

# URALIC NUMERALS

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§1. The following are the (proto)forms of the numerals of the first decad in Fenno-Ugric and Samoyed languages:

	Fenno-Permic	Ugric	Samoyed
1	*ükri	Ma Tj <i>ük</i> , KU <i>äk'</i> Kh V <i>ěj</i> , Kaz. <i>ĭ</i> , I <i>it</i> , Hu <i>ěgy</i>	? SeT <i>ukkjr</i> , <i>okkjr</i> *oj-/ *āj- *op *kiä
2	*kakta	*kekä	
3	*kolmi	Kh *käälem Hu <i>három</i> // Ma *kuurem	*näkur
4	*n/neljä	*niljĭ	*tet,tä / *tettä / *tejt,tä
5	*wi(i)t(t)i	*wittĭ	*sämpä / *sämpäläŋkä
6	*ku(u)t(t)i	*kottĭ	*mäktut *sejt,wä < *sejptä
7	*šeŋcemä	*šäptä	
8	FV *kakteksan < *kakta-ikak-sä Pe *kiktames < *kakta-ikam-3s(3)	ObUg *nĭlŋy // Hu <i>nyolc</i>	*kitäntettä < *kiä tettä SeT <i>šitj čaŋg köt</i>
9	FV *ükteksä < *ükte-ikek-se Pe *ók-tem-es < *ükte-ikem-es(ε)	Ma *änt-täl-löy Kh *šj-šrt-jšŋ Hu <i>kilenc</i>	*ämäjtšmä MTK *op-tV-jäŋkV SeT <i>ukkjr čaŋka köt</i>
10	FiMd *külmeni LpMr *luka Pe *das	Ma <i>löy</i> Hu <i>tíz</i>	*wüt MT <i>šuen</i>

## §2. Comparative-etymological analysis:

1.1. FP *\*ükti* “1” (UEW 81; S 552) can be of the FU age, if Ma TJ *ük*, KU *äk* id. is related (Szinnyei 1910: 108). Honti 1993: 75f adds Kh *\*ěj* and Hu *äg(g)y* & *eg(g)y* deriving them from *\*ěj / \*ěj\** and *\*iyɜ / \*üɜ\** respectively, and reconstructs FU *\*ike / \*iuke* (= *\*üki* after S) — see 1.2. below. The internal FU etymology is uncertain, cf. perhaps Md *vejs(e)* “together” < *\*iuke* (Honti 1993: 80); Komi *eknam / etnam* “ich allein” (Honti 1993: 82); FV *\*wikta* > Fi *vihdoin* “endlich, yhden kerran”, Md *\*(v)ukta* > Erzja *udalo*, Mokša *fial* “hinter” (SKES 1734–35; Keresztes 1986, n.516). A similar semantical development is known e.g. from IE languages: Welsh *cyntaf* “der erste” : Old High German *hintana*, *hintar* “hinter” and Old Church Slavonic *is-koni* “von Anfang” : *коньсь* “Ende” (Pokorny 1959: 564). The same semantical way out can be seen in SeT *ukkj̄r*, *okkj̄r* “1” : *ukj̄* “vorderes Ende; Nase; Vorderteil”, *ukon*, *ukot* “früher, vormals” (Joki 1975: 729–30) < Sm *\*ukš* “Ende, Vorderteil” (SW 30) < U *\*ukə* “Kopf” (UEW 542–43). The initial sequence *\*vi-* in BF can probably be explained through contamination with FU *\*wiŋi* “Ende” > Fi *vi-mein* “endlich”, *viime* “letztens, jüngst, vorig” etc. // Hu *vég* “Ende, Schluss, Zweck” (UEW 575). There is a promising external parallel in YkN *axte*, *ax* “only, alone” (Collinder 1940: 104). The difference in initial vocalism is perhaps comparable with FU (U ?) *\*püŋi* “grouse” (UEW 383; S 547–548) : YkS *pange* “kulik” (Krejnovič 1982: 80). On the other hand, there are also some possible Altaic cognates here: Tk *\*ük* “upper, superior” // OKor (Paekče) *\*oko*, MKor *\*ux* “upper part, top, surface” // OJp *ökör-* “to arise”, *ökös-* “to lift up” (Menges 1984: 291).

1.2. Hu *egy* and Kh *\*ěj* “1” are probably of pronominal origin (UEW 67; MSzFE 1: 141–142; Majtinskaja 1979: 174–175), although it is tempting to speculate about their relationship to their Sm counterpart (1.3.).

1.3. Sm *\*oj-* / *\*əj-* “1” (Helimski 1986, 136; Janhunen does not separate it from Sm *\*op* id., see SW 28) has promising Altaic counterparts in Kor *oi*, *ö* “only, a single”, *oi-nun-thoŋi* “one-eyed person”, compared by Ramstedt (PKE 134) with Tg *\*ugi* “few” > Evenki *uyi*, *uvi*, Orok *oji* etc. (TMS 2: 246), and IE *\*oy-* in *\*oy-no-* / *\*oy-wo-* / *\*oy-ko-* “1”, probably an old derivative of the IE anaphora *\*ey* (Hamp 1992: 904). There is a more probable Tg parallel in Oroč *ojoke* “some, one” (TMS 2: 9: Oroč + Mong *oira* “near”) and perhaps pJp *\*uja* “the same” (Starostin 1972: 74: Jp + U *\*ükti* “1”).

1.4. Sm *\*op* “1” (Helimski 1987: 77; Janhunen reconstructs *\*oəp* and derives it from *\*o(ə)-*, see SW 28) is comparable with possible Altaic parallels: KorN *obun* “all”, S *on* “voll, vollständig, all” // Tg *\*up-ka-* “whole, every, all” // Mong *ogtalu* “fully” (SKE 177; PKE 133; TMS 2, 281).

