

Indo-European Astronomical Terminology in the Near Eastern and Northern Euroasian context

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Abstract: Etymological studies have long tried to establish common IE designations for astronomical terminology by comparing Anatolian and non-Anatolian branches of Indo-European languages. This overview recapitulates and expands on the current state of research, detailing the cases in which correspondence between the two branches could not be found, and whether other linguistic roots can be suggested.

The most archaic Indo-European terms designating celestial bodies are those whose roots can be reconstructed for both Anatolian and non-Anatolian Indo-European. Only ***H₂ster-* “star” fulfills this condition. In the case of the non-Anatolian ***seH₂uel-* “sun” and ***meH₁ns-* “moon”, attempts have been made to identify etymological Anatolian counterparts, but the results of such efforts are not generally accepted. The word for “sun” may originate from the Nostratic protolanguage, while for “star” borrowing from Semitic is not excluded, and the designation for “moon” probably expresses the basic idea of “measure of time”. Non-Anatolian languages feature several other terms which are attested in at least two branches. In some cases, they probably reflect independent formations: for example, ***H₂rey-i-* “sun” (but “moon” in Old Irish), **loyk(e)sno-/(e)snā* “moon” < “light”, and **(s)ke/ond-* “moon”. The Balto-Slavic **ġ^(h)uoįsd^(h)ā* equally represents a local dialectism which may be derived from the compound **g^{uh}/ġ^{uh}uoįd-* “shining [spot]” and ***d^heH₁-* “to put” or ***steH₂-* “to stand”.

Also remarkable are the common semantic models that emerge in the designations of some constellations, namely the Pleiades = “basket or sieve”, “numerous” or “seven stars”, and Sirius = “(belonging to) three stars”, which appear across Northern Eurasia, especially in the Fenno-Ugric languages.

Key Words: etymology, Indo-European languages, astronomical terminology, celestial bodies

The main celestial bodies, i.e. the Sun, Moon and the stars carry names which are preserved by the majority of the Indo-European branches. Alternative designations are evidently of a later origin. The following lexicographical charts offer a comparative overview of the relevant astronomical terminology.

I. SUN

1. Indo-European **seH₂ul̥*, gen. **sH₂uens* (reconstruction: Beekes 1984, 5-8; data: P 881)

1.1.1. Indo-Aryan: Sanskrit *svàr* and *sívar*, gen. *súrās* n. “Sun, sun shine, sky” < **suH₂el*, gen. **suH₂los*, further masculines *súrya-*, *sūr(i)yā-* “Sun, the God of the Sun” and *súra-* “Sun” < **suH₂lijo-* and **suH₂lo-* (EWAI II, 742; 793-94).

1.1.2. Old Iranian: Old Avestan *huuarə*, gen. Young Avestan *hūrō* (= Vedic *súrās*) next to Old Avestan *xʷəng* “Sun” < **xuuəng* < **huuəŋh* < **suH₂éns*;

Middle Iranian: Sogdian *γwr*, *xwr* /*xwar*/ /*xur*/ < **huuar*, besides *γwyr*, *xwyr* /*xuwər*/ /*xōyr*/ and Khwarezmian *ʾx(y)r*, *xyr* id. < **hūrija-*; Middle Persian *xwr^M*, *hwl^Z* /*xwar*/ (ESIJ 3, 438f);

Modern Iranian: Persian *xwar*, Yaghnobi *xur*, Ossetic Iron *xūr*, Digor *xor* “Sun”, Pashto *nwar*, dial. *nmar*, *lmar* id. < **V-nhwar* < **huar-* (NEVP 59); Yazghulami *xəvūr* < **huuar-*, Shughni *xīr*, Wakhi (y)*ir* < **hūr-* (ESIJ 3, 438f).

1.1.3. ?Armenian *owlp* “Sun, shine, glitter”, used in compounds and derivatives; the final *-p* is perhaps derivable from *pʼail* “shine”, *pʼailem* “I shine”, *pʼalpʼalim* “I shine” (cf. Petersson 1926, 75; the forms in *pʼ-* are quoted after Pokorny 1959, 987). The original compound could mean “sun shine”.

1.1.4. Greek Attic ἥλιος, Homeric ἠέλιος, Doric ἀέλιος (= ἄελιος), ἄλιος, Cretan ἀβέλιος (Hesychios; β is one of the graphemes which Hesychios used to transcribe *u*) < **sāueliio-* < **seH₂uel-* (Beekes 2010, 516).

