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INDO-EUROPEAN “SIX”

For Professor Marie Krčmová to her birthday

The first opportunity to formulate the ideas analyzed in details in this article was against background of *Sprachwissenschaftliches Kolloquium* organized by Prof. Stefan Zimmer at the Institute for Linguistics of the Bonn University in December 1998. The first published version appeared as a chapter of the special monograph analyzing the systems of numerals in various language families (Blažek 1999: 234–45). Most particular chapters of this monograph were published as independent articles before the summary publication in the book (cf. the overview in Blažek 1999: 337 and further Blažek 1999 a-f). This strategy allowed to correct and revised the original versions or at least to supplement the references. The independent publication of the innovated version of **Indo-European ‘six’** follows this ‘tradition’ and reacts to the most recent studies connected with this topic, especially Viredaz 1997. That is why the part devoted to the Indo-Iranian data playing a crucial role is most expanded. The second reason for the separate publication consists in the fact that ca. 55% of the book refer to the Indo-European numerals. This solution gives chance to divide the parts devoted to the numerals of the non-Indo-European and Indo-European languages and to complete the latter ones.

§1. The numeral “6” belongs to the most complex etymons in Indo-European lexicon, although it is apparently common to all branches of the Indo-European language family, with exception of the Anatolian branch where we know only the symbolic records of this numeral till the present time (there is a certain hope in analysis of the old Anatolian metrology). The attested forms can be projected into the following partial reconstructions, allowing their deeper analysis. Let us add that the symbol *K means an unspecified velar; the brackets [...] signalize an uncertain reconstruction; the brackets (..) indicate an alternative reconstruction.

Indo-Iranian:

*Ksweks “6” > Indo-Iranian *kšwacš is best preserved in Avestan xšuuas, cf.

also *xšuuužaiia* “six times” (Videvdat 8.17). The other forms represent various grades of simplification:

Indo-Aryan *[k]ṣ(w)acṣ > Old Indic *ṣaṭ* /*ṣaṣ-* (-ṭ as in *vṛt* < **vṛṭṣ* < **wṛkṣ*), Aśokan (Kālsī rock inscription) loc. pl. *ṣaṣu*, Palestinian Gypsy *ṣas*, Kandi (Dardic) *ṣā*, Shina *ṣa(h)*, Kashmiri *ṣē*, Western Pahari *ṣāh* etc.

Indo-Aryan **kṣacṣ* > **kṣad* > Pali *cha*, loc. *chas(s)u*, in compounds *chaḷ*, Prakrit *cha*, Apabhramśa *chaha*, Sindhi, Gujarati, Hindi, Oriya *cha*, Bengali *chay*, Assamese *say*, Sinhalese *sa-*, *ha-* etc.; Iranian **xšaš* > Khotanese *kṣāta*, Khwarezmian *ʾx*, Ossetic *æxsæz*, cf. Sarmatic **ksas* in *Saraksasos* “with six heads”? (personal name from Olbia), Wakhi *šād*; Zoroastrian Pahlavi *šaš*, Modern Persian *šeš*, Kurdish *šāš*, Baluchi *šaš*. Turner (1966: #12803.3) also included Pashai *cha*, Khowar *choi* here; Viredaz (1997: 128) sees in them borrowings.

Indo-Iranian *(k)ṣwacṣ > Dardic **ṣuvaṭṣ* > Prasun *uṣū*, *wuṣu*, Shina *ṣva*, Wai-gali, Kati *ṣū*, Ashkun *ṣu*, Dameli *ṣō*, Wotapuri *ṣō*, Maiya *ṣōh* etc., Gypsy (European) *šov* (< Dardic; cf. Viredaz 1997: 128); Parthian *ṣwh*, Pashto *ṣpaž*, Ormuri *ṣū*, Parachi *xī* / *xu* (Viredaz 1997: 128 derived Ormuri & Parachi forms from a common protoform **xšuwā* resembling the Dardic counterparts more than the Iranian ones).

Iranian dial. **kwačš-* > *(-)xwaš(-) > Sogdian (Christian) *xwšw*, (Buddhistic) *wγwšw*, Yaghnobi *uxš*, Yidgha *uxšo*, Munjan *āxša*, Shugni *xōš*, Sanglechi-Ishkashimi *xuāḷ*, Sarikoli *xel*, Yazgulami *xu(w)* etc.