2.1. U *\*kektä* “2” (S 537; UEW 118–119: *\*kakta* / *\*käktä*) is the only numeral reliably reconstructed for the Uralic proto-language including the semantical identity of all attested forms. There are hopeful external cognates in Yk: Omok *tkit* “2” = *\*kit* ?, cf. *kit kimnel* “20” (Collinder 1957, 118; Tailleur 1959, 84 compares the Omok forms with YkN *kīn* / *kīd* “two” < *\*kiji-nt* with

the genitive marker *\*-nt*, cf. Nikolaeva 1988: 18) and in Tg *\*gagda* “one of a pair” (TMS 1: 135: Tg + Mong *gagča /ganča* “one, single, only”; see also Dolgopol'skij 1969: 299: U + Tg), perhaps also in OJp *kata* “one (of a pair of set), single (member of a pair of set)” (Starostin 1972: 74; Street 1985: 641 derives it from Alt *\*kalta* “half”). Ankeria 1951: 137 and Dolgopol'skij, *Vo-prosy jazykoznanija* 1964/2: 57 also add ČK data to U “2”, cf. Itelmen “2”: Tigil River (Billings) *katxan*, Ukän (Pallas) *kaza*, W (Radloff) *kasx*, S (Krašennikov) *káss*, *kaáž* etc. (Anderson 1982: 31).

Note: There is an alternative attempt to find the external relationship for U “2” in IE *\*k<sup>(w)</sup>et-* “pair” > Sl *\*četa* id. and Ossetic *cæd(æ)* “a pair of bulls in yoke” (Abaev 1: 293). Erhart 1970: 95 also sees the same root in *\*k<sup>(w)</sup>et(e)-H<sup>o</sup>r* “4” = “2x2” (?). If related to U *\*kektä*, it excludes the Tg form and allows to analyze the form *\*kektä* < *\*ketV* “2” + suffix of dual *\*-ka/\*-kä* by way of a metathesis caused (at least in FU) by *\*ükti* “1” (more about the numeral “2” and dual in U – see Helimski 1982: 114–17).

3.1. FP *\*kolmi* & Kh *\*käälem* “3” stand in opposition to Hu *három* & Ma *\*kuurem* (S 543; UEW 174). The *-r*-forms can be original, if we accept the influence of the following numeral *\*neljä* “4” (Collinder 1965: 145). A hypothetical FU reconstruction could be *\*kurmi*. If we isolate the suffix *\*-mi* expressing perhaps the abstract noun “Dreiheit”, we get a hypothetical root *\*kur-*, compatible with Sm *\*nä-kur* “3” (Castrén 1854: 194; Helimski 1987: 77; SW 99: *\*näkš(j)r*). The same demonstrative (?) marker *\*nä-* perhaps appears in some Sm postpositions: *\*näŋ* “zu” (dat.sg.), *\*nānā* “bei” (loc.sg.), *\*nātā* “von” (abl.sg.), *\*nāmmānā* (< *\*nān-mānā*) (prosecutive sg.; see SW 99).

The protoform of the Altaic numeral “3” can be reconstructed as *\*gu[r]-*: Mong *gurban* “3”, *gurmusun* “dreisträhnig, dreisträhniger Strick” (Collinder 1965: 145: FU + Mong), *gutagar* “third”, *gučin* “30” < *\*gu[r]tin* (> Tg *\*gutin*, cf. Benzing 1955: 31); Mong (Khitan ?) > Jurchen *\*γuor-χuan* “13” (Miller 1975: 146) // Kor *\*ku* in MKor *nirkup* “7”, KorN *nirgup*, KorS *ilgop* = *\*[n]yər<sup>h</sup>* “10” ... *\*ku* “3” ... *öps* “be nonexistent”, the negative of *iss-* “to be, exist, have”, cf. MKor *'yətīrp* “8” = “10–2”, *'ahop* “9” = “10–1” (Miller 1971: 244; Menges 1984: 278; SKE 167: *\*il* “3” & *\*kop* “bending”, cf. Tg *\*ilan* “3”) // ? OJp *kökönö-* “9”, besides *nogono-* (Pallas) < *\*kōnokōno* = “3x3”? (Miller 1971: 236; Anderson 1982: 42), the Tg counterpart *\*xüyägün* “9” after Benzing 1955: 101, or *\*xegün* according to Starostin 1991: 141 (correctly probably *\*xünyägün* “9”), is perhaps compatible with OJp, but not with Alt *\*gu[r]-* “3”.

Bouda 1952: 25–26 compares FU *\*kurmi* “3” with Čukči-Koryak *\*kury<sup>m</sup>* : Čukči *krym-qor*, Koryak *kyjym-qoj* “dreijähriges weibliches Rentier”, where *qora* & *qoja* resp. mean “Rentier”.

4.1. FU *\*neljä /'neljä* “4” (S 546; UEW 315; Honti 1993: 92–93) has no evident cognates in Sm, but there are at least hypothetical parallels in Yk: Čuvan (Matjuškin) *njagon*, (Boensing) *nāgane*, *nāxane* “4” are derivable from *\*na[l]ga-*, cf. Čuvan (Matjuškin) *xanbamegej*, (Boensing) *xambo megii* “10” =

“double hand” vs. YkNW *\*malg-andklon* “4” = “double two”, further YkN attrib./predic. *maleji-lmalajla* “6” vs. *ja-ljalo* “3” (cf. Tg *\*ilan* id., but “Tonsugu-Konni” by Strahlenberg (1730) *yelan!* — see Anderson 1982: 46) and *malejluku-lmalajlakla* “8” vs. *jeluku-l jalakla* “4”, besides YkS *melha-lmelhalo* “6” vs. *ja-ljalo* “3” and *malhileku / molhileqlo* “8” vs. *ileku / ileqlo* “4”, cf. YkN *malhur* “on both sides” and YkS *malhi* “joint” (Tailleur 1962: 72; Krejnovič 1982: 114–118; Jochelson 1905: 113). On the other hand, the Čuvan “4” can be borrowed from Koryak, cf. (Krašennikov) *niáken* “4”, (Pallas) *niyax*, (Bogoras) *ḡáyax* etc. (Anderson 1982: 30).