1.1.5. Albanian *diell* “Sun” < **suel-* < **suHel-* (Hamp 1975a, 101).

1.1.6. Italic: Latin *sōl*, gen. *sōlis* m. “Sun” < **seH₂ul̥* (Beekes 1984, 5-8; Schrijver 1991, 258).

1.1.7. Celtic: Welsh *haul*, Old Cornish *heul*, Old Breton *houl*, Breton *heol* “Sun” < **sāul-* (Hamp 1975a, 98), with possible parallels in Gallo-British names and attributes of goddesses such as *Nanto-suelta* (“a sunny valley?”), *Sulis* – a goddess worshipped around the town Bath (= *Aquae Sulis*) in southern Britain, *suleviae* – an attribute of Gaulish Minerva, although some other explanations are also possible (Delamarre 2001, 236, 242-43). Even Old Irish *súil* f. “eye” is sometimes also counted here (Matasović 2009, 324). That is because a metaphoric shift from “Sun” < “eye” might have occurred. In this case, the original would be dual **sūle* (**suH₂l-eH₁*) according to Bammesberger (1982, 155-57).

N-stem appears in Middle Welsh *huan* “Sun, sunshine; shining, sunny”, which reflects Celtic **suuono-* or **suuano-* < ***suH₂-on-* or ***suH₂-en-* (Schrijver 1995, 334), and probably also Gaulish *sonnociŋos* “trajectory of the Sun” = “year” from the Coligny calendar (Delamarre 2001, 236).

1.1.8. Germanic **sōwila-* > Gothic *sauil* n. “Sun”, cf. Old Runic NV *Sawilagaz* (Lindholm, Sweden, 300 AD), next to **sōwulō* > Old Icelandic *sól* f. id., cf. Runic (Eggjum, Norway, 700 AD) dat.-instr. *solu* id. “Sun”; it appears also among the names of the runes, *sōl* (Abecedarium Normanicum), *soulu* (Codex Leidensis). The *n*-stem **sunōn*, gen. **sunnez* > Gothic *sunno*, Crimean Gothic *sune*, Old High German *sunna*, Old Frisian, Old English *sunne*, Old Icelandic *sunna* is more widespread; all preceding forms are feminine, besides Old Saxon *sunno* m. Another significant derivation is the Germanic word for “south, southern”, namely Old High German *sundar*, Old English adverb *sūþ*, Old Icelandic *súðr* (Lehmann 1986, 297, 330).

1.1.9. Baltic: Lithuanian *sáulė* f., Latvian *saūle*, Prussian *saule* “Sun” < **sāuliā*.

1.1.10. Slavic: Old Church Slavonic *slъnъce* n. “Sun” < Proto-Slavic **slъnъce* < **sulniko-* < **sH₂ul-ni-ko-*.

1.1.11. Tocharian A *swāñce*, B *swāñco* f. “ray of light” < **sueH₂ñtiā(-en-)* or **suēH₂nikīā* (Adams 1999, 725).

{1.1.12.} Starke (1990, 342-43) interpreted Cuneiform Luwian *šeḫuwal-/šiwal-/šiwān-* n. as “lamp” (recorded ^{URUDU}*š̄i-wa-al da-aš-šu* reveals that it designates a heavy copper lamp [= URUDU]), deriving it from **sēH₂uol-ó-*, which should be the vřddhi lengthening of the original stem **sēH₂ul̄*. Now it has been generally translated as “sharp, probably pointed, tool”, cf. *šiwai-/šiwī-* “sharp, bitter” (*CHD* 2013, 486). As it appears, the original IE word for “Sun” was replaced by a derivative formed by the *-ot*-suffix from the word for “day(light)” in the Luwian subbranch, while in Hittite it was replaced by ^d*Ištanu-*/^d*Aštanu-* “Sun, Sun-god(dess), solar deity”, adapted from Hattic *Eštan-* / *Aštan-* “Sun(- god), day”. The primary IE term for “Sun” may be hidden in the Hittite semi-logographic record with phonetic complement ^dUTU-*liya* [KUB xvii 19.9], where the Sumerogram UTU designated “Sun”. Puvel (1-2, 465- 66) reconstructed its reading as ⁺*Saweliya-*, to find the correspondence with proto-Greek **hāuelijos* (see §1.1.4.). It is tempting to take in account the Hittite theonym *Šuwaliyaz*, gen. *Šuwaliyattaš*, dat. *Šuwaliyatti* etc. Let us mention that *Šuwaliyaz* has been frequently referred to alongside another Storm-God, e.g. ^dIM-*aš=kan* ^dŠu-*ua-li-ja-za-aš-ša kat-ta-an-ta ta-an-ku-wa-i ták-ni-i i-ya-an-ni-ir* “Teššub and Šuwaliyaz were going down in the dark earth” [KBo 32.13, obv. I & II, 9-10] (Tischler 2004, 1226-27; Burgin 2017, 117). The theonym would correspond to Vedic *súvar-/svàr-* in its apophonic grade and to Vedic *súrya-/súriya-* m., proto-Greek

