pPHIL] *sikuh "elbow". Cf. (OC) [Leper's Island] bisugi "finger" < *bii- + *sugi ~ *sigi < > [Wolio] sagi "elbow". ) ||| OC: [Kaulong] ßili-n "hand" ‖ OC: [Raga] bihu- "finger", [Saddleland] (Volow dial.) bihigi /[Leper's Island] bisugi /[Aurora] bisui "finger"  (MelL*, p.43) ( < *biisugi "finger" < *bili-sugi ) ; (MelN languages from MelL*, pp.235-236). (Santa cruz)[Nifole] vili //(Banks Lslands)[Santa Matia(Lacon dial.)] tivilem /[Vanua Lava] ʼevelem /[Melikolo] tavalim /[Santa Maria] tevelim //(New Hebrides)[Aurora] tavalima "five" (< *tava-lima < *tava "?" + *lima "hand" )
   # WATER: [pURA] *vu (< *bu ) ‖ FU: [Votyak] vu "water", [Finn.] vuotta- "to pour" ; [Hung.] ōnt  "to pour" (probably, < *vu-ont ) ‖ SAM:  [pSAM] *bu [Kamas] bɯ /[Motor][koibalisch] bu "water"  ||| W.MP: [Da'a] buvu (< *bubu < *bu ) /[Gorontaro] butu "spring, well", [Uma] ßußu "well"  ; (?)[Bang. Sama] bohe "water" ‖ OC: [Yabem] bu "water" ; [E. & W. Fijian] ßure "spring, well", (?)[Roviana] bukaha "spring bubbling out of ground" (< *bu-kaha ?)
**$ 3.2. [Finn.][Hung.] v-** < **[pURA] *w-** < **[pAN] *w-** |||| # WATER: [pURA] wit "water" < *weit < *wehit < *wahi- ? ) ‖ FU: [Finnish] vesi (Gene. *reden* ) /[Mordvin] ved', väd' /[Zyr.] va /[Finn.] víz ( < *wesi < *wehi- < *wahiR "water" ) ‖ SAM: [Yurak] wit "water" ||| AN: [pMP] *wáhiR "fresh water" ‖ W.MP: [Kagayanen] waig /[Bugis] wae (< *wai) /[Old Balinese] air < *aiR) /[Madurese] aiŋ  "water" (< *waiR < *wahiR ) ‖ C.MP: [Mangg.][Ngada] vae "water", [Buru] wae "water, river" (< *wai ) ‖ OC: [Raga] wai /[E.&W. Fijian] wai /[Tongan, Samoan] vai "water", [Paamese] oai  (< *uai < *wai < *wahiR) ; [Lewo] wī /[Nemi] we /[Mekeo] vei, ui "water"(< *wei < *wai ) ||| JR: [Ml.JPN] wi, wi-zu-mi /[Ryukyuan] (Tokunoshima dial.) ʔiʒuN (< *ʔi-ʒu-mi) "well, spring"  < [pJR] *wi /[pMl.Jpn.] *wi /[pRyu.] *ʔi "well, spring" < *wī < *wei < *wai < [pAN] *wáhiR "water" )
   # SMALL/LITTLE/FEW: [Finn.] vähä /[Est.] vähe ||| OC: [Cemuhi] wáhin "quantity" (< *vis-visa < *visa )
   # SMALL: [Mordovin] viška "small" ||| OC: [Roviana] visvisa "little (quantity)" (< *vis-visa < *visa )
**4. [Finn.] t-** |||| **$4.1. [Finn.][Hung.] t-** < **[pURA] *t-** < **[pAN] *t-** ||| # to COME:  [pURA] *tule- /[Finn.][Est.] tule- "to come" ||| W.MP: (SLW) [Uma] tu-mai "to come"  ||| Note: Cf. [Finn.] tulla "to come"  (< *tu-lla < *tu- "come" + *-lla "to go, to walk" ) ‖ W.MP: [Batak Toba] lao /[Bugis] lao /[Sasal] lalo "to go" ‖ C.MP:

Table 1.   (Continued. )

[Ngada] laʔa "to go, to walk" || OC: [Manam] alale /[Mbula] -la /[W.Fijian] lā "to go"

# FEATHER: [pURA] tulka "feather, wing" ( < *tul-ka < *tolu "bird" ( < "egg") + *-ka ) ; [Lapp.] dol'ge /[Mordvin] tolga /[Hung.] toll (dialogs; tollu, tolu, tolyu, etc.) : [Finn.] sulka "feather" (< *tulka ) ||| C.MP: [Dobel] toru "fowl", [Roti] manu-tolo "egg" || W.MP: [Murut] taluʔ /[IndoN] təlur /[Sasak] təlo /[Da'a] tolu /[Uma] ⁿtolu /[Wolio] oⁿtolu "egg" ||| JR: [Ml.Jpn.] tori "bird"

# FIRE: [pURA] *tule /[Finn.] tuli /[Hung.] tűz /[Samoyed] tū "fire" ||| W.MP: [Goron.] tulu "fire" ; [Palawan, Molbog, Batak Toba] tutuŋ /[Wolio] tunu "to burn (v.t.)" || OC: [Mbula][Yaben] -tuŋ "to light, to ignite" || FORM: [Atayal] ma-čuɬiŋ "to burn (v.i.)", ši-čuɬiŋ "to burn (v.t.)"