Traces of the root related to FU *\*ñeljä* “4” can be also found in Altaic. MKor *nəyh* “4” (Lee 1977: 174; about KorN *ndujin* “4” quoted in SKE 277 see Miller 1971: 219) can be derived from a hypothetical protoform *\*nəri-h*, cf. OKor (Silla) *\*narih* “river” > MKor *nayh* or *\*murih* “mountain” > MKor *moyh* (Lee 1977: 80), similarly MKor *səyh* “3” vs. *syərhin* “30” (Lee 1977: 174). A hopeful cognate can be identified in the Tg numeral “6”, usually reconstructed *\*ñöḡün* (Benzing 1955: 101; TMS 1: 647–48) and interpreted as “2x3” (Miller 1975: 147). The pattern “2x3” is evident for Mong *ḡirgu-gan* “6”, but doubtful for the Tg numeral in spite of Poppe’s attempt to reconstruct a development *\*ñiḡgun* < *\*ñirgun* < *\*ḡirgun* (Poppe 1960: 130). On the other hand, a series of very archaic numeral stems is preserved in Jürchen names for the teens. So, for “16” the form *ni-ḡun*, earlier *nül-ḡon*, corresponding with Manchu *niolxun* “16th day of the 1st month”, while for “6”, Jürchen has *\*niḡ-ḡu* (Miller 1975: 147). On the basis of these data the Tg prototype for “6” can be modified into the form *\*ñöl-ḡu(n)* and interpreted as “10” (Tg *\*ḡuwan*) (minus) “4” (*\*ñöl-*). This subtractive model forming the numerals 6 — 9 is well-known from Ainu (Laufer, *JAOS* 37[1917]: 192–208) and probably from Korean (Miller 1971: 243–44 analyzes only 7, 8, 9 in this fashion, but MKor *’yəsīs* “6” reveals a presence of *’yərḡ* “10” similarly as *’yətīrp* “8”). Mong *nayiman* “8” could also belong here; it is possible to derive it from *\*nayid-man* where *\*nayid-* represents a regular plural to the sg. *\*nayil-*, and *-man* together with *-ban / -ben / -gan* are suffixes forming most numerals of the first decad (Blažek 1997: 48–49). Besides hypothetical Yukaghir and Altaic cognates, there is a perfect correspondent in the Dravidian numeral *\*nāl* “4” (DEDR #3655; cf. Tyler, *Language* 44[1968]: 807: FU + Dr; Menges 1984: 248: FU + Kor + Dr). Bouda (*Anthropos* 55[1960]: 358) opines that Nivkh root *\*nV* of the numeral “4” also appears in *n-mar-i* “quarter” < *\*n-nar-* and *minr-* “8” = “2” (*me*) x “4”. This more archaic form *\*n(a)r* “4” corresponds well with the hypothetical Korean *\*nə[r]i-h* “4” (Krejnovič 1955: 135: Nivkh + Kor) and probably also with FU *\*ñeljä* “4” (Bouda, l.c. explains the change *\*l --> \*r* by the unacceptability of the expected cluster *\*nl-* in Nivkh).

4.2. Sm *\*tet,t̪t̪ / \*tett̪t̪ / \*tejt̪,t̪t̪* “4” (SW 159), of course, does not correspond with FU *\*ñeljä* (in spite of Menges 1975: 92). The attempts to find an internal Sm etymology are also unconvincing: (i) Joki 1975: 730 connected Sm “4” and Nganasan *tatu-ame* “sehr, viel”; (ii) the formally similar word

\**t<sub>1</sub>et<sub>1</sub>mā* “Band” (SW 158) could represent the same root \**tet-* extended by various suffixes; but the semantical motivation is not clear (a similar semantical development was proposed for Ug \**riälə* “8”: Hu *nyaláb* “Bündel, Bund”, KhV *riula* “zusammen” — see UEW 875 and below 8.3.).

On the other hand, Sm “4” could be a borrowing. The most probable candidates for a source are Tk forms of the type Čuvaš *tāvattă*, Volgaic Bulgarian \**tiāt* “4” (Benzing 1959: 730) or Lobnor *döjt, iöjt, döt, Salar döt, dot, Ujghur dial. tööt* etc. (Sevortjan 1980: 284–286), all from Tk \**dört* (Dybo). A source of the Čuvaš-Bulgarian type seems to be the most probable, because the same source of borrowing is evident for Sm \**jür* “100” (SW 50; Janhunen, *MSFOu* 158[1977]: 125). The Sm + Tk comparison was presented already by A. Trombetti (1923: 395), but in a genetic framework.

5.1. FU \**wi(i)t(i)* “5” corresponds to Sm \**wüt* “10” (S 541; UEW 577). The semantical relationship is certainly plausible, cf. e.g. Sielmen (Pallas) *kúmnaka* “5”: *kumextuk* “10” (Anderson 1982: 33). For U \**wi(i)t(i)* “5” (Janhunen, *JSFOu* 77[1981]: n.124 reconstructs \**wi(t)ti/wixti*) Joki (1975: 729) supposed the original meaning “grosse Anzahl, grosse Menge, viel”, cf. Fi *viittä vaivainen vailla* “dem Armen fehlt viel”. There are no evident external parallels, the only hypothetical exception would be OJp *itu* “5”, OKor (Kogurjo) \**utu* (Murayama) or \**uč* (Lee) — see Miller 1971: 241; Kazár 1980: 60: Jp + U.

5.2. Sm \**sāmpā* or \**sāmpāläŋkā* “5” (SW 133) can be convincingly etymologized on the basis of Nenets *sampā* “in den Händen schaukeln, schwingen” (Joki 1975: 730).

6.1. FU \**ku(u)t(i)* or \**kotti* “6” (S 544; UEW 225) and Sm \**māktut* “6” (Helinski 1987: 77; SW 85) are evidently unrelated. But both the numerals were probably formed on the basis of the same semantical pattern: “six” = “beyond five”, cf. (i) U \**kuttə* “Rücken” (UEW 225) > MaN *χūtāf* “hinter” etc.; (ii) U \**mukā* “back” (S 538; SW 85) > Selkup Taz *moqoqit* “hinter, hinten” etc. If this etymology is correct, the Sm numeral represents a compound \**mākt-* & \**-ut*. The latter component is probably identical with Sm \**wüt* “10”, preserving the original meaning “5”. Alternatively, Sm \**utā* “hand” (SW 30) could be identified here, cf. IE \**Kswēks* “6” < \**ǵ<sup>s</sup>-wēks* “hand-overgrowing”. There is a suggestive parallel in Ossetic *farast* “9” = “beyond 8” (Winter 1992a: 14). The traditional interpretation of Sm \**māktut* based on the comparison with Kamasin *mākter-* “schreiten” etc. < U \**mukča-* “über das Wasser fahren” (so Joki 1975: 730; cf. UEW 284–85) is perhaps plausible semantically (cf. Eskimo of SWAlaska *ar’Firtoa* “I cross over to” vs. *ar’Finligin* “6” — see Thalbitzer, *JSFOu* 25/2[1908]: 13), but less probable for phonological reasons (UEW 284).