**hāuelijos* m. in its suffixal extension.

1.2. Etymology: The original reconstruction is vital for the etymological interpretation.

1.2.1. Benveniste (1935, 11-12) ranked this word among the heteroclitic *l/n*-stems. Schindler (1975, 1-10) and Beekes (1984, 5) reconstructed the basic paradigms **seH₂-ul* : gen. **sH₂-uen-s*, similarly as **peH₂-ur* : **pH₂-uen-s* “fire”. External support for this kind of reconstruction can be found in the Altaic languages. A common Nostratic origin for the word designating “Sun” should not be surprising: Illič-Svityč (1967, 366) was the first to compare Indo-European and Altaic data, but only with a preliminary Altaic reconstruction **sibV*. Altaic data were only specified later by Starostin, Dybo and Mudrak in their monumental work *Etymological Dictionary of the Altaic Languages*, volume II (Leiden-Boston: Brill 2003), 1274: Tungusic **sigūn* “Sun” > Evenki *siyūn*, Negidal *siyun*, Ulch, Nanai. *siu(n)*, Manchu *šun* and others | Middle Korean *hǎi* “Sun” | Proto-Japanese *suà-rá* “sky” > Old Japanese *swora*.

1.2.2. An alternative theory assumes that *l* is a part of the Indo-European stem and *n* only appears in oblique cases. In this case, the origin is considered to be the root **suēl-* “to burn” (P 1045) > Sanskrit *svárati* “shines”, *svargá-* m. “sky” | Greek εἶλη, εἶλη, ἔλη f. “heat or shine of the Sun”, ἀλέα f. “heat of the Sun”, γέλαν ἄνγην ἡλίου = Laconian βέλα (Hesychius), cf. further ἐλάνη “torch”, ἀλεινός “hot” | ?Latin *sulpur* “sulphur”, possibly “smouldering fire”, cf. Old English *cwic-fȳr* “sulphur”, literally “quick fire” (Mann 1984-87, 1344-45) | Old English *swelan* “to burn (down), flare (up)”, Middle Low German *swelen*, German *schwelen* “to burn”, Old Icelandic *svāla* “to smoke/bloat” and others | Lithuanian *svelti* “to burn”, *svilù* : *svilti* “to sunbathe, anneal; burn without a flame”, *svilis* “heat, fever”, Latvian *sveļu* : *svelt* “to sunbathe, anneal” | Tocharian A *slam*, B *sleme* “flame” < **swleme* < **suolmo-* = Old Low German *swalm* “thick fume” (Adams 1999, 724). This theory also finds support outside of the Indo-European area as Dolgopolskij (1974, 170) has proved. The Danish scholar Prasse (1974, 126-27) reconstructed the protoform **ā-ziHil*, pl. **ṭ-ziHlān*, which is attested in the Southern Berber languages (= Tuareg): Ahaggar *ahəl*, pl. *ihilān*, Awlemidden *azəl*, Ayr *āzəl* “day”; Northern Berber: Shilha *azāl* “daylight”, Kabyl *azal* “sunshine, daylight, Sun”, and also in the Guanche language of the Canary Islands: *zeloj* “Sun”.

2. Indo-European ***H₂reu-i-* (P 873)

2.1.1. Indo-Aryan: Sanskrit *ravi-* m. “Sun, the God of the Sun”.

2.1.2. Armenian *arew* “Sun”, cf. also the compound *areg-akn* id., literally “sun-eye”.

2.1.3. ?Celtic: Old Irish *ré* “interval, span”, especially in terms of time, sometimes also “lunar phases”, which served as a basis for “moon” as well as for “month”; pl. *inna rei* “(sky) space”. The Celtic protoform **reu-īā* (Vendryes, *LEIA* 1974, R-10) is also related to the preceding forms as already assumed by MacBain (1911, 288).

2.1.4. ?Anatolian: Lydian *ora-* “month”, if the primary meaning was “moon” and if it is derivable from **aura-* < **aruā-* (Oettinger 2016-17, 256-57), may reflect **H₂oruo-/eH₂-*.

2.2. Etymology: The key to the etymology may be Hittite *ḫarwanae-* “to get light, dawn” (Eichner 1978, 156; *EWAI* II, 440; Kloekhorst 2008, 318: **H₂ruon^o*).