# to KILL /to STRIKE: [pURA] *tappa- "mit dem füßen stampfen, schlagen, klopfen"|| FU:[Finn.] tap-pa- "to kill", [Zyr.] tap-tap kar "einigemal klopfen,, schlagen" ( kar- "to do, to make") || SAM: [Yurak] tapar- "mit dem Fuss treten, stoßen" ||| W.MP: [Isnag] tappit "to strike, to beat" (< *tap- ) ||| IE: [Old French] taper "to tap"

**5. [Finn.] n-  ||| § 5.1. [Finn.] n- < [pURA] *n- < [pAN] *n-  ||||** # FOUR: [Finn.] neljä /[Est.] neli ||| OC: (W.OC)[Kaulong] nal, mnal (< m-nal)

# to SEE: [Finn.] nähdä "to see" ||| ?W.MP: [Da'a] naⁿgita "to see"

# SUN: [Hung.] nap ||| OC: [Kwaio] napʷ "fire"

# WOMAN/WIFE: [pFU] *naje "woman, wife, fire" (< *naŋe "fire, sun" < > [Buang] naŋʷaɣ "fire" ) ; [Finn.] nainen /[Est.] naine "woman" ; [Ostyak] (Vach dial.) näj "lady, fire, sun", näj-ŏɣi "fire" ( ŏɣi "Tochter, Mädchen") ||| OC: [Buang] nəŋʷaɣ "fire" (< *naŋ-waɣi < *naŋ- "fire ~ sun" + *uagi "wife ?". || W.MP: [Buang] nəŋʷaɣ "fire" (< *naŋ-waɣi < *naŋ- "sun ~ fire" + *waɣi "wife ?", where *waɣi < *uaɣi < > (SHWNG)[Irarutu] a uagə "wife" (< *uagi ?), and where *naŋ- "sun ~ fire" is related to (OC)[N.Tanna] naŋam /[Kwaio] napʷ "fire" and (URA)[Hung.] nap "sun". ) ||| STb: [pTbB] *nəy "sun, day" (< *naŋ- "sun ~ fire")

**§ 5.2. [Finn.] n /[Zyr.][Mordvin][Yurak] ń- /[Kamas] n- < [pURA] *ń- < [pMP] *ŋ-**  # to LICK: [pURA] *ńole //(FU)[Finn.] nuole- /[Hung.] nyal- //(SAM) [Selkup] ńu- /[Kamas] nıu- "to lick" ( < *ŋole) ||| OC: [Port Sandwitch] ŋole "to lick"

# NAME: [pURA] *nime (or, *nime ~ *nəme ?) "name" || FU: [Finn.][Est.] nimi /[Ostyak] nem [Votyak] ńim, ńem /[Hung.] név || SAM: [Yurak] ńim /[Kamas] nim, nəm "name" ||| OC: [Cemuhi] nĩ /[Xaracuu] nĩ /[Ajie] nē "name" ; [Yabem] ŋae "name" ( < *ŋaa < *ŋara-n < *ŋaɬan < [pAN?] (Zorq*) *ŋájan /[pAN] *ŋáʒan (K.O.) "name" ) || C.MP: [Buru] ŋaa-n /[Sika] nara-n /[Ngada] ŋaza "name" || W.MP: [Yami] ŋaʒan /[Molbg] ŋadan /[Aklanon] ŋaɬan "name" ||| Turkic: [Chuvash] yat /[Uighur] at /[Turkish] ad "name" (< *ŋad ) ||| JR: [Ml.Jpn.] na "name" (< *ŋa )

**§ 5.3. [Finn.] n- /[Hung.] m(y)- < [pFU] *ń- ( (OC) ŋ- ?) |||** # ARROW: [pFU] *ńole (UEW*) ~ ńuole /[Finn.] nuoli /[Hung.] myil "arrow" (< *ŋōle ~ *ŋuole < *ŋu- "arrow" + *(o)le "bow" ) ||| OC: [Mekeo] ŋuŋu "arrow" || C.MP: [Ngada] leʔe "bow" (< *lele ? < *le "bow" )

**6. [Finn.] l-  |||| § 6.1. [Finn.][Hung.] l- < [pURA] *l- < (MP) *l- |||** # BIRD: [pFU] *lintu /[Finn.] lintu /[Estonean] lind "bird" (< *lindu(ŋ) "cook" ) ||| W.MP: [Sar. Blaan] lunduŋ /[Tahitian] rere ( < *le-le < *le- ) "to fly"  //// (2) *-te(ŋ) "to fly, to jump" ||| OC: [Cemuhi] tē "to fly", [Kaulong] teŋ "to jump" || W.MP: [Uma] ⁿkali-tene "to jump" ( < *-te-ne ) # to SEE: [Hung.] lát- "to see" (< *liat ) ||| W.MP: [Bali.] ŋ-liat "to look, to look at"

# BONE: [Finn.] luu ||| C.MP: [Sika] luri-ŋ

# to FLY: [Finn.] lentää "to fly" (< lentä- < *leŋ-te- < *leŋ- "to jump" + *-te(ŋ) "to fly, to jump" ) //// (1) *leŋ- "to jump" ||| W.MP: [Sasak] leŋkak-aŋ "to jump" (< *leŋ-kak- ) || OC: [Samoan] lele /[Tahitian] rere ( < *le-le < *le- ) "to fly"

# SOUL: [pURA] *lewɬa "soul, air, breath" || FU: [Lapp.] (N) lewˡlu "vapour-bath" (< *lewˡleu "vapour" < *laulau "soul" ), [Finn.] löyly "Badehitze;vapour"; [Votyak] lul "breath, air, soul, ghost, mind, heart, life" ; [Hung.] lélĕk "soul, ghost, mind (Gemüt), heart, peraon" || SAM: [Yurak] lül, jül (probably, < *lül ) "smoke" ||| OC: (W.OC) [Mekeo] lau-lau "spirit, soul, image, idea, reflction, shadow, aura", (North-Western Mekeo) laulau "ghost", (Eastern Mekeo) laupa "presence, aura" ; [Motu] lauma (< *lau-ma ) "soul, spirit" | (C.-E.OC, Polynesian) [Tongan] laumālie "soul, spirit"