7.1. FP \**šeĵcemā* “7” (UEW 773; S 553: \**še(e)š/cVmi*; Honti 1993: 100 reconstructs \**šeĵćcem* comparing it with Sm \**sejt<sub>3</sub>wā* “7”, cf. 7.3.) is probably borrowed from some Baltic dialectal form of the type OLithuanian *sėkmas* “7th” (Fraenkel 2: 772). Napolskikh 1995: 126 prefers some early Slavic

source (certainly preceding East Slavic *\*semь*, perhaps a hypothetical *\*sedemь*), but this solution entails serious difficulties in phonology and chronology.

7.2. Ug (Hu & Kh) *\*θäpt(ə)* / Ma *\*sǟt* “7” (UEW 844; Honti 1982: 138) has usually been derived from some Indo-Iranian source (Korenchy 1972: 70–71; MSzFE 284) preserving the original *\*s-*, contrary to the characteristic Iranian change *\*s > \*h* (FU *\*s-* gives regularly Ug *\*θ-*, while Ma *\*s-* reflects FU *\*ś-*). Joki 1973: 313 judges that Ma *\*sǟt* can be borrowed from a different Indo-Iranian source (cf. Dardic: Šina *sāt*, *sāt*, Prasun *sete* etc. and Mittani Aryan (Kikkuli) *šatta* !), rather than from Toch (cf. Toch A *šäptänt-* “7th”). On the other hand, Napolskikh 1995: 124 supposes just the Tocharian origin of the Ug “7”. Winter (1992b: 109–110) reconstructs common Toch *\*šəpətə* continuing in Tocharian A and transforming in Tocharian B *\*šwət > \*šwat/\*šwät* (further leading to the historically recorded forms *šukt*, *šūkt*, *šuk*, assuming the influence of the following numeral *\*aktu > okt* “8”; but the change *\*-pt- > Tocharian B -kt-* can be regular, cf. Napolskikh 1995: 120). A form resembling *\*šwät* could have been the source of pre-Mansi *\*sǟt*, although the chronological correlation remains uncertain.

7.3. Sm *\*sejt,wə̄* “7” (SW 139–40), with a more archaic variant in Sayan Sm *\*sejptə̄*, are probably of Tocharian origin too (Janhunen, MSFOu 185[1983]: 119; Napolskikh 1995: 119 prefers to reconstruct Sm *\*sejkwə̄* derivable from a source of the type Toch B *šuk(t)*).

8.1. FV *\*kakteksan* “8” has been analyzed in *\*kakta* “2” + Negationsverb *\*e-* + modal-reflexives Konjugationssuffix *\*k* + Px3 Sg *\*sä* + Dualsuffix *\*n*, hence “zwei existieren nicht” (UEW 643; Honti 1993: 108). Napolskix (1997) mentions that the hypothetical form *\*e-k-sä-n* is artificial without any support in real languages (e.g. in Fi it would give *\*eise*, but really *ei ole* is used). The negative auxiliary *\*e-* (UEW 68–69) is never independent. He proposes his own solution based on the abessive suffixes (a) for nouns *\*-tkak ~ \*-tkek* (Fi *-tta/-ttä*, Udm *-tek*) and (b) for adjectives & adverbs *\*-tkVm* (Fi *-ton/-tön*, Md *-toma*, Udm *-tem*). The final *\*-sə/\*-se* is probably a nominal derivational suffix (e.g. Udm *nul-es* “forest” vs. *njl-pu* “Abies”). This approach allows us to recognize parallel structures in both Fenno-Volgaic and Permian numerals “8” and “9”, differing only in the use of the abessive suffixes (a) and (b) respectively:

	Fenno-Volgaic	Permian	
8	<i>*kakta-tkak-sə &gt; *kakteksa(-n)</i>	<i>*kakta-ikam-s(ə) &gt; *kjk-tam-es &gt; *kjkjamjs</i>	“2-without-consisting of”
9	<i>*ükte-tkek-se &gt; *ükteksē</i>	<i>*ükte-ikem-es(ε) &gt; *ök-tem-es &gt; *ökmjs</i>	“1-without-consisting of”

8.2. Pe *\*kjkjamjs* “8” has been derived from *\*kjkja mjn(ə)ś* “8” (Honti 1993: 156), and analyzed as the compound *\*kük* “2” + frozen suffix of dual *\*ja* + *\*mjn(ə)ś*, the ablative from Pe *\*mjn*, forming tens: Komi *komjn*, Udmurt

*kvamjn* “30” etc. (Honti 1993: 117f). Besides the irregular depalatalization, this solution means two different ways of forming of the numerals “8” and “9” in Fenno-Volgaic and Permian, in contrast to the consistent solution of Napolskikh (see 8.1.).

8.3. Ug *\*ńylə-(kə-)* “8” > ObUg *\*ńjłəy* // Hu *nyolc* (UEW 875; Honti 1982: n.462 and 1993: 111–15) probably represents the dual of Ug *\*ńiljī* “4” (Szemerényi 1960: 145; Gulya 1976: 314). This internal structure formally corresponds to IE *\*H<sub>2</sub>okto(u)H<sub>1</sub>*, “8” = the dual of the form continuing in Avestan *ašti-* “breadth of four fingers” (Winter 1992a: 13). The main objection against this solution (Honti 1993: 112, 253, fn. 112) consists in the varying root vocalism of the numerals “4” and “8” (front vs. back). But the same opposition appears in the numeral “2” between the Fenno-Permian and Ugric Numerals.

The other etymologies, e.g. those based on Hu *nyaláb* “Bündel, Bund”, KhV *ńula* “zusammen” or ObUg *\*ńäl / \*ńöl* “nose” (UEW 875; Majtinskaja 1979: 166–67; MSzFE 488) are semantically rather vague. Given that in some Mansi dialects the protoform *\*ńälälčy* “8” consisting of *\*čy* “10” is reconstructible (cf. Honti 1993: 114), the “nose” etymology could be applied — although, of course, not with the primary meaning “Nasenzehn” (so Nyíri, Juhász — see Honti 1993: 113). It is possible to imagine the expression “8” = “[two] before ten” where “before” could represent the result of grammaticalization of the ObUg “nose” (cf. e.g. Tzotzil *ni`il* “nose; in front of”).