2.3. Note₁: There are several lexical innovations replacing the original term “sun” in Iranian:

2.3.1. Parthian *myhr* /*mīhr*/, Middle Persian *myhr*^M, *mtr*^Z /*mīhr*/, Sogdian *myr* /*mēr*/ or /*mīr*/, Bactrian *mīro*, *mīri*, *miuro*, *meiro*, Pashto *myēr*, Wanetsi *mīr*, Ormuri *mēš^r*, Munji *mīrō*, Yidgha *mīra* “sun” – all these terms represent a transformation of the name of the solar deity known in Young Avesta as *miθra-* “god of contract” (Blažek & Schwarz 2017, 256, 273, 310).

2.3.2. Khotanese *urmaysda* < **ahura-mazdāh*, Sanglichi *ormōzd*, Ishkashimi *rémūzd* “sun” – originally the deity *Ahura Mazda*h (Bailey 1979, 40; Steblin-Kamenskij 1999, 426).

2.3.3. Persian *ruz*, Baluchi *rōč*, Kurdish *rō(ž)*, Zazaki *rož*, Parachi *ruč* “sun” vs. Avestan *raoča-* “light, lux”, Old Persian *rauča-*, Parthian *rōž*, Sangisari *rōč* “day” < Iranian **rauča-* < IE **louk-es-* (Blažek & Schwarz 2017, 256, 291).

2.3.4. Ormuri *tōa/tūwā/toawī*, Kurdish *tav*, Persian *āftāb* “sun” < **(abi-)tap-*; cf. Persian *tāb* “light”, Avestan *tap-* “heat” (Blažek & Schwarz 2017, 256, 291).

2.4. Note₂: In Anatolian languages another term for “sun” was used, which can be reconstructed as the *t*-stem **d̥ieṷ-ot-*: Palaic *Tiyat-* “Sun-god”, Cuneiform Luwian ^(d)*Tiwad-* “Sun-god”, gen.adj. ^d*tiwadašši-*, adj. *tiwaliya-/tiwariya-* “of the Sun-god”, Hieroglyphic Luwian ^{DEUS}*tiwad(i)-* “Sun-god”, besides Hittite ^(d)*šīwatt-* “day”, *anišiwat* “today” (Kloekhorst 2008, 766: nom. **d̥ieṷ-t-s*, acc. **d̥iṷ-ót-ṃ*, gen. **d̥iṷ-ot-ós* > Anatolian nom. **d̥ieṷots*, acc. **d̥iṷōdom*, gen. **d̥iṷodós*; concerning the word formation, related is Sanskrit *dyut-* “shine”).

II. MOON

3.1. ***meH₁ns^o* (P 731-32)

3.1.1. Indo-Aryan: Sanskrit *mās-* m. “moon, month” < ***meH₁ns-*. Already Ṛgveda shows also the *o*-stem *māsa-* m. “month” (EWAI II, 352-53).

3.1.2. Iranian: Old and Young Avestan nom.sg. *mā̊*, Young Avestan gen.sg. *mā̊hō*, also *o*-stem *mā̊ha-* “moon, month”, Old Persian *māh-* “month”, Parthian *m’h /māh/*, Middle Persian *m’h^{M,Z} /māh/*, Persian *māh* “month, moon”, Kurdish *meh, māh*, Sangisari *muong*, Sogdian *m’x, m’γ*, Khwarezmian *m’h*, Bactrian *ma(u)o*, Ossetic *mæj / mæje* id., Parachi *mahōk* id., besides the derivative **mās-ti-* > Khotanese *māstā*, Pashto *miyāst*, Shughni, Roshani *mēst*, Yazghulami, Sarikoli *māst* id. (Bailey 1979, 331), and such the compounds as Ormuri *maryōk* < **māh-rauka-* “moon-light”, or Zazaki *āsmī*, Pashto *wažmaī* < **uaxša-māhī-kā-* “growing moon”, *spožmaī* < **spaśsa-māhī-kā-* “visible moon” (NEVP 75; Blažek & Schwarz 2017, 250, 284, 268, 304).

Note: There are several lexical innovations replacing the original term “moon” in Iranian:

3.1.2.1. Munji *yūmayikə*, Yidgha *imoγó*; Wakhi *mak*; Kurdish *heyv, hēv, hīv* (Cabolov I, 444) < **haumaka-*; further cf. Khwarezmian ^(’)*xmyk* id.; Sanskrit *soma-* “soma; moon” (Steblin-Kamenskij 1999, 230).

3.1.3. Armenian *amis*, gen. *amsoy* “month” is obviously composed of the word *am* “year” and the word for the moon itself, which Olsen (1999, 48) reconstructed as *o*-stem **mēnso-*. Hamp (1975a, 381) argued *contra* that it originates in a compound of the numeral “one” and the *s*-stem “moon” **sm̥-mēns-es-*.