**Ksuks-to-* “6th” > Iranian **xšušta-* > Avestan *xštua-* (cf. Hoffmann 1965: 254; **u*-vocalism after Avestan *puxša-* “5th”?; Szemerényi 1960: 77, fn. 46 reconstructed **xšvašta-* > **xšaštva-* > *xštua-*; or from **šta-* as well as *xšma-* < **šma-*, cf. Hoffmann & Forssman 1996: 103).

Ksweks-t(H,)o-* “6th” > **kṣ(w)acṣ-t(H)a-* > Old Indic (AV) *ṣaṣthā-*, Pali *chaṭṭha*, Hindi *chaṭṭhā* (a*-vocalism under the influence of Old Indic *pakthā-* “5th”).

**Ksweks-mo-* “6th” > **kṣ(w)acṣ-ma-* > Pali *chaṭṭhama*, Marathi *chatham(a)*, Hindi *chaṭwā:* etc.; Khotanese *kṣei'ma*, Buddhistic Sogdian *wγšmy(k)*, Parthian

pañ(k)ti- "a group of five") > Old Indic *ṣaṣṭi*, Pali *saṭṭhi*, Hindi *sāṭh* etc.; Iranian **xšwaš-sati* > Avestan *xšuuvaštri-*, Khotanese *kṣaṣṭā*, Khwarezmian 'xyc, Ossetic *æxsai* (**xsaç* / **xsaʒ*), Ormuri *šūštu*, Pashto *špēta*, Parthian *ššt*, Zoroastrian Pahlavi and Modern Persian *šast* etc. With respect to the numeral "16" where the cluster **ks-d* is convincingly demonstrated, there are no traces of *-d* in the reflexes of the numeral "60". It could be one of arguments for the possibility (i).

(Abaev IV: 233, 223; Berger 1986: 28, 60; Debrunner & Wackernagel 1930: 354–56; Emmerick 1992a: 169, 175, 181 and 1992b 298, 304, 310, 322–323; Hamp 1978: 81–84 and 1983: 102; Mayrhofer KEWA III: 407–409 and EWAI II: 680–82; Schmitt 1994: 23–24; Szemerényi 1960: 61; Turner 1966: # 12803, 12804, 12808, 12812; Viredaz 1997: 114–15 rejected the initial velar, reconstructing **sweks* > Pre-Indo-Iranian **swetš*, **sweš-*, assimilated in **šwetš*, **šweš-dečip*, proposing a prothetic character of *x-* in Iranian; similarly Hoffmann & Forssman 1996: 109 for Avestan *xšuuvaš* < **švaš* < **svaš*.)

Anatolian:

? > > > Hittite 6-az "6" (Eichner 1992: 52: 617/p II 10'ff. *ma-a-an 2-az-ma* (11') [KASKAL-az *na-as-ma*] 3-az 4-az 5-az 6-az 7-az KASKAL-az; cf. abl.sg. *damedaz* "other") (6?)-an & 6-na "6th".

(Eichner 1992: 83)

So far the real form of the numeral "6" in Anatolian is unknown. There are only hypothetical possibilities to interpret similar forms in some non-IE languages as probable borrowings from an Anatolian source:

(a) Hurrian *šeeže* "6" (graph. *še-e-ši-e*) (Wilhelm, *Orientalia* 61 [1992]: 134); there are several probable IE / Anatolian borrowings in Hurro-Urartean (Gamkrelidze & Ivanov 1984: 883). On the other hand, a borrowing from Akkadian *ši/eššum* "6" looks more convincingly (Neu 1989: 298, fn. 12).

(b) Kartvelian **ekšw-* "6" has been compared with IE "6" beginning with F. Bopp (1847). Now it is generally accepted that **ekšw-* represents a borrowing from some IE source (Klimov 1967: 308 and 1991: 331).

Considering that there are some mutual borrowings between Kartvelian and Anatolian (Gamkrelidze & Ivanov 1984: 897–898), the latter could belong to the candidates for the donor language - besides Armenian and Indo-Aryan or even Indo-Iranian. The Indo-Aryan / Iranian candidature can be supported by the exact correspondence in the initial cluster **Ksw-* / **(-)kšw-* and independently by the Kartvelian **o(š)txo-* "4" (Klimov 1977: 162–163), remarkably corresponding exactly to Indo-Iranian **ačta-* (giving in dual "8"), reconstructed on the basis of Av *ašti-* "four fingers breadth" (Henning 1948: 69).