**§ 6.2. [Finn.] -ll- < *lVl- < *d₂Vl- (V = vowel) ||||** # INSIDE: [Finn.] -llä, -lle "inside" ||| AN: [pAN] *d₂á+lem + i- "inside" || W.MP: [Kal.L.] dālom / [Murut] da dalom /[IndoN][Minang.] di dalam /[Madurese][Sasak] daləm /[Bugis] ri-laliŋ /[Konjo] i-lalaŋ /[Uma] rala "inside, in" || C.MP: [Buru] lale-n "inside, in" || [Mbula] lela /[Yabem] lelom /[Mot] lalo-nai /[Lau] ilalo /[Rotuman] laloŋa "inside, in"

**7. [Finn.] r-  ||| § 7.1. [Finn.] r- < [MP] *r- ~ *R- ||||** # to FLY: [Finn.] räppä (Gen. räpän) "knappernder Schlag", räpyttä- "to flatter" ; (?)[Hung.] rĕpít- "(auf)-fliegen lassen, rĕpül "to fly" ||| W.MP: (SLW)[Konjo] ʔa-ribbaʔ "to fly" (< *-ribbak < [pMP] *Rebbek "to fly" < *Reb-baek )

?# FOX: [pFU] *repä /[Finn.] repo /[Est.] rebane /[Lapp.](N) riebân "fox" ||| ?W.MP: [IndoN] rubah "fox"

**§ 7.2. [FU] r- < (MP) r- < [pAN] (Zorc*) *d₂-. [pMP](Dem*) *d- ||||** # WARM/HEAT: [proto-Ugric] *reŋȝ (*rekȝ) "warm, heat" (< *räŋi < [MP] *raŋi "hot, to heat" ; [Ostyak] (O.) räw "heat", [Vogul] räj "warm, heat" ||| [pAN] (Zorc*) *d₂a(ŋ)-d₂aŋ "to heat, to warm oneself by fire", [pMP](Dem*) da(n)daŋ "to heat" || W.MP: [Wolio] ma-rani "hot" (< *rani < *rani ~ *raŋi ) || OC: [Raga] raraŋi "to roast" (< *ra-raŋi "to roast" < [pMP(K.O.)] *raŋi ~ *laŋi ? "to heat; hot" )

**§ 7.3. [pFU] *r- < [pMP] *z- (Zorc*), *d'- (Dem*) ||||** # [pFU] *rakka "near" ; [Finn.] rakas (Gen. rakkaan) "lieb, innig, befreundet, geliebt" ; [Lapp.] (N) rakkes, rakˡkas "dear, actionate, loving", (L) rähkēs "verliebt" (< *räh-kēs < *raN-kas < *zaNi "near" + *-kasu "near" ) ; [Hung.] rokon "near" ||| AN: [pAN] *zaNí "near" ( [pMP](Dem*) *ḍahit "nähen") || W.MP: (PHIL) [Isnag] adanni /[Kal.L.] adani /[Kaga] dani "near" (< [pAN] *zaNí "near" (< *zanni ?) ; (SND) [IndoN] dəkat ][Minang.] dakeʔ /[Sundanese] dikit "near" (< *daŋ-kat < *zaN-kat ) ; (SLW) [Wolio] ma-kasu (< *kasu ) "near" || C.MP: [Buru] b-raŋi-n "near" (< *-raŋi- < *zaNí ), [Dobel] ren "near" || SHWNG: [Sawai] raken (< *dake-n ) || OC: [Maringe] ɾeña "near" (< *deNa < *zaN-a )

**8. [Finn.] s- ||| § 8.1. [Finn.][Zyr.] s- /[Chremis] š- /[Hung.] ø-. /[Kamas] t- < [pURA] *s- < (W.MP) *s- < [pAN] *s- ||||** # BLOOD VESSEL: [pURA] *sęne ( šöne ) /[Finn.] suoni /[Churemis] šün /[Zyr.] sęn "blood vessel, sinew", [Hung.] ín "sinew" ||| OC: [Mbula] siŋi- "blood" ||| TNG: [Wr.Manchu.] seŋgi "blood" ||| IE: [Old English] sinewe (oblique form of *seonu, sinu) "sinew"

# BLOOD VESSEL: [pFU] *sãrȝ (< *serȝ) "blood vessel, vein, root", (FU)[Chremis] šãr, wür-šer /[Votyak] ver-ser /[Hung.] ér "blood vessel, vein" (< [pFU] *ver-ser ~ *wür-ser <blood" + *ser "rope" ) || OC: [E.Fijian] sere-ka /[W.Fijian] here-kia "to unite" ( < *sere-kia < *sere- "(probably,) rope" )

Note: Cf. Unrelated to; [Ponnapean] saɬi "to tie, to bind", [Ponn.] sal /[E.Fiji.] tali /[W.Fijian] tali /[Java.] tali /[Paiwan] ¢aɬis "rope" (< [pAN] *CaliS "rope" )

# CHACOAL: [Twig] simi "Kohl" ||| W.MP: [Konjo] sumiʔ "charcoal" ||| [Jpn.] sumi "charcoal"

# FECES: [pURA] *sitta (< *sikta ) "feces, excrement", (FU) [Finn.](dial.) sitta /[Est.] sitt "feces (Dreck)", [Lapp.] sikta, siksta "feces of anilals (Losung)" | (SAM)[Selkup](Ket-dial.) tytti "Kot" ||| OC: [Tongan] siko /[Mele-Fila] jiko "to deficate"