8.4. Sm *\*kitāntettš / \*kitšntettš* “8” < *\*kitā tettš* “2 x 4” (SW 71–72).

8.5. The subtractive pattern  $8 = 10 - 2$  appears in SeT *šitj čāŋ köt* (Honti 1990: 105).

9.1. FV *\*ükteksä* “9” is evidently of the same structure as FV *\*kakteksan* “8” (see 8.1.). Traditionally it has been analyzed as *\*ükti* “1” + negation verb *\*e* + medial reflexive conjugation suffix *\*k* + Px3 Sg *\*sā* (UEW 807; Honti 1993: 110, 116). The final *-n* in Fi *yhdeksän* appears probably under the influence of *kahdeksan* “8” where *-n* represents the dual suffix. The alternative and evidently more convincing solution of V. Napolskikh based on the abessive suffix *\*-tkak ~ \*-tkek* for FV, and *\*-tkam ~ \*-tkem* for Pe numerals “8” and “9”, was discussed above (8.1., 8.2.).

9.2. Pe *\*ókmiš* “9” (KESK 211; Honti 1993: 159) is of the same structure; see 8.2.

9.3. Ma *\*ānt-tāl-lčy* “9” = “eine randlose (i.e. ohne den Randfinger seiende) zehn” (Honti 1990: 105 and 1993: 178–80).

9.4. Kh *\*ěj-ěrt-jšŋ* “9” = “einer vor zehn, eins-zusätzlich-zehn” (Honti 1990: 105 and 1993: 166–67).

9.5. Hu *kilenc* “9” < *\*kilen-tizš* “zehn mit Ausnahme von eins”, cf. Hu *kívül, kül* “draussen, ausser” & *tíz* “10” (MSzFE 366; Honti 1993: 187–92).

9.6. Sm *\*āmājtəm/nš* “9” is derived from the indefinite pronoun *\*āmāj* “anderer, zweiter” (SW 19), while the second component corresponds perhaps to Sm *\*ton* “Zahl” (SW 165), cf. Kamasin *amithun* “9” vs. “Abakan” *thun* “100”.

9.7. MTK \**op-t3-jǎŋkə* “9” = *op* “1” + Px3 Sg \**t3* + \**jǎŋkə* “is absent” (Helimski 1987: 77, 99; cf. SW 41).

9.8. SeT *ukkir čǎŋka kōt* “9” = “one is absent [from] ten” (Sm \**jǎŋkə* > Se *čǎŋka*, see SW 40).

10.1. FiMd \**kūmeni* “10” (Keresztes 1986, 54; UEW 679) is comparable with Yukaghir \**kūmne-* “10” > Omok *kimnel*, YkNW *kunel*, YkS *chuniella* (Billings), *kunol(en)* (Klička), attrib. / predic. *kuni-* / *kunel’o-*, YkN *kunil’i* / *-kunal’-* (Tailleur 1959: 84; Krejnovič 1982: 117–118). Ankeria 1951: 138 also adds ItelmenS (Radliński) *kumhtuk* “10” (vs. *koomnak* “5”).

On the other hand, Bouda (*UJb* 20[1940]: 89) assumed that the Yukaghir forms may be borrowed from Eskimo, cf. SWAlaska *qoln*, EGreenland *qulin*, WGreenland *qulit* “10”, originally \*“(the top ones)”, cf. *quleq* “the uppermost” (Thalbitzer, *JAOS* 25/2[1908]: 8–9, 12). But Omok *kimnel* practically excludes this explanation and Yk \**kūmne-* represents a very hopeful cognate to the FiMd “10”.

Čop, *Linguistica* 13[1973]: 147, 148 reconstructs FiMd \**kūmen* “10” interpreting \**-n* as the dual suffix. The root \**kūme-* is supposed to correspond with IE \**-k̑m̑* isolated from \**dek̑m̑* “10” = “2x5” (or “1 x 10”, cf. Erhart 1970: 93–94; Winter 1992a: 17). But there is an alternative etymology based on the verb \**dek-* “to reach, accomplish”, ruling out Čop’s comparison.

There is also a possibility of internal etymology (cf. Majtinskaja 1979: 176) analyzing \**kūmeni* as a compound of the interrogative particle \**ku* (UEW 101) + \**mənə* “quantity, many” (UEW 279), cf. Komi *k̑m̑n̑*; Kamasin *k̑w̑n̑en*, Koibal *kumine* “how many” (KESK 152; SW 75) and YkS *xamun* id. (Angere 1957: 251). The component \**mənə* forms tens (e.g. Komi *niel’am̑n̑*, Ma *naliman*, Hu *negyven* “40”), and so it is natural to expect that it also forms the numeral “10”. The semantical development “quantity/many” → (“number”) → “ten” is plausible, cf. Semitic \**fāšar-* “10” vs. Egyptian *fš* “many, numerous; quantity, multitude”. The shift “number” → “ten” appears in the following case (10.2.) too.

There are promising Altaic parallels: Tk: Čuvaš *mōn* “big” // MKor *mānha-* “many, much”, mKor *mantha* “to be many”, *mān* “size, amount, number” (PKE 105–106) // OJp *mane-si* “much, many” < \**mania-/manai* (Starostin 1991: 94–95, 145, 276) and /or Even \**mian* “10” (TMS 1: 534) // Kor *mān* “hand” (PKE 105). A hopeful cognate also appears in IE \**men-/mon-* “many, much”, cf. Lithuanian *minià* “Menge” (Skalička, *UAJb* 41[1969]: 341).

The same component \**mənə* could also form the numeral “20” attested in Md *kom(e)ś* “20”, if the derivation \**kojə* + \**m[ən]əś* is correct (cf. KESK 150), and also perhaps Pe \**kūz*, Ug \**kušī* “20” (S 544: FU \**kuuši*; UEW 224), accepting the same internal structure. In the first component U \**koji* “man” has been identified (S 543; UEW 166–167; 224). But if the second member meant “10”, \**kojə* could represent another word for “2”. Alternatively, the Pe-Ug isogloss could be explained as \**kojə* “2” + plural marker preserved in Udm *-eś*, Komi *-eś* (Majtinskaja 1979: 83). The same pattern forming tens, i.e. the



cardinal of the first decad + plural marker, is known in some Semitic languages, e.g. Hebrew *fešer* “10” vs. *fešrīm* “20” etc. or Arabic *šašar* “10” vs. *šišrūna* “20” (Gray 1934: 69–70).