(c) Etruscan *ša* has been usually translated as "4" (cf. e.g. Bonfante 1983: 78–79), although there are serious arguments preferring that it means "6", e.g. the lowest frequency of the numeral "6" in confrontation with "4" and "5" in various languages, corresponding with the lowest frequency of *ša* within the triad *huθ*, *maχ*, *ša* representing the numerals "4", "5", "6" regardless of the concrete values (Mańczak 1983: 103–05), or with the results of the statistical analysis of the age of death, documenting the correlation between the highest frequency of

death of quinquagenarians and the numeral *muvalχ*, hence “50”, while the second position occupied by sexagenarians indicates the value “60” for *sealχ*, the second most frequent numeral expressing age (Stoltenberg). On the other hand there is an important evidence supporting the identification of the value “4” with the numeral *huθ*, cf. the witness of Stephanus Byzantius.. Ἀὐτῆ (ἡ Ἀττικὴ Τετράπολις) πρότερον ἐκαλεῖτο Ὑττηνία (see Oštir 1921: 34; cf. the discussion of Vetter, *Sprache* 8 [1962]: 133f). If we accept the meaning “6” for Etruscan *sa*, it is legitimate to think about possible relations to its Indo-European counterparts. It is evident that among the known forms there are no outstanding resemblances. And so independently on the interpretation of the Etruscan-Anatolian relations (cultural / areal / genetic) the unknown Anatolian forms offer a certain chance.

But there is also a possibility of an internal evidence, namely in Hittite metrology. There are the following length units: *gipessar* (“ell”) \cong 2 *sekan-* (“span”) = 12 *waksur*. It means that *waksur* represents one sixth of *sekan-*. On the other hand, the term *waksur* also served as a measure of capacity and even of time (Friedrich 1952: 110, 189, 242; Hoffner 1967: 57–58). This polyfunctionality would be natural, if *waksur* was derived from the numeral “6” or its fraction $\frac{1}{6}$ (< **wek̂s-wr̂* ?) as Latin *sextārius*.

These thoughts are tempting, but they remain on the level of mere speculations.

Armenian:

**swek̂s* “6” > **-hweĉ* > Armenian *veĉ* (medially and in sandhi Armenian *v* can be derived from **sw*, cf. Hamp 1978: 84–85; Viredaz 1997: 115 derived it from Sievers-Lindeman’s variant **suwēks*).

**swek̂s*-[*d*]kontH₂ “60” >> Armenian *vat̂’sown* (Viredaz 1997: 116 mentioned the same cluster in *owt̂’sown* “80”); the numeral *veštasan* “16” with the apparently different medial cluster reflects another development - Huld (1997: 129) derived it from a metathesized form **..weŝk-dekam* > **weš-decam* > **weš-*

Viredaz (1997: 137) proposed a corruption of the manuscript, offering the emendation *ξέσσιξ < *έξέ-σιξ = Ionian-Attic έξά-σιχος. Concerning ξέσσιξ "measure of capacity" and its correspondence to Latin *sexārius* — see Chantraine 3: 765.

**swēk-to-* "6th" > Dorian (Crete) *φέκτος*, Homeric etc. *έκτος* (the expected *-*kst-* should have resulted in *-*χθ-*).

**swēks-[d]kontH₂* > **swēksH₁kontH₂* > **whēksēkonta* > *φεξήκοντα* (Argive, Laconian) or *έξήκοντα* (the length from *πεντήκοντα* < **penk^we-H₁kontH₂* - see Kortlandt 1983: 98f).

(Chantraine 2: 353; Lejeune 1972: 134–135; Schwyzer 1939: 590, 592)

Illyrian (?):

**seks-to-* > **sesto-* > *Sestus* (personal name)

(Hamp 1961: 52)

Albanian:

**seks-ti-* f. "6" > **sés-tā* > **g^yiæsta* > *gjashtë*.

(Hamp, *Word* 17 [1961]: 102; Id. 1978: 86–87 & 1992: 913; Demiraj 1997: 59–65 derived it from **o*-stem)

Venetic (?):

**sek-to-* > **seкто-* + **-yō(n)* > *Se.g.tio* 'Sextius' (personal name from the vase from Cadore).

(Lejeune 1974: 101, 142, 230; cf. also Szemerényi 1960: 77–78, fn. 48, who used the older transcription *Se.x.tio*. Viredaz 1997: 143–44 would prefer to see a Latin borrowing in this name, referring to other borrowed personal names derived from Latin ordinals: *Qvartio*, *Kvito*)

Italic:

**seks* "6" > **seks* > Latin *sex*, Oscan **sehs* in *sehsimbriis* "born in the sixth month" < **seksembrios*, cf. Latin *September* < **septumo-mēns-ri-*.