3.1.4. Greek Homeric μήν, gen. μηνός, Attic μέις, Doric μής, Aeolic μέυς, gen. μηνός = Mycenaean *me-no*, Lesbian μῆννος “month” reflects Proto-Greek **mēns*, gen. **mēnsos*. Already in the *Iliad* we can find f. μήνη (*μηνσᾶ) “moon”. The Phrygian gloss Μαζεύς · Ζεύς παρὰ Φρυξί (Hesychius) may reflect Phrygian **mas-deos* < **meH₁ns-d^hə₁sos* “moon-god” (Lubotsky, p.c.).

3.1.5. Albanian *muaj* ~ *muej* m. “month” < **mēn-* (Hamp 1983, 381) or < **mēsŋo-* (Orel 1998, 276).

3.1.6. Italic: Latin *mēnsis*, gen.sg. *mēnsis*, gen. pl. *mēnsūm* “month”; Umbrian abl.sg. *menzne* “moon”, Marsian loc./abl.sg. *mesene* “month” < **mēns(e)n-(e)i*; cf. also Latin *intermenstruum* “new moon” = Umbrian gen.pl. *anter:menzaru* (Untermann 2000, 472; 109-10);

3.1.7. Celtic: Old Irish *mí* m., gen.-dat. *mís* “month” < **mēns(s)*, gen. **mēnsēs*, Middle Welsh, Old Cornish, Old Breton *mis* id. (Matasović 2009, 272) < Celtic acc. sg. **mīnsan* < **mēns-ŋ*; the Gaulish abbreviation *mid* id. from the Coligny Calendar may reflect **mēnts*^o (= Celtic **mīns*^o) with a specific development of the consonant cluster *-ns-* > *-nts-*, which is known from, for example, the Lepontic language; the grapheme *d* serves here to designate the so called *tau gallicum*, the consonant cluster *-ts/-st-* (Delamarre 2001, 191-92).

3.1.8. Germanic **mēnōn* “moon” > Gothic *mena*, Crimean Gothic *mine*, Old High German, Old Saxon *māno*, Old Frisian, Old English *mōna*, Old Icelandic *máni*; **mēnōþ* “month” > Gothic *menopþ*, Old High German *mānōd*, Old Saxon *mānuth*, Old Frisian *mōnath*, Old English *monaþ*, Old Icelandic *mánaðr* (Lehmann 1986, 251; Kroonen 2013, 365).

3.1.9. Baltic: Lithuanian *mėnuo*, gen. *mėnesio* “moon, month”, Latvian *mēnesis* id., dial. *mēness* “moon”, *mēnesis* “month”, Prussian *menig* “moon” with a change (possibly a scribal error) of the expected *s* for *g*. The Lithuanian nom. sg. is usually derived from **mēnōn*, but Beekes (1982, 54) prefers to consider **mēnōt* to be the original form.

3.1.10. Slavic: Old Church Slavonic *měsęcь* “moon, month” reflects early Slavic **mēsinko-*, which is usually derived from the protoform **mēsŋ-ko-* while we assume a dissimilative loss of *n* in the first syllable (as an example, cf. **pēsъkъ* “sand” vs. Sanskrit *pāmsú-* id.). Smoczyński (1994) concluded that the protoform **mēsiko-* corresponding to the protoform **sulniko-* “Sun” can be reconstructed by means of metathesis (cf. *ESJS* 8, 469).

3.1.11. Tocharian A *mañ*, B *meñe* “moon, month”; cf. also A *mañ-ñkät* = B *meñ-ñakte* “God of the Moon”. The original may have been a protoform **mēnēC*, where *C* can represent **n*, **t*, **s* (Adams 1999, 468).

{3.1.12.} Note: Even the question of whether some related words can be found in the Anatolian languages remains open. Bedřich Hrozný (1933, 41-42) assumed that the word in the Hieroglyphic Luwian text Karkamish II, §17 which he read as ⁺*mēnulas*, meant “moon”, especially because a sign resembling a crescent preceded it (#265 according to Laroche 1960). He therefore compared it to the Lithuanian diminutive *mėnūlis* “little moon”. Meriggi (1962, 83) read the word as *mi-i-n.-la-s*, but most scholars today prefer the reading *mi-zi-na-la-sa* (Hawkins 2000, 110-11). It follows from the text that it designates some kind of function. If the sign “crescent