# to ROW: [pURA] *suɣe- (< *su-ɣe ) //(FU)[Finn.] souta- /[Chremis] šua- /[Vogul] yow- //(Samoyedic)[Selkup] tua- /[Kamas] tu- "to row" ||| OC: [Rotuman][Mele-Fila] sua /[Raga] hua "to row"

# SISTER(of father or mother) /AUNT: [pFU] *sáće "sister (of father or mother)" (< *ʔasasi ); [Lapp] siessa "father's sister, parental aunt", [Zyr.] soć "sister" ; [Ostyak] śaśə "yonger sister of mother" ||| OC: [Rotuman] sɔsiŋa "yonger sister" || C.MP: [Dobel] ʔasasi "aunt" ||| IE: [Eng.] sis-ter /[Old Norse] systir "sister"

?# SKIN / BARK: [pFU] *śuka "skin, bark" || Tungus: [Wr.Tungus-Manchu.] sukû "skin" || AN: [Takia] sukulo-n "skin"

**§ 8.2. [Finn.] s- < [pFP] *s- < *S- ||||** # FLESH:  [pFP] *siwȝ-lȝ "flesh" ( *siwȝ- < [pFP] *siwə- < *siə < *Siə ~ *Ssiə ) < [pAN?] *Sisi "meat, flesh" ~ *Si- "meat ?". cf. [pAN] *Si-káʔen "fish" < *Si- "meat "?" + *káʔen "to eat" ) ; [Mordvin] sivel, śivel / [Chremis] šol, šŏl, śiĺ "flesh" ||| W.MP: [Aceh] siə "meat" ; [Yami] aşişi /[Bang.Sama] [Da'a] isi "flesh", [Konjo] assi "meat" || C.MP: [Ngada] isi /[Roti] isi-k /[Buru] isi-n "flesh" ||| JR: [Ml.Jpn.] sisi "wild bore, deer, lion" (< *Sisi "meat") ||| STb: [pTbB] *sya-n (< *Sia )"animal, flesh, meat", [Old Chinese] śióg "animal" (Matsisoff*, p.162, p.177)

**§ 8.3. [Finn.] s- < [pAN] *C- |||| #**SMOKE: [Finn.] savu (< *Cavu < *Cavu) ||| [Paiwan] ¢avulʸ "smoke"

**§ 8.4. [Finn.] s- ( < [pURA] *ś- )**

**§ 8.4a. [Finn.] s- /[Hung.] sz- < [pURA] *ś- < *d₂-  ||||** # to PUSH: [pFU] *śurwa- /[Finn.] survaa- /[Chremis] šure- "to push", [Hung.] szúr- "stechen" ||| FORM: [Paiwan] z-əm-uruŋ "to push" (< *d₂uruŋ ) || W.MP: [IndoN] mən-doroŋ "to push" || C.MP: [Mangg.] dūr "to push" || OC: [Tawala] dudu /[Roviana] dudua

Table 1.　(Continued. )

"to push" ‖ Note: Cf. W.MP: [pW.MP] *suruŋ "to push foward", [Madurese] suruŋ /[Sasak] soroŋ "to push"

　**??$ 8.4b. [Finn.] sy- < [pFU] *śi- < (MP) *ti-**

# EYE: [pURA] *śilmä /[Finn.] silmä /[Hung.] szĕm /[Koibal] sima "eye" (< *śil-mä < *sil-mä ~ *til-mä < *sil- ~ *til- "to see ~ to look at" + *-mä "eye" ) ‖‖ OC: [Samoan] sila-sila "to see" (polite), [Mele Fila] sirea /[Tongan] sio "to see", [Samoan] tolo-tilo "to look at" ‖ Note: *-mä "eye" cognates with; OC: [Lau][Kwaio] mä /[Marshallese] mæc (< [pAN] *maCa ) "eye", or [Paamese] me-tok /[[Ajie] pie-mɛ "eye"

# SPIT(TLE): [pFU] *śil'ke, *śül'ke /[Finn.] sylki, sylke- /[Est.] sülg "spit, spittle", (< *śilkü < *tiliku "spit" ) ‖‖ W.MP: (SLW)[Uma] n-tiliku "spit"

**$ 8.5. [Finn.] su- < [pURA] *ću- < (MP) ću- ‖‖‖ #** FLEA: [pFU] *ćoŋča ‖ W.MP: [Bugis] ćuŋŋo ‖‖ ?STb: (pTbB) *dyuŋ

　# HILL: [pURA] *ćukkɜ "hill, Spitz", [Lappish] (Nothern dial.) čok'kâ-kk- "summit, mountain top", [Finn.] (?) sukki "spitzfindig, listig", [Zyr.] čuk "bugor ( б у г о р )" ‖ W.MP: [Sundanese] ñuŋ-ćuŋ (< ćuŋ-ćuŋ ) /[Madurese] kuñ-ćuʔ "pointed", [Bali.] mɜ-muñ-čuk "having a pointed extremity", [Sar.Blaan] tukɜʔ "tip"

　# NARROW: [pFU] *ćuppa /[Finn.] (?) suppa "narrow" (< *ćup-pa ) , [Zyr.] śopɟd "eng, dicht" (< * ‖ W.MP: [Kalinga Limos] sūpit /[Batak Toba] sɔppit /[Bali.]ćupit /[Java.] sɔmpit "narrow", ( [Konjo] seppaŋ "narrow" )

**9. [Finn.] h- (< [pFU] *č̆- ) ‖‖‖ $ 9.1. [Finn.] h- / [Votyak] (Kazan dial.) ž̆- /[Ostyak] č̆- < [pFU] *č̆- < (W.MP) t-, č̆- /(FORM)[Paiwan] *ḏ- < [pAN] *dɜ- ‖‖ #** BACK: [pFU] *čănčă "back (Rücken)" , [Finn.] häntä /[Est.] händ "tail", [Ostyak] čĕŋč "back (Rücken)" ‖‖ W.MP: [Java.] čɔŋɔl /[Isnag] taŋŋad /[IndoN] tɔŋ-kuk "nape", [Madurese] tɔŋŋa "back" ‖ C.MP: [Mangg.] tɔŋu "nape" ‖ FORM: [Paiwan] ḏɔŋɔḻan "nape"