**seks-to-* "6th" > **seks-to-* > Latin *sextus*, cf. the proper name *Sestius*, Oscan *Ξεσσιξ*, Umbrian *sestantiaru* (Ig. 3.2) "sextentariārum, bi-monthly", i.e. "1/6-yearly" < **sekstent-āsia-som* (Hamp 1978: 86). Meiser (1986: 170, fn. 2) mentions the remarkable Etruscan anthroponyms *SESTCNA*, *-NEI*, *-NAL*, *SESUC-TUNA*, *-NAS*, *SESCATNA*, borrowed from a source of the type of Latin *Sextius* (with a regular substitution of the gentilic suffix *-ius* by Etruscan *-na*), besides *SEKSTALUŠ*, *SECSTINAL* or *SECSTUMINAS*; the latter form represents a borrowing of **Sextimius* formed after *Septimius*.

**seks-[d]knt(e)H₂* "60" > **seks[e]genta* > *sexāginta* (*ā* according to *quadrāginta*; *i* from *uīginti*).

(Coleman 1992: 395, 401, 411, 426)

Celtic:

**swēks* "6" > **swēks* > Old Irish *sé h-* (gen. *sé N*), cf. *seiss-er* "6 men" (*-er* < *fer* < **wīros*), *mór-fess-er* "7 men" = "an increased six men" (cf. Old Indic

mahāpaṅkti- “seven verse line”, lit. “big five” - see Greene 1992: 517–518 < Watkins), Welsh *chwe* & *chwech* (< **sewks* with *-e after **penk^we*), Cornish *whe* & *whegh*, Breton (Old) *hue*, (Middle) *huech*, (Modern) *c’houec’h*;

? Hispano-Celtic (Botorrita) *sues* (Eska 1989: 102–103; rejected by Meid 1993: 116–117); cf. Gaulish proper names *Σουεσ-τάσιον* (Ptolemy, Geogr. 2.6.64), *Suessiones* (Caesar, BGall 2.3.4.) etc.

**sewks-o-* “6th” > **sewksos* > Gaulish (La Graufesenque) *suexos* (Vendryes, BSL 25 [1925]: 37; Meillet, BSL 29 [1928]: 34; Hirunuma 1988: 43 admitted a shortening from **suexetos*).

**sewks-eto-* “6th” > **sewksetos* > Hispano-Celtic **suesset-* (tribal name *Suessetani* - see Schmoll 1959: 48; he also quoted the personal name *Setus* derivable from Celtic **sextos* < **sektos*); Old Irish *sessed*; Welsh *chweched* besides **sewksametos* > Cornish *wheffes*, Breton *c’houec’hvet* (remodelled after **sextametos* “7th” and **dekametos* “10th”).

**sewksu/ā-[d]kont-* “60” > **sewksu/ā-kont-* > **sessu/a-kont-* > Old Irish *sesca*, gen. *sescot* & *sescat*, dat. *sescait*.

(Greene 1992: 510–511, 515, 539–540; Vendryes 1974: S-59, 97)

Germanic:

**seks* “6” > **seχs* > Gothic *saihs*, Crimean Gothic *seis*; Old Icelandic *sex*; Old Saxon *sehs*, *ses*, Old High German *sehs* etc.

**sek(s)-to-* “6th” > **seχsta-* > Gothic *saihsta*, Old Saxon *sehsta/o*, Old Icelandic *sexti*, Norwegian *sekste* etc., besides **seχta-* > Old High German *sēhto*, Old Icelandic *setti* (cf. *setr* “Sechzahl”).