moon” represents an ideogram which determines the semantics of the word, Meriggi’s interpretation as “moon priest” seems acceptable. This word would thus be created by combining the word base *mizin-* and a suffix *-ala-* typical of agent nouns. The word base would originate in the protoform **mēnsen-*, which precisely corresponds with the forms from the Osco-Umbrian languages. The development of **ē > Luwian *ī* is documented by examples such as Luwian *nī / nis* = Hieroglyphic Luwian *ni-(sa) < *nē* or Cuneiform Luwian *kīsā(i)-* “comb” < **kēs-ā-je/o-* (Melchert 1994, 241). An example for the change **-ns- > -z-* can be found in Hieroglyphic Luwian *á-zu-za* “we; us” = Cuneiform Luwian *ānzas < *ḡs-* (Melchert 1994, 234, 243). A weak point of this solution – semantics – remains. In this text from Karkamish, dated to the tenth century, there are named specific professions: *sappantaris* “libation-priest”, *mizzinalas* “?”, *tunikkalas* “baker”, and pl. *kukkisadinzi* pl. “combers”. Yakubovich (p.c., Nov 1, 2017) speculates, it could be more probably ‘croissant-maker’ than ‘crescent-priest’, but the exact interpretation remains open.

3.2. Etymology: Most scholars agree on identifying the root **mē-* = **meH₁-* (firstly by Pott). However, interpretations of the rest of the word differ substantially. Therefore, knowledge of further etymologies may be useful (for a detailed overview, see Valčáková, Blažek & Erhart, *ESJS* 8, 1998, 469).

3.2.1. Internal reconstruction in the individual branches leads to a common base **mēn^o = *meH₁n^o* expanded by **(e)s-* in one portion of the branches in which sometimes **-n-* also appears. The resulting compounded suffix **-sn-* finds a parallel in words of the same semantic determination such as **louk-snā* “heavenly light”, most commonly “moon”, which represents the derivative of the root **leuk-* “to shine”. A similar example can be found in Proto-Greek **selasnā* “moon” > Attic *σελήνη*, and Lesbian *σελάννᾱ*, which was created by expanding the word *σέλας* “glare, light, ray”. In various Indo-European languages the suffix **-sn-* creates abstract nouns from verbs as well as noun bases, e.g. Prussian *waisna* “knowledge” (**waid-snā*) : *waisei* “you know”, *waidimai* “we know”, *biasna* “fear” : *bia-twei* “to be afraid”; Gothic *filusna* “amount” : *filu* “a lot”; Old Saxon *segisna* “sickle, scythe”, Latin *sacēna* “scythe” (**sacesnā*) : *secō*, *secāre* “to cut, chop”; Latin *arānea* “spider” (**aracsneja*), Greek *ἀράχνη* id. (**araksnā*) : *ἄρκυς* “net”; Sanskrit *kṛtsnā-* “whole”: Greek *κράτος* “force” (Brugmann 1906, 264-65, 282).

Heteroclititic names with *-sar/-sn^o* in Hittite correspond to the above-mentioned derivatives with *-sn-*, such Hittite words are verbal abstract nouns: *ḫattessar*, gen. *ḫattesnas* “hole, pit”: *ḫattai* “to dig a hole”; *tetḫessar*, gen. *tetḫesnas* “thunder”: *tetḫai* “it thunders” (Kronasser 1966, 289). The traces of the *r*-stem appear also among derivatives of the base **mēns^o*: Latin *intermenstruum* “new moon” = Umbrian gen. pl. *anter:menzaru* (Untermann 2000, 472; 109-10); also Latin names of months *september*, *november*, *december* < **septm-*, **(H₁)neum-*, **dekm-* and **mēnsri-* (Erhart 1998, 65).

3.2.2. Erhart (1998) reconstructed the original heteroclititic paradigm **mēnsōr* : **mēns(e)n^o*. He interprets the base **mēns^o* as a compound of two verbal roots **mē-* (**meH₁-*) “to measure (time)” and **nes-* “to return” (Sanskrit *násate* “to join someone”, Greek *véομαι* “to return home”, Gothic *ga-nisan* “to get healthy, recover” and others; see P 766).

3.2.3. Beekes (1982) formulated an intriguing hypothesis, according to which the word “moon” contains a perfect participle formed by the suffix **(u)ōt-*, and based on this, he reconstructed the following paradigm: nom. **meH₁n-ōt-*, acc. **meH₁n-és-ṃ* , gen. **meH₁n-s-és*. In order to explain the alternation of *t-* and *s-*stems, Hamp (1983) modified Beekes’s paradigm: nom. **meH₁nót-s* > **meH₁nóss*, acc. **meH₁nót-ṃ*, gen. **mH₁nt-ós* → **mH₁ṅ s-ós* → **meH₁ṅ s-ós*.