　# to CHOKE (ersticken), to be DROWNED: [pFU] *čăkkɜ- "to choke, to be drowned" (< "narrow" ) , [Votyak] (Kazan dial.) ž̆ɔkal- "to choke, to be drowned", ž̆ɔkɔt "narrow, thick", [Zyr.](Sysola dial.) ʒ̆agal- "erhängt", [Ostyak] čăkɔn- "to choke" ‖ W.MP: [Bugis] ma-čikke "narrow" ‖‖ OC: [Ponapean] ɟiki-ɟik "small", ā-ɟikiɟik "slender"

　# WARM/ DUMP: [pFU] *čenke "dump, warm" ( < *čen- < *dɔŋ- < *(a-)ḏaŋ- < *ḏaŋɔ < *ḏaraŋɔ "hot ?" ), [Finn.] henki "breath", [Votyak] ž̆og "very warm, drückend heiss", [Ostyak] čĕŋk "warm, heat" ‖‖ OC: [E.&W. Fijian] ðeŋu "breath", [Yabem] (ŋ-)andaŋ "hot", ?[Woleaian] yaŋi "air" (< *daŋi ?) [ ‖ FORM: [Rukai] n-ḏaraŋɔ-ḏaŋɔ "hot"

**$ 9.2. [Finn.] ? /[Zyr.][Votyak] š̆- /[pFU] *č̆- < *š̆- < *sy- ‖‖ #** SOUR: [pFU] *čemɜ- "sour" ( < *šem < *asyem < *asiem < *asilem < [pAN] *qa-silam "sour" . ) ; [Votyak] š̆ĕm, š̆ŏm "sour", [Zyr.] š̆üm "acid (noun)" ; [Ostyak] č̆ im "gären" ‖‖ [pAN(Zorc*)] *qal+sem (< [pAN(K.O.)] *qa-silam ) /[pHN] *la + sem "sour" ‖ W.MP: (PHIL)[Taga.] asim /[Akl.] aslum /[Kal.L.] sīlom "acid, sour" (< *a-silom < *ma-silam ? ) ; (SND) [Sundanese] hasim /[IndoN] asam /[Bali.] masɔm (< *hasiam < *qa-silam "sour" ) ‖ Note: Possibly cognates with; ALT: [Mod.Mong.] čuu "sour" ‖‖ JR: [Ml.Jpn.] su- "acid, sour" (< *(a)sum < *(qa)sillam ? ).

**10. [Finn.] k- ‖‖ $ 10.1. [Finn.] k- / [Hung.] h- < [pURA] *k- < [pMP] *k- ‖ [pESK] *q- ‖‖ #** BACK: [pURA] *kutt3 "back, behind" ; [Ostyak] (Jugan dial.) kutɔʌ ( juw kutɔʌ-nɔ "im Schutz des Baums" ); [Vogul] (Pelymka dial.) kūtɔ̈y "im Schatten, im Schutz" : [Hung.] hát "back, behind" (UEW*, p.225) ‖‖ W.MP: [Minang.] kudu<sup>ə</sup>ʔ /[Aceh] kudoʔ "nape of neck" ‖ C.MP: [Ngada] koti "nape of neck" ‖‖ OC: [Nengone] wakod "nape of neck" (< *wa-kod), haḏi "north" ( probably, < *kaḏi "behind" ) ‖ Note: Further cognates with; [pAN] *likúd "back" (< *li-kúd ) ‖ (W.MP)[Yami] likoḏ "back", [Isnag] likud /[Aceh] likot "behind", [Taga.] likod /[Akl.][Paqlawan] likud "back, behind" ; (?)[Kal.L.] lāgud "north" (< "behind, backwards" ) ‖ OC: [Marshallese] lik "behind".

　# EAR: [Finnish] korva (< *koru-a ~ *kor-va ) ‖‖ FORM: [Tsou] koru

　# FISH: [Finn.] kala /[Hung.] hal ‖ ESK-AL: [pESK] iqałuy /[GRI] iqaluk "fish (esp. salmon)" (< *ikałuy ) ‖‖ W.MP: [Kal.L.][Minang.][IndoN] ikan ‖ C.MP: [Ngada][Buru] ika ‖‖ OC: [Tongan] ika /[Manam][Lau] iʔa ‖‖ JR: [Jpn.] ika "squid" ‖‖[Gilyak] kalim "whale" ‖‖ [Mongolian][Manchurian] kalimu "whale".

　# to HEAR: [Hung.] hall "to hear" (< *kall ), [Nenets] ha (= xa ) "ear" ‖‖ W.MP: [Bang.Sama] kale /[Bugis] eŋ-kaliŋa "to listen" ‖‖ OC: [Dami] karĭ "to listen"
　Note: Cf. [Finn.] kuule- /[Mari] kola- "to hear".