(Lehmann 1986: 290–91; Ross & Berns 1992: 585, 617, 628–629)

Balto-Slavic:

*[K]s[w]e^ks “6” > *[K]seš > *šeš > Lithuanian *šeši*, Latvian *seši* (Latvian -š- < *-sj-, cf. Stang 1966: 278); Yatvingian *sziasz* (Zinkevičius 1984: 18–18); Common Slavic **šestī* (with the abstract suffix *-ti- or remodelled according to

*([K]s)uks-to- "6th" > *([K]š)ušta- > *ušt(a)s = Old Prussian m. *vschts* & *wuschts*, f. *uschtai*, acc. *vschtan*. In *u-*, Pedersen, *IF* 5[1895]: 86 saw a prothetic vowel, reconstructing the starting point *štas. Stang (1966: 279) admitted both the protoforms *uktos and *suktos, the latter with the dissimilative loss of expected *s-, while -š- has been explained as the reflex of *-sj- expected in an unattested cardinal, cf. Lithuanian nom. f. *šėšios* (Stang l.c.; Comrie 1992: 755)

*[K]s[w]eks-to- "6th" > Lithuanian *šėštas*, Latvian *šeštais* (derived from the cardinals); Old Church Slavonic *šestъ*, Bulgarian *šesti*, Slovak *šiesty*, Czech *šestý*, Polabian *sestě*, Polish *szósty*, Russian *šestój* etc.

(Comrie 1992: 755; Smoczyński 1989: 73–77; Szemerényi 1960: 111 reconstructed the development *(k)seks "6" > Slavic **še and *(k)sektos "6th" > Slavic *šestъ, thus demonstrating the influence of the ordinal on the remodeling of the cardinal)

Tocharian:

*s[w]eks "6" > Common Tocharian *šəkəs > A *šäk(k)*, B *škas(s)*, *škass-o*, *škäs(s)*.

*s[w]eks-to- "6th" > Common Tocharian *šəkəstV > A *škäšt*, B *škaste* & *škäste*.

*s[w]eks-[d]kntH₂ "60" > Common Tocharian *šəkəska > B *škaska* & *škäska*, A *säksäk*.

(Winter 1992b: 108, 120, 137; similarly Pinault 1989: 61; Hilmarsson 1991: 152 tried to prove that the development *swe- > A šä- is regular; Klingenschmitt 1994: 329 reconstructed *konts > *kōs > Common Tocharian *-kā for tens).

§2. Reconstruction:

There are various attempts to reconstruct the original protoform. The following reconstructions represent the minimum (1) and the maximum (5) forms and their compromise (2) together with their laryngealistic (3) or lateral sibilant (4) reinterpretations:

(1) cardinal *weks vs. ordinal *ukso- (Szemerényi 1960: 78 with lit.; Beekes 1990: 255);

(2) *sweks (Brugmann 1892: 476 besides other possibilities; Mayrhofer 1986: 168 quoting also Sievers-Lindeman's variant *suweks; Viredaz 1997: 112–50);

(3) *sH₂eks (Ehrt 1970: 97–99);

(4) *šek^(h)s > *swek^(h) (Gamkrelidze & Ivanov 1984: 845, 849);

(5) *ksweks (Hamp 1978: 87; cf. already Vaillant, *BSL* 44/2 [1947–48]: 129) or *ksweks (Fay 1910: 419)

§3. Etymology:

There are some rather outdated etymological attempts; their value is only historical:

(i) Stewart (1906: 242) derived the numeral "6" from the root *seg^h- "to

overcome" etc. Semantically it is acceptable, but this solution does not explain the presence of *w at least in some dialects and the fact that the cluster *g^hs continues in Avestan ž, cf. *vazənti* "sie ziehen" vs. aor. *uz-uuažat* "fahren", and further Old Indic *váhati* "drives, rides, guides" vs. aor. conj. *vakṣati*, Greek (Pamphylian) *φεξέτο* "soll bringen" vs. aor. conj. (Cypriote) *ἔφεξε* (Mayrhofer KEWA III: 178 and 1989: 9).

(ii) Fay (1910: 419) reconstructed **kswéks*, but he based his analysis on the ordinal **kswéksthō* < **ksu-éks-stHō* "co-ex-stans", cf. Greek ξύν "co-", Latin *ex* "out". It was supposed to designate 'the second thumb'. But the author himself admitted that *ex* originated from **eg^hs* (cf. Greek Locr. ἐχθός).