There are promising external parallels: Yk *\*kuj-/ \*kij-* > OYk *\*kijön* : (Bilings) *purchion*, (Klička) *purkijen* “7”; Čuvan (Boensing) *kujen*, *kujun* “2” vs. *imoxanbo kijon* “7”, (Matjuškin) *kuen* “2” vs. *emganbagu kuek* “7”; YkN *\*kij-* “2” (Tailleur 1962: 70) // Mong *qojar / qogar* “2”, *qorin* “20” (Anderson 1982: 44).

10.2. FU *\*luki* “10” has been derived from the root *\*luki-* “to count” (S 545) via the meaning “number” (Majtinskaja 1979: 175; UEW 253; Honti 1993: 121). Its traces can be seen in YkN/S (attrib.) *jeluku- / ileku-* “4” vs. *ja- / 3-*, indicating that “4” = “add 3” or sim. (Krejnovič 1982: 118; Jochelson 1905: 113).

Ankeria 1951: 137–38 compares FU *\*luki-* with Itelmen *lūx-* “Zahl, Rechnen”, Čukči *lg-* “rechnen, zählen; Finger”.

FU *\*luki* also has been connected with IE *\*leǵ-* “sammeln, zählen, lesen” (Joki 1973: 278–79 with older lit.). Illič-Svityč, *Étimologija* 1965[67]: 366 adds Mong *toga(n)* “Zahl, Rechnung”, cf. also Manchu *ton* “Zahl” (TMS 2: 161–162).

10.3. Pe *\*das* (or *\*dās*) and Hu *tíz* “10” are borrowed from some (M)Iranian source(s) (Joki 1973: 329–30, 257).

10.4. Kh *\*jǝŋ* “10” has no convincing etymology. The hypothetical parallels or sources of borrowing quoted by Honti 1990: 103 (e.g. Tg *\*žuwan* “10” or rather some of later forms as Evenki *žǝŋnā* “ten objects” — TMS 1: 248) can be supplemented by Turkic dial. forms, like OKipčak *ong*, cf. Osman dial. *uŋ*, *ōŋ*, Čuvaš *vun*, *vun(n)ǎ* “10”, etc. (Sevortjan 1974: 455). The unclear initial *\*j-* can be of later origin. A similar prothesis appears more frequently before front vowels in Ob-Ugric, cf. Kh *\*jil* “vorder” < U *\*eǝe* “das Vordere” (Honti 1982: 71; UEW 71–72). The hypothetical source of Kh “10” could be the form of the type *\*ön*. But the front vocalism does not appear in any historically attested Turkic language.

10.5. MT *žuen* “10” (Helimski 1987: 77) is undoubtedly of Tg origin, cf. Nanai *zoan*, Sibo *žuan*, etc. < *\*žuwan* “10” (Benzing 1955: 101; TMS 1: 248).

Note: There are some local innovations for “10” too: (i) LpS *tsiekkie* “10 (beim Zählen der Rentiere)”, orig. “Einschnitt, Einkerbung; Rentierrohr-marke: kleiner, halbrunder od. nahezu kerbschnittförmiger Ausschnitt”; (ii) Udm *don*, *ton* in tens (40–90), orig. “Preis, Wert”; (iii) SeT *sar* in tens (20–80), orig. “Bündel”, cf. also “Abakan” (Strahlenberg) *šerm* in *tušerm* “20” (Honti 1990: 104–05).

### §3. Conclusion

The most promising cognates of the first decad and the related words in Uralic and other Northern Eurasian language families are distributed as follows:

no.	root	FU	Sm	Yk	Tk	Mo	Tg	Kor	Jp	Nivx	ČK	Dr	IE
1	*ük-	+	?+	(+)	(+)			(+)	(+)				
	*op-		+			?(+)	(+)	(+)					
	*oj-	?+	+				(+)	(+)	(+)				+
2	*ket-/ *kat-	+	+	+					(+)		?+		(+)
	*koj-	*		+		+							
3	*gur-	+	?+			+		*	*		(+)		
4	*nel-/ *nal-	+				*	*	+		?+		+	
5	*wi(r)l-	+	*					+	+				
10	*kümen-	+		+							(+)		
	*mən-	+		(+)			+ / *	(+)					(+)
	*luk-	+		*									(+)

Note: The symbol (+) means that the meaning is not a simple numeral, e.g. Kor *oi*, *ö* “only, a single”, *oi-nun-thoŋi* “one-eyed person”. The symbol \* is used for non-corresponding meanings of numerals, e.g. FU \**ni/neljä* “4” vs. Tg \**niöl* (*šju*- “6” (= “10 — 4” ?).

This cognate set reflects the East (North) Nostratic level, approximately corresponding to J.H. Greenberg’s Eurasiatic. The material correspondences among numerals indicate a closer relationship among Uralic, Yukaghir and Altaic (including Korean and Japanese) within (East / North) Nostratic.

The internal evidence and external parallels allow us to reconstruct the proto-Uralic numeral system consisting of the numerals 1–5. Although there are no evident Sm cognates to FU \**ni/neljä* “4”, the probable foreign origin of the Sm “4” (< Tk) and the external evidence justify projecting this numeral onto the proto-Uralic level. The FU and Sm numerals “6” differ etymologically, but are formed on the basis of the same semantical pattern. The numeral “7” is borrowed from various IE branches (Baltic, Indo-Iranian, Tocharian). The numerals “8” and “9” represent the subtractions “10–2” and “10–1” respectively, perhaps with exception of the Ug “8” analyzable as the dual of the numeral “4”. Among various denotations of the numeral “10”, the FiMd \**kümeni* seems to be the most archaic, given proto-Yukaghir \**kümne*- “10”. The counting system with firmly established numerals 1–5 and 10 looks perhaps as illogical to Europeans, but it is well-known e.g. in Bantu languages. It does not mean the numerals 6–9 did not exist in proto-Uralic; they could be formed (and were formed) through the existing numerals 1–5 & 10 and elementary arithmetic operations.