3.2.4. Another possible explanation imagines a compound whose first part is **meH₁n-* “measure” (> Sanskrit *māna-* in the word *mānaskṛ t-* “processor of leather, literally “one that cuts according to measure”). In the second part two synonyms alternate: **uet-(es-)* “year” (Sanskrit *vatsá-* “year”, Sogdian *wtšnyy* “old”; Hittite *witt-*, Cuneiform Luwian *ussa-* “year” < **ut-sa*; Greek *ἔτος*, dial. *φέτος*, Mycenaean *we-to* “year”; Messapic *atavetes* “in the same year”?; Albanian *vit*, pl. *vjet* id.; Latin *vetus*, *-eris* “old”; Old Lithuanian *vetušas* id., Old Church Slavonic *vetъxъ* id.; P 1175) and **sen-* “time of the year; old” (Sanskrit *sána-*, Avestan *hana-* “old”; Armenian *hin* “old”; Greek *ἔτος* “old”, *δίετος* “two-year-old” < **dūi-seno-*; Latin *senex*, gen. *senis*, comp. *senior* “old”; Old Irish *sen* “old”, Middle Welsh, Cornish, Breton *hen* id., cf. Gaulish *seno-* in personal nouns like *Seno-gnatus*; Gothic *sinista* “the oldest”; Lithuanian *sēnas* “old”, *sēnis* “old age”; see P 907-08). Except for Greek, the meaning “year” is also preserved in the Anatolian languages: Lycian *kbi-/tri-sñne/i-* “two/three-year-old”; Hittite *zēna-* “autumn” < **(H₁)n-séno-*; see Melchert 1994, 172, 315).

4. Anatolian **(i)arma*

4.1. Anatolian: Hittite **arma-* “moon(god), month”, reconstructed after the derivatives as ^(NINDA)*armanni-* “lunula, crescent; ‘croissant’-bread”, *armuwalae-* “to shine (of the moon)”, *armuwalašḫa(i)-* “waxing of the moon”, Cuneiform Luwian *armannaima/i-* “decorated with lunulae”, Hieroglyphic Luwian LUNA-*ma-* “moon(god)”, Lycian *Arm̃ma* “moon”, *r̃m̃mazata-* “monthly offering”, Lydian *Arm̃ta-* gen. ‘belonging to *Arma* - Moon God’ (Melchert 1994, 297, 315, 375; Kloekhorst 2008, 206).

4.2. Etymology:

4.2.1. Ivanov (1979, 148; 1981, 130-32) proposed an internal reconstruction **i₂r-mH₁o-/-eH₂*, “measuring time”, based on the Old Icelandic kenning *ár-tali* “counting the year” = “month”. This idea is supported by words designating time in the Luwian branch: Cuneiform Luwian *āra/i-*, Hieroglyphic Luwian *ara/i-* “time” (Starke 1990, 116-17, note 339a), besides *yariti* “spreads, expands” (Oettinger 2004, 381-82: (***H₁jeH₁r*^o vs. ***H₁joH₁r-ḱe-ti*), further perhaps also Lydian *ora*^{*} “month”, if it does not represent an adaptation of Greek ὥρᾱ “season, time of the day, correct time” (***H₁joH₁r-eH₂-*).

4.2.2. Alternatively, Van Windekens (1979, 912-13) suggested a comparison with Tocharian A *yärm*, B *yarm* “measure” < **(H₁)erm̃ṇ*, while the Anatolian words would reflect a protoform **(H₁)ormo-*.

5. **louk(e)sno-/-e)snā* “light” < “moon” (P 688-89)

5.1.1. Armenian *lowsin* “moon” < **loukesno-* (or **loukeno-*, see Olsen 1999, 465, and also note 555); cf. also *lowsn* “white of the eye”.

5.1.2. Italic: Latin *lūna* “moon; moon goddess”; the word *Losna* “moon goddess” known from the city of Praeneste goes back to **louksnā*.

5.1.3. Celtic: Old Irish *lúan* m. “light, moon” < **louksno-*; cf. *día lúain* “Monday”.

5.1.4. Baltic: Prussian pl. *lauxnos* “constellation”.

5.1.5. Slavic: Old Church Slavonic *luna* “moon” < **louksnā*.

5.2. Etymology: The base is established on the root **leṽk-* “to shine” (Sanskrit *rócate* “to shine, glare”, Hittite *lukk-*, Latin *lūceō, -ēre*, Tocharian AB *luk-* “to shine”; in the Slavic branch this base is preserved in **luč̣a* and **luč̣b* “ray; torch”, which corresponds to Sanskrit *rocí-* “light”, Old Icelandic *leygr* “flame, fire”, and others). An abstract noun **louk-os* is

* Oettinger (2016-17, 256-57) derives Lydian *ora-* from **aura-* < **arua-*, which should be parallel to Anatolian **arma* “moon” (§4).

created by an extension with **(e)s-*, gen. **louk-es-os* “light” (Sanskrit *rócas-*, Avestan *raocah-*). The *n*-suffix changes adjectives such as Avestan *raoxšna-* “glaring” into words which served as a basis for substantives like Greek *λύχνος* “light” (**luksnos*), Old High German *liehsen* id. (Germanic **leuhsna-*), and also the word for “moon” (P 687-89).