　# SKIN: [Finn.] kuori /[Est.] koor "skin", [pURA] *kora (UEW*), *koora (K.O.*) (< *kuora) "skin" ‖‖ OC: [Kiribati] kuora "to peel"

**$ 10.2. [Finn.] k- /[Hung.] h- < [pFU][pURA] *k- < [pAN] *q** ( FORM: [Atayal][Pai.] ḳ- (= q-), [Tsou] ø- ‖ W.MP: [Sundanese] h-, [Kal.L.] g-, [Yami][Taga.][IndoN] ø- ‖ OC: [Tolai][Kilivila][Mbula] [Motu][Nemi] k-, [Tawara][Nengone] g- , [Tongan] ʔ, [Takia] ø- ) ‖ [pESk] *q- ‖‖ # ASHES: [Finn.] ? /[Hung.] hamu (< *kamu < *qaβu ?) ‖‖ [pAN] qabúH /[Paiwan] ḳavu /[Tsou] fū ‖ W.MP: [Kal.L.] gabu /[Akl.] abuh /[Taga.] abo /[Molbog, Sar.Blaan, Minang., IndoN, Bali.] abu /[Java.] awu "ashes" ‖‖ OC: (W.OC) [Tolai] kɔbu /[Tawala] gahuwei /[Motu] kahu
　Note: Etymology in UEW*, p.194, is probably wrong.

　# APEX /WOODPECKER: [Finn.] kärki (Gen. kärjen) "point, apex, tip, end; woodpecker", kärjekäs "pointed" ( < *kärj-ekäs < *kärj- < *qali-) ; [pFV] *kärke /[Est.] kärg (Gen. käru ) /[Chremis] kerɣe "woodpecker" (< [pURA] *kär(i)ɣe ) ‖ Esk-AL: [pESk] *qallik or qaðlik topmost or outermost thing"; [SPI] qalliq /[GRI] qałłiq "topmost one, scab" ‖‖ FORM: [Paiwan] ḳaḻiw "top"

　# BELLY: [pFU] *kač3 ""Etwas gebogenes" ( < "belly" < "liver" ) (< *qacy < *qaCey "liver" ) ) ‖ [Hung.] has "belly" ‖‖ [pAN] *qaCéy "liver" ‖ FORM: [Paiwan] ḳaćay "liver" ‖ W.MP: [Sundanese] hati /[Yami, Taga., Aklanon, Kaga., Bang.Sama] atay /[Aceh, Sasak, Konjo, Da'a] ate /[Malagasi M., Minang., Bali.] ati "liver" ‖ C.MP: [Mangg.] ati /[Ngada] ate /[Roti] ate-k "liver" ‖‖ OC: [Tolai] kati- /[Kilivila] kate- /[Takia] ate-n /[Mbula] kete- /[Nemi] kec /[Nengone] guat /[Tongan] ʔate "liver" ; [Aceh] boh ate "kidney"
　Note: Cf. Might cognate with; [Votyak] (dialects) gač, gaš "auf dem Ruecken liegen" ‖‖ OC: [Nengone] guat "liver"

　(?)# to BITE: [Hung.] harap- "to bite" ( < *hara-p- < *gara- ~ *qara- ) ‖ W.MP: [Batak Toba] harat "to bite" (< *qarat ) ‖ C.MP: [Dobel] ʔa-ʔara "to bite" ‖‖ OC: [Manam] ʔarati "to bite" ‖ Note: Cf. Possibly related to; OC: [Adzera] gara- /[Tolai] kɔrɔt /[Roviana] ɣarata "to bite".

　# TASS /HAND: [pFW] käppä /[Est.] käpp (Gen. käppa) "tass, hand", [Mordvin] kepe, käpä "barfuss" ‖‖ FORM: [Atayal] ḳaβaʔ "hand, arm" ‖ OC: [Lau] ʔaba "hand, arm", [Rotuman] ʔu-hapa "hand" (< *-hapa < *qappa )

**$ 10.3. [Finn.] k- /[Hung.] k- < [pFU] *k- < (OC) *g- ‖‖ #** HAND: [Finnish] käsi /[Hung.] kés "hand" ( < *gesu "wrist" < *lima-gesu "wrist = hand-neck" ) ‖ OC: [Yabem] lima-gesu "wrist" ( lema "hand" + gesu "neck" )

　# ROUND: URA: (FU) [pFU] *kerä (< *geri- ~ *gere- < *gele- ) //[Finn.] kiereä /[Hung.] kerek "round", [pFU] *kere "circle, ring" ‖‖ AN (C.MP)[Manggarai] gelep //(OC)[Kwaio] gari (< *gɔri ) "circle"

　# STONE: [pFU] *kiwe (< *give < *gibe ~ *kibe) /[Finn.] kivi (genetive: kiven) /[Vogul] (dialects) kǖv, käv /[Hung.] kő "stone" ‖‖ W.MP: [Sar.Blaan] kbi "cliff, presipice" ‖ OC: [Ajie] gʷēwe "mountain, hill" (< *give < *kibɛ ?) ‖‖ JR: [Ml.Jpn.](Shikoku dial.) kibu- "steep (of rocky mountain)"

**11. [Finn.] h- (< *h-) ‖‖‖ $11.1. (?) [Finn.] h- < [pURA] *h- (K.O.) < (MP) *h- ‖‖ #** TOOTH: [Finn.] hammas "tooth" ‖‖ OC: [Roviana] hamhamu "to chew"

　# AIR: URA: [Finn.] hŏyry "air" (< *hŏy-ry < *hŏŋ(i)-rŋ(i) ? < *hāŋi-lŋi < *hāŋi-lɔŋi ? < *hāŋi- "air" + *-lŋi "sky, wind" ) ‖ [pMP] *háŋin "air" : [Tagalog][Aklanon] hãŋin /[Isnag] [Kagayasnen] aŋin /[Kagayanen] [Murut] [Balinese] aŋin /[Konjo] aŋiŋ "air, wind", [Taga.] aŋen /[Minangkabau, Sundanese, Javanese, Balinese, Sasak] aŋin /[Bugis] aŋŋiŋ "wind" ‖ C.MP: [Sika] ani-n /[Roti] anin "wind" ‖ ALT: [Wr.Mong.] aGar / [Mod. Mong.] а г а а р "air" ( < *aŋar < *aŋal < *aŋ-alʏ ? < *aŋ- (< *hāŋi- "air") + *alʏ, where *alʏ < *alʏ < *alɔŋ < *lɔŋi "sky, wind" ?) ‖‖ ?[Quechua] wayra "air" (< *hāyra < *hāŋ(i)-ra ? )