Abbreviations: Alt Altaic, BF Balto-Fennic, ČK Čukči-Kamčatkan, Dr Dravidian, E East, Fi Finnish, FP Fenno-Permian, FU Fenno-Ugric, FV Fenno-Volgaic, Hu Hungarian, IE Indo-European, Jp Japanese, Kh Khanty (= Ostyak; with dialects: I Irtyš, Kaz Kazym, V Vach), Kor Korean, Lp Lappic, m modern, M Middle, Ma Mansi (= Vogul with dialects: KU lower Konda, TJ Tavda of Janyčkova), Md Mordvin, Mong Mongolian (written), Mr Mari, MT(K) Mator-Taigi(-Karagas), N North, O Old, p proto, Pe Permian, S South, SeT

Selkup Taz, Sl Slavic, Sm Samoyed, Tg Tungusian, Tk Turkic, U Uralic, Udm Udmurt, Ug Ugric, W West, Yk Yukaghir.

## References:

- Abaev, V.I., 1958: *Istoriko-étimologičeskij slovar' osetinskogo jazyka*, 1. Moskva-Leningrad: Izdatel'stvo Akademii nauk SSSR.
- Anderson, L.B., 1982: Number words in Northeastern Asia. *Folia Slavica* 5, pp. 25–65.
- Angere, J., 1957: *Jukagirisch-deutsches Wörterbuch*. Stockholm -Wiesbaden: Almqvist & Wiksell — Harrassowitz.
- Ankeria, J., 1951: *Das Verhältnis der tschuktschischen Sprachgruppe zu dem uralischen Sprachstamme*. Uppsala: Språkvetenskapliga Sällskapet i Uppsala Förhandlingar.
- Benzing, J., 1955: *Die tungusischen Sprachen*. Wiesbaden: Steiner (Abhandlungen der Akademie der Wissenschaften und der Literatur, geistes- und sozialwissenschaft. Kl. 11).
- Benzing, J., 1959: Das Tschuwassische. In: *Philologiae Turcicae Fundamenta*, ed. Deny, J. et al. Wiesbaden: Steiner, pp. 695–751.
- Blažek, V., 1996–97: Some thoughts about Uralic numerals. *Philologia Fenno-Ugrica* 2–3, pp. 1–18.
- Blažek, V., 1997: Altaic Numerals. *Studia Etymologica Cracoviensia* 2, pp. 33–75.
- Blažek, V., 1997a: Indo-European “seven”. In: *Indo-European, Nostratic, and Beyond: Fs. for V.V. Shevoroshkin*, ed. I. Hegedüs et al. Washington D.C.: Journal of Indo-European Studies Monograph Nr. 22, pp. 9–29.
- Bouda, K., 1952: *Die Verwandtschaftsverhältnisse der tschuktschischen Sprachgruppe (Tschuktschisch, Korjakisch, Kamtschadalisch)*. Acta Salmanticensia, Fil. y Let., V/6. Salamanca . BSOAS *Bulletin of the School of Oriental and African Studies*.
- Castrén, M.A., 1854[1966]: *Grammatik der samojedischen Sprachen*. [St. Petersburg] Bloomington: Uralic & Altaic Series 53.
- Collinder, B., 1940: *Jukagirisch und Uralisch*. Uppsala universitets Årsskrift 8, pp. 1–143.
- Collinder, B., 1957: *Uralo-Jukagirische Nachlese*. Uppsala universitets Årsskrift 12, pp. 105–30.
- Collinder, B., 1965: *Hat das Uralische Verwandte?* Acta Universitatis Upsaliensis, NS 1:4, pp. 109–80.
- DEDR Burrow, T. & Emeneau, M.B., 1984: *A Dravidian Etymological Dictionary*. Oxford: Clarendon Press.
- Dolgopol'skij, A.B., 1969: Nostratičeskije osnovy s sočetaniem šumnyx soglasnyx. *Étimologija* 1967, pp. 296–313.
- Erdélyi, I., 1969: *Selkupisches Wörterverzeichnis*. Budapest: Kiadó.
- Erhart, A., 1970: *Studien zur indoeuropäischen Morphologie*. Brno: Opera Universitatis Purkynianae Brunensis Facultas Philosophica 148.
- Fraenkel, E., 1962–65: *Litauisches etymologisches Wörterbuch*. Heidelberg: Winter.
- Gray, L.H., 1934: *Introduction to Semitic Comparative Linguistics*. New York: Columbia University Press.
- Gulya [Guja], J., 1976: Morfologija obsko-ugorskix jazykov. In: *Osnovy finno-ugorskogo jazykoznanija. Marijskij, permskij i ugoriskie jazyki*. Moskva: Nauka, pp. 277–341.
- Hamp, E.P., 1970: On the Altaic Numerals. In: *Studies in General and Oriental Linguistics*, eds. Jacobson, R. & Kawamoto, Sh. Tokyo: TEC Company, pp. 188–97.
- Hamp, E.P. 1992: Albanian. In: *IEN*, pp. 835–922.
- Helimski [Xelimskij], E. A., 1982: *Drevnejšie vengersko-samodijskie jazykovye paralleli*. Moskva: Nauka
- Helimski [Xelimskij], E.A., 1986: Etimologica 1–48 (Materialy po étimologii matorsko-tajgijsko-karagasskogo jazyka). *NyK* 88, pp. 119–43.
- Helimski, E. A., 1987: Two Mator-Taigi-Karagas Vocabularies from the 18th Century. *JSFOu* 81, pp. 49–132.