Let us analyze the etymologies implied by the reconstructions collected in §2:

(a) Probably the most popular etymology derives the numeral "6" from the root **H₂weks-* "to grow, increase" (Old Indic *vakṣ-* & *ukṣ-*, Avestan *vaxš-* & *uxš-*, Greek ἀέξω), consequently "6" = "the increase" after the first "hand" (Szemerényi 1960: 79, fn. 55; the first proponent of this solution was probably A. Nehring in his course given in Wintersemester 1928–29). Semantically it is fully acceptable, cf. e.g. Beja (Cushitic) *asa-gwəl/r* "6" vs. *gal/r* "1" where *asa-* forms the numerals 6–9. Reinisch (1894: 7, § 145b) interpreted it as a participle of the verb *as-* "to be/become/go up". Similarly Dravidian **cāru* "6" can be analyzed in **cāl-tu* where **-tu* is the neuter marker and the root proper corresponds with **cāl-* "to be abundant, full, enough" (Andronov 1978: 245) or Umbundu (Bantu) *epandu* "6" vs. *panda* "to proceed, advance, approach" etc. (Hoffmann 1952–53: 65). But there are phonological problems. If we accept the Greek example, traces of the initial laryngeal **H₂-* > Greek α- (Beekes 1969: 89) would be also expected in the case of the numeral "6" (**á[ɸ]eξ?). Indo-Iranian and Balto-Slavic examples indicate unambiguously the satem reflexes of **-ks* differing from the velar in **H₂weks-*, orig. **H₂wegs-*, cf. another apophonic grade **H₂eug-* > Latin *augeō*, Gothic *aukan*, Lithuanian *augti* etc. (Beekes 1969: 89). Both discrepancies imply an incompatibility of *(s)*wéks* and **H₂weks-* < **H₂wegs-*.

if the development **sm-weks* "one grows" > **swweks* > **sweks* is possible. But it cannot be proved. Maybe a better solution is the compound of **sēm̃s* / **sōm̃s* & **weks*, reinterpreted as **sēm̃* / **sōm̃* & *sweks* "growing [up] all" = "6". Finally, the demonstrative stem **so-* could also represent the first member of the syntagm **s(o)-weks* "that grows" or sim., but all these speculations remain doubtful.

(b) Erhart (1970: 97–99) reconstructed two basic variants which differ only in the order of their components:

**ks-H^we* "3 x 2" and **H^we-ks* "2 x 3"

supposing their mutual contamination or even a merger in their later development. A similar multiplicative principle is rather rare; a good example can be Yukaghir (Kolyma) *ya'loi* "3" vs. *ma'lyyaloi* "6" where the first component corresponds with *malyur* "on both sides" (Tundra dialect) (Jochelson 1905: 113; Krejnovič 1982: 114–117). The weakest point of this elegant hypothesis is that the meaning "3" of the component **kes-* is not attested.

(c) The lateral sibilant **š-* hypothesized by Gamkrelidze & Ivanov 1984: 845, 849 on the basis of the fluctuation **sw*/**s*/**w* opens an unexpected solution: a borrowing from a source related to North-West Caucasian (= Abkhazo-Adygean) **səχcə* > Abaza *c-*, Abxaz *f-*, Ubykh *fə*, Circassian *xə* "6" (Colarusso 1994: 17, #76). Let us mention that Nikolaev & Starostin (1994: 219) reconstructed **ʃV*. In this connection Kartvelian **eksw-* "six" (Gamkrelidze & Ivanov 1984: 878) analyzed above should also be mentioned. It is probably a borrowing from an early Indo-European dialect (Klimov 1967: 308; Id. 1991: 331).

(d) Sometimes the most complex reconstruction **Ksweks* raises fears by its monstrosity (Winter 1992a: 14). But there are further similar creatures among IE etymons, e.g. "tear", "tongue" etc., successfully analyzable as original compounds. Let us try to analyze our **Ksweks* in a similar way. Accepting the identification of the component **-weks* with the root **weks-* "to grow" as discussed above (a), it is natural to seek the sense of the first component **Ks-*.