**12. [Finn.] j- ‖‖ $ 12.1. [Finn.] j- < *j- < *ĵ- (< *D-) ‖‖ (OC) j- (= y- ) ?, (W.MP) [Sundic, Slawesh] ĵ-, (C.MP) ĵ- ‖‖ #** to DANCE: [pFU] *jekkɜ "to dance" (< *jeggɜ < *jegt < *jeget < *joget "to dance" ) ; [Votyal] ekt- /[Zyrian] jŏkti "to dance", [Ostyak] jeḳ, jok "dance" ‖‖ W.MP: [Sasak] joget /[Konjo] aʔ-joge "to dance" ‖ ?OC: [Kaulong] yik "to dance" ( < *yek ? < *yege < *joge )

　# RIVER: [Finn.] joki "river" ‖‖ C.MP: [Mangg.] ĵōk "gulf, bay" ‖‖ OC: [Mbula] yok /[Takia] you "river, stream" ; [Ajie][Xaracuu] ɟɔ "to flow"
　Note: W.MP: [Yami] ayo "river, stream"

　# ROOT/ NEWLY: [pFW] jure "root" (UEW*, p.639) ; [Finn.] juuri "root, foot, origin, ground; just, newly, freshly" (probably, < [pURA] *juu-ri < *ĵulu- "new" < > [Minang.] ĵoloŋ "new" ), [Est.] juur "root" ‖‖ W.MP: [Minang.] ĵoloŋ "new" ( < *ĵoloŋ ~ ĵuluŋ < [pMP] *Doloŋ ~ *Duluŋ ) ‖‖ [pIE] *ĵuwŋ-ɟi "youth" ( < *juuŋ- <

Table 1. (Continued. )

*ǰuuŋ < *ǰuluŋ "new" < > [Minang.] ǰoloŋ ) ||| JR: [Ml.Jpn.] yuri "lily" (< *ǰuu-ri "root (of lily)" < *ǰulu- "new" )

# SWAMP: [pURA] *jäŋkä "swamp" ||| W.MP: [Konjo] ǰanna ~ ǰenna "inland, fresh water"

Note: Might cognate with; (W.MP)[Bali.] danu /[Minang.][Aklanon] danaw "lake"

Note: Cf. (C.MP)[Dobel] yekʷal "swamp".

$ 12.2. **[Finn.][Hung.] j-** < **[pAN] *Z-** ||| # to WALK /FOOT: [Hung.] jär "to walk" (< *ǰala < *Zalan ), [Finn.] jalka /[Est.] jalg "foot" (< *jal-g), jalan "on foot" (< *jal(a)- "to walk" < *Zalan "road" ) ||| [pAN] *Zalan "road" || W.MP: [Batak Toba] mar-dalan /[Bali.] mǝ-jalan /[Madurese] jⁿalan /[Minang.] ba-jalan /[IndoN] bǝr-jalan "to walk" ; [Chamorro] chalan / [Kal.L.] dālan /[Molbog][Murut][Java.] dalan /[Minng.] jalan /[Da'a] jala /[Wolio] ɖala "road" || C.MP: [Ngada] zala /[Sika] lala-ŋ /[Mangg.] salaŋ / [Dobel] sala "path" || OC: [Nyindrou] san /[Takia] dal /[Mbula] zāla /[Motu] dala /[Lau][Kwaio] tala /[Raga] hala /[Woleaian] yařa /[Tongan] hal "road, path" ||| [Ainu] ra "passage" (Bachelor, 1938)

**13. [Finn.] y-** || **$ 13.1. [Finn.] y-** /**[Hung.] ĕ- ~ é-** < ***i- ~ *yi-** ||| # to DRINK: URA: [pURA] *ir3- (ür3-) /= FU: [Mordvin] iřed'e- (< *(y)ir- ) || SAM: [Taiga] ŏrsu- ||| OC: [Marshallese] irāk /[Woleaian] ūřūmī (< *ir- ?) || W.MP: [Gorontaro] moŋilu (= yilumo + moN- )

# NIGHT: [pFU] eje (ĩje) "night" (< [pFU] *idjâ (K.O.) < *idjiaŋ < > [Adzera] idziaŋ "night" ) ; [Finn.] yŏ /[Est.] ŏŏ "night", [Lapp] (dialects) iggjâ, idja, ijj, éjj "night" ( ijj < *üjja < [proto-Lapp.] *ŭdjâ ~ *idja "night" < idzia-ŋ "night" ), [Hung.] éj, éjjel "night" ||| OC: [Adzera] idziaŋ "night" ||| JR: [Old Ml.Jpn.] yŏ /[Mod. Ml.Jpn.] yo "night"

# MALE PERSON, SON: [pFU] *irkä (ürkä) "male person (Mann)", son" ( < *yir-kä ~ *yer-kä ), [Finn.] yrkä "Junggesel, Freier", yrkŏ "male person (Mann)" ; [Chremis] eryǝ "son" ; [Hung.] -ĕr, -ér "parson (Mensch), male person (Mann)" ||| C.MP: [Dobel] yil "man (male)" || OC: [Lewo] yerimʷene /[North Tanna] [Kwaio] ierman "man (male)" (< *yeri- ~*ieri- "man (male)" )