- Honti, L., 1982: Geschichte des obugrischen Vokalismus der ersten Silbe. Budapest: Kiadó.
- Honti, L., 1987: Uralilaiten kardinaalilukusanojen rakenteista. *JSFOu* 81, pp. 133–49.
- Honti, L., 1990: Die Bezeichnungen der 10 und ihrer Vielfachen in den uralischen Sprachen. *Linguistica Uralica* 26, pp. 99–108.
- Honti, L., 1993: *Die Grundzahlwörter der Uralischen Sprachen*. Budapest: Akadémiai Kiadó.
- IEN *Indo-European Numerals*, ed. Gvozdanović, J. Berlin-New York: Mouton de Gruyter 1992.
- IF *Indogermanische Forschungen*.
- Ivanov, V.V., 1977: K tipologii čislitel'nyx pervogo desjatka v jazykax Evrazii. In: *Problemy lingvističeskoj tipologii i struktury jazyka*. Leningrad: Nauka, pp. 36–41.
- JAOS Journal of the American Oriental Society*.
- Jochelson, W., 1905: Essay on the Grammar of the Yukaghir Language. *Annals of New York Academy of Sciences* 16, No.5, Part II, pp. 97–152.
- Joki, A., 1973: *Uralier und Indogermanen. Die älteren Berührungen zwischen den uralischen und indogermanischen Sprachen*. Helsinki: MSFOu 151.
- Joki, A., 1975: Über einige Zahlwörter im Samojedischen. In: *Congressus Tertius Internationalis Fenno-Ugristarum I*. Tallin 1970, pp. 729–32.
- JSFOu Journal de la Société Finno-Ougrienne*.
- Kazár, L., 1980: *Japanese-Uralic Language Comparison*. Hamburg: Kazár-Tsurusaki Books.
- Keresztes, L., 1986: *Geschichte des mordwinischen Konsonantismus II*. Szeged: Studia Uralo-Altaica 26.
- KESK Lytkin, V.I. & Guljaev, E.S., 1970: *Kratkij étimologičeskij slovar' komi jazyka*. Moskva: Nauka.
- Korenych, É., 1972: *Iranische Lehnwörter in den obugrischen Sprachen*. Budapest: Kiadó.
- Krejnovič, E.A., 1955: Giljacko-tunguso-maňčžurskie jazykovye paralleli. *Doklady i soobščeniya Instituta jazykoznanija* 8, pp. 135–67.
- Krejnovič, E.A., 1982: *Issledovanija i materialy po jukagirskomu jazyku*. Leningrad: Nauka.
- Lee, K.-M., 1977: *Geschichte der koreanischen Sprache*. Wiesbaden: Reichert.
- Majtinskaja, K.E., 1979: *Istoriko-sopostavitel'naja morfologija finno-ugorskix jazykov*. Moskva: Nauka.
- Menges, K.H., 1975: *Altajische Studien, II. Japanisch und Altajisch*. Wiesbaden: Steiner.
- Menges, K.H., 1984: Korean and Altaic — A Preliminary Sketch. *Central Asiatic Journal* 28, pp. 234–95.
- Miller, R.A., 1971: *Japanese and the Other Altaic Languages*. Chicago: University Press.
- Miller, R.A., 1975: Notes on the Žürčən Numerals for the Teens. *UJb* 47, pp. 145–53.
- MSFOu Mémoires de la Société Finno-Ougrienne*.
- MSzFE *A magyar szókészlet finnugor elemei*, 1–3. Budapest: Kiadó 1967, 1971, 1978.
- Napolskikh, V., 1995: Uralic 'seven'. *JSFOu* 86, pp. 119–28.
- Napolskikh, V., 1997: On the origin of "eight" and "nine" in Finno-Permian languages. *Ms*.
- Nikolaeva, I.A., 1988: *Problema uralo-jukagirskix genetičeskix svjazej*. Moskva: Institut jazykoznanija (Avtoreferat kandidatskoj diss.).
- NyK *Nyelvtudományi Közlemények*.
- OS Illič-Svityč, V.M., 1971, 1976, 1984: *Opyt sravnenija nostratičeskix jazykov*, 1–3. Moskva: Nauka.
- PKE Ramstedt, G.J.,: *Paralipomena of Korean Etymologies* (coll. and ed. Songmoo Kho). Helsinki 1982: MSFOu 182.
- Pokorny, J., 1959: *Indogermanisches etymologisches Wörterbuch*. Bern-München: Francke.
- Poppe, N., 1960: *Vergleichende Grammatik der altaischen Sprachen*. Wiesbaden: Harrassowitz.
- Ramstedt, G.J., 1949: *Studies in Korean Etymology*. Helsinki: MSFOu 95.
- Räsänen, M., 1969: *Versuch eines etymologischen Wörterbuchs der Türkischen Sprachen*. Helsinki: Lexica Societatis Fenno-Ugricae XVII, 1.
- Ross, A.S.C., 1941: Some remarks on the Numerals of Finno-Ugrian. *Transactions of the Philological Society* 1941, pp. 1–15.

- S Sammallahiti, P., 1988: Historical Phonology of the Uralic Languages. In: *The Uralic Languages*, ed. Sinor, D. Leiden: Brill 1988, pp. 478–554.
- Schmidt, P., 1933: Altaische Zahlwörter. *MSFOu* 67, pp. 365–68.
- Sevortjan, E.V., 1974, 1978, 1980: *Étimologičeskij slovar' tjurkskix jazykov*. Moskva: Nauka.
- SKES Suomen kielen etymologinen sanakirja, 1–6. Helsinki (Lexica Societatis Fenno-Ugricae XII, 1–6 (1955, 1958, 1962, 1969, 1975, 1978).
- Starostin, S.A., 1972: K probleme rekonstrukcii prajaponskoj fonologičeskoj sistemy. In: *Konferencija po sravnitel'noj grammatike indoeuropejskix jazykov*. Moskva: Nauka, pp. 72–74.
- Starostin, S.A., 1991: *Altajskaja problema i proisxoždenie japonskogo jazyka*. Moskva: Nauka.
- Street, J.C., 1985: Japanese Reflexes of the Proto-Altaic Laterals. *JAOS* 105, pp. 637–51.
- SW Janhunen, J., 1977: *Samojedischer Wortschatz. Gemeinsamojedische Etymologien*. Helsinki: Castrenianumin toimittaleita 17.
- Szemerényi, O., 1960: *Studies in the Indo-European System of Numerals*. Heidelberg: Winter.
- Szinnyei, J., 1910: *Finnisch-ugrische Sprachwissenschaft*. Leipzig: Göschen.
- Tailleur, O.G., 1959: Les uniques données sur l'omok, langue éteinte de la famille youkaghire. *Orbis* 8, pp. 78–108.
- Tailleur, O.G., 1962: Le dialecte tchouvane du youkaghir. *UJb* 34, pp. 55–99.
- TMS *Sravnitel'nyj slovar' tunguso-maňčžurskix jazykov*, 1–2. Leningrad: Nauka 1975, 1977.
- Trombetti, A., 1923: *Elementi di glottologia*. Bologna: Zanichelli.
- UJb *Ural-Altäische Jahrbücher*.
- UEW *Uralisches etymologisches Wörterbuch*, 1–2. Rédei, K., ed. Budapest: Kiadó 1988.
- UJb *Ungarische Jahrbücher*.
- Winter, W., 1992a: Some thoughts about Indo-European Numerals. In: *IEN*, pp. 11–28.
- Winter, W., 1992b: Tocharian. In: *IEN*, pp. 97–161.