Probably the first who speculated about "6" as the compound "hand" & "increase", was Merlingen (1958: 50, 67), reconstructing **xes-weks*. His assumption, from the viewpoint of semantics undoubtedly plausible, was very sharply criticized (Szemerényi 1960: 79, fn. 55 "M's extravagant assumptions are not helpful"; cf. also Nehring 1962: 129). Their criticism is certainly justified concerning the first component **xes-* postulated by Merlingen. It is really a pure invention without any comparative etymological basis. The same can be said about his comparison of **xes-* with Akkadian *hamšu*, *haššu* etc. "5". His last example - Hittite *kessar* "hand" - is more promising, although it cannot be derived from any **xes-*. The generally accepted etymology connects Hittite *kessar* with Luwian *issari*, Lycian *izri*, Armenian *jeṛn*, Greek *χείρ*, Latin *(h)īr* "hohle Hand", Tocharian A *tsar*, B *šar* < **ĝ^hes-ṛ / -ōr* and Old Indic *hāsta-*, Avestan *zasta-* etc. < **ĝ^hes-to-*. The hypothetical compound would have had the form **ĝ^h(e)s-weks*. If we accept the loss of the initial consonant, a "compromise" protoform (2) appears. But there is also **K-* reconstructible in Indo-Iranian, Greek and perhaps Balto-Slavic (if the traces of the initial velar were not caused

by the influence of *k* of the preceding numeral *penk* "5" in sandhi). The reduced group *g^hs* would really give Indo-Aryan *kṣ* and Greek ξ [ks], cf. Old Indic *váhati* "drives, rides, guides" : aor. conj. *vakṣati* and Greek (Pamphylian) *φεξέτο* "soll bringen" : aor. (Cypri.) *ἔφεξε* (KEWA III: 178). The situation in Iranian is more problematic. The initial cluster preserved in Av *xš* and perhaps Greek ξ can probably reflect only *ks* (Beekes 1988: 79), while *k^hs* changes in Avestan *š* (Beekes 1997: 10). On the other hand, *g^hs* gives regularly Avestan *ž*, cf. aor. *uz-uuažat* "fahren" (Mayrhofer 1989: 9; but secondary also *š*, e.g. *vašata* "er wird fahren" - see Hoffmann & Forssman 1996: 96). It is not accidental that *ž* is practically absent in the initial position. Bartholomae (1904: 1717) quoted only *žgar-* "to flow" - a variant of *γžar-* id., besides *žnauu-* & *žnu-* "knee" with a variant (*x*)*šnauu-* and *žnātar-* "knower" - a derivative of *xšnā-* "to get to know" - in both cases *x-* is prothetic before the cluster *-šn-* (Beekes 1997: 11). A similar tendency probably appears before the cluster *(-)*šm-**: *xšma-* "euch" < **šmá-* (Hoffmann 1965: 254). The absence of the initial cluster **šuu*^o in confrontation with the well documented cluster *xšuu*^o would imply that also here *x-* is prothetic (cf. Viredaz 1997: 132 concerning the general rule **šC-* > **xšC-* in Avestan). Sometimes there could also have been two variants ***žvaš* & *xšuuvaš* and the latter has eliminated the former.

Finally, the assumed starting point **g^hs-weks* could also have changed into **ksweks* continuing in (some) historical records, via palatal dissimilation through **g^hsweks*, in agreement with the rule not allowing the presence of the identical consonants in the same root / stem (Gamkrelidze & Ivanov 1984: 18, 96–98). The change **g^hs* > Avestan *xš* (and Old Indic *kṣ*) is documented, cf. *gah-* "to eat" vs. reduplicated perf. *jaxš-* (Hoffman & Forssman 1996: 234).

§4. External parallels:

There were also attempts to find external parallels. Some of them are discussed above (see the Anatolian section). They probably represent Indo-European borrowings in some neighboring languages. It remains to analyze the

playing a crucial role thanks to rich and diverse data, the following scenarios are plausible: (i) $*g^sweks$ via palatal dissimilation $*g^sweks > \text{Indo-Iranian } *kšwacš > \text{Iranian } *xšwaš$ and Indo-Aryan $*(k)šwaṣ$; (ii) $*g^sweks > \text{Indo-Iranian } *j^šwacš > \text{Iranian } *žwacš > \text{Avestan } *žuuāš \sim xšuuāš$ (Hoffmann & Forssman 1996: 103 reject the development $*ks > \text{Avestan } xš$, but the variants $žC- \sim šC-$ also imply the variant $xšC-$ where $C = y$, cf. Hoffmann & Forssman 1996: 102–03; see also above); (iii) $*g^sweks > *sweks > \text{Indo-Iranian } *swacš$ assimilated in $*šwacš > \text{Iranian } *xšwaš$ (with the prothetic $x-$ in agreement with the rule $*šC- > xšC-$, see above) and Indo-Aryan $*šwaṣ$. These solutions are ordered according to degressive probability.

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