# ONE: [pFP][pFU ?] *ikte (ükte) "one" (< *ik-te ~ *yik-te < (OC) *ik- "little" + *-te "?" ), [Finn.] yksi /[Est.] üks /[Chremis] (dialects) ik', ikte, iktǝt "one" ||| OC: [Tolai] ik "little (of amorphous stuff)"

**14. [Hung.] ø-** || **$ 14. 1. [Finn.] ? /[Hung.] øu-** < ***yu-** < ***diu-** < **[pAN] *diRu-** ||| # to BATHE: [Hung.] usz-kal "to bathe", usz-as "bathing (n.)" ( < *usz- < *yus- < *ǰus < *dus < *dius < *di?us < *diRus "to bathe" ) ||| Turkic: [Turkish] yüz-me "to bathe" || JR: [Ml.Jpn.] yu "bath, hot spring, hot water" ||| AN: [pHN] *diRus (Zorq) /[pMP] *DiRus, *zíus "to bathe" || W.MP: [Isnag] mag-digut /[Malagasy Merina] man-ɖru /[Murut] diu? /[Java] adus (< *a-dus) /[Bali.] mañ-jus ( -jus < *dus < *dius) /[Da'a] nan-ⁿdiu "to bathe" || OC: [Motu] digu /[Lau] sisiu (< *siu < *diu ) "to bathe" ||| [Ainu] sus "to bathe" (< *dus)

Table 2. Word-initial sound-correspondence laws of consonants between Finnish/Uralic and Austronesian

1. [Finn.] m- ||| $1.1. [Finn.][Hung.] m- < [pURA] *m- < [pAN] *m-. (W.MP) m- /[pEsk] *m-
2. [Finn.] p- ||| $2.1. [Finn.] p- / [Hung.] f- < [pURA] *p- < (W.MP) p- < [pMP] *p- < [pAN] *p-
3. [Finn.] v-
 $3.1. [Finn.] v- /[Hung.] ø- /[Kamas] b- < [pFU] *v- (~ *w-) /[pSAM] *b- < [pURA] *b- (or *v- ) < [pAN] *b-
 $3.2. [Finn.][Hung.] v- < [pAN] *w-
4. [Finn.] t- < [pURA] *t- < [pAN] *t-
5. [Finn.] n-
 $5.1. [Finn.] [Hung.] n- < [pURA] *n- < [pAN] *n-
 $5.2. [Finn.] n /[Zyr.][Mordvin][Yurak] ń- /[Kamas] n- < [pURA] *ń- < [pMP] *ŋ-
 $5.3. [Finn.] n- /[Hung.] m(y)- < [pFU] *ń- ( (OC) ŋ- ?)
6. [Finn.] l-
 $ 6.1. [Finn.][Hung.] l- < [pURA] *l- < (MP) *l-
 $ 6.2. [Finn.] -ll- < *-lVl- < *-d₂Vl- (V = vowel)
7. [Finn.] r-
 $ 7.1. [Finn.] r- < [MP] *r- ~ *R-
 $ 7.2. [FU] r- < (MP) r- < [pAN] (Zorc*) *d₂-. [pMP](Dem*) *d-
 $ 7.3. [pFU] *r- < [pMP] *z- (Zorc*), *d'- (Dem*)
8. [Finn.] s-
 $ 8.1. [Finn.][Zyr.] s- /[Chremis] š- /[Hung.] ø- /[Kamas] t- < [pURA] *s- < (W.MP) *s- < [pAN] *s-
 $ 8.2. [Finn.] s- < [pFP] *s- < [pAN] *S-
 $ 8.3. [Finn.] s- < [pAN] *C-
 $ 8.4. [Finn.] s- ( < [pFU] *ś- )
  $ 8.4a. [Finn.] s- /[Hung.] sz- < [pURA] *ś- < *d₂-
  ??$ 8.4b. [Finn.] sy- < [pFU] *śi- < (MP) *ti-
 $ 8.5. [Finn.] su- < [pURA] *ću- < (MP) ču-
9. [Finn.] h- (< [pFU] *č- )
 $ 9.1. [Finn.] h- / [Votyak] (Kazan dial.) ž- /[Ostyak] č- < [pFU] *č- < (W.MP) t-, č- /(FORM)[Paiwan] *ɖ- < [pAN] *d₃-
 $ 9.2. [Finn.] ? /[Zyr.][Votyak] š- /[pFU] *č- < *š- < *sy-
10. [Finn.] k-
 $ 10.1. [Finn.] k- / [Hung.] h- < [pURA] *k- < [pMP] *k- || [pESK] *q-
 $ 10.2. [Finn.] k- /[Hung.] h- < [pFU][pURA] *k- < [pAN] *q- ( FORM: [Atayal][Pai.] k- (= q-) [Tsou] ø- ,[W.MP: [Sundanese] h- [Kal.] ʔ- [Yami][Taga][IndoN] ø-
 | OC: [Tolai][Kilivila][Mbula] [Motu][Nemi] k-, [Tawara][Nengone] g- , [Tongan] ʔ, [Takia] ø- ) || [pEsk] *q-
 ʒ. k- < [pFU] *k- < (OC) *g-
 . (?) [Finn.] h- < [pURA] *h- (K.O.) < (MP) *h-

 < *ǰ- (< *D- )
 - < [pAN] *Z-
 . [Finn.] y- /[Hung.] ĕ- ~ é- < *i- ~ *yi-
 1. [Finn.] ? /[Hung.] øu- < *yu- < *diu- < [pAN] *diRu-

 $ 10.3. [Finn.] k- /[Hung]
11. [Finn.] h- ||| $11.1
12. [Finn.] j-
 $ 12.1. [Finn.] j- < *j-
 $ 12.2. [Finn.][Hung.] j
13. [Finn.] y- || $13.1
14. [Hung.] ø- || $14.