6. **(s)kend-*

6.1.1. Indo-Aryan: Sanskrit *candrá-* “moon”, also attested in the *Manusmriti* as “Moon God”, which was shortened from the compound *candrá-māś-* “moon” < **kendro-*.

6.1.2. Albanian Gheg *hânë*, Tosk *hënë* “moon” < **ska/ond-nā*.

6.1.3. Celtic: Middle Breton *cann* “full moon”, cf. Welsh *cannaid* “shining; Sun, moon” < **kndo-*.

6.2. Etymology: Sanskrit *candati* “it shines, glares”, intensive participle *cāni-ścadat* “shining over everything else”; Greek *κάνδαρος* · *άνθραξ* “live coals” (Hesychius); Latin *candeō*, *-ēre* “to glare, shine” (Schrijver 1991, 434 explains the *-a-* developed from **-e-* as a consequence of purely velar *c-* < **k-*); Welsh *cann* “white, light” agrees with the original semantics **“illuminating”*.

Other designations of “moon” as “heavenly light” are usually motivated by its shining nature:

7. Greek: Attic *σελήνη*, Lesbic *σελάννᾱ* “moon” < **selasnā* was created by extension of the word *σέλας* n. “glow, light, beam” < **selḡs-*. Its further etymology remains unclear. Indo-European **s-* in front of a vowel regularly changes to **h* in Greek, and this sound then often disappears. The preservation of *σ-* in this position thus requires a special explanation, and indeed two possible reasons have been offered:

7.1. Georgiev (1981, 100, 102) sees here an example of the preservation of an Indo-European substrate, a so-called “Pelagic” lexeme, which would reflect Indo-European **suelos*;

7.2. Bader (1995, 268), on the other hand, derives the Greek word from the protoform **sH₂uel-ḡs*. Bader assumes that the initial **sH₂-* was assimilated to **ss-* and is ultimately preserved in the form *s-*. In this way, she explains the doublets *ῥς* : *σῶς* “pig” < **suH-* : **sHu-*.

7.3. Diakonoff & Starostin (1986, 37) proposed a substratal origin, seeking a source in a hypothetical donor-language related to Urartian, where they mentioned *šél-ardə* ‘Moon-goddess’, plus probably related

forms in North Caucasian: Dargi *šali* n. “light”, Chechen *sa* id.

8. New Greek φεγγάρι “moon”: φέγγος “light, shine, glitter” (Buck 1949, 54-55).

9. Irish *gealach* “moon; light, blaze” vs. *geal* “white”, Old Irish *gel* id. (MacBain 1911, 190-91; Buck 1949, 54-55).

10. Old Irish *ésca* “moon” (Gaelic *easga* id.) is etymologically opaque. If the etymology connecting the word with Latin *idūs* “the middle of a calendar month”, Oscan *eiduis* “idibus” is correct (MacBain 1911, 153; Buck 1949, 54-55), the original motive for naming was “a time period”. Attention should also be given to Sanskrit *indu-* “moon”, originally “a drop” (Walde & Hofmann I, 672).

11. Germanic **tungla-* also does not have a clear etymology. It means in individual languages either “moon” (1) or “star, constellation” (2): Gothic dat. pl. *tugglam* (2), Old Icelandic *tungl* (1), *himin-tungl* (2), Old English *tungol*, Old Saxon (*heban-*)*tungal*, Old High German (*himil-*)*zungal* (2). The Old High German form pl. (*himil-*)*zungun* (2) is attested without the suffix **-lo-*. Other related words cannot be determined with certainty.

11.1. The origin might be a West Germanic root **twink-* “blink (with eyes)” (Old English *twinclian*, English *twinkle*, Old High German *zwinken*), although **k* is incompatible with **g*. The blinking movement of the eyes might have been transferred to the twinkling light of the stars.

11.2. Another alternative is offered by a Baltic designation for “sky”: Lithuanian *dangùs*, Prussian *dangus* id., which is derived from a verb of the type Lithuanian *deñgti* “to cover” (Lehmann 1986, 348; Kroonen 2013, 526).

III. STAR

12. **H₂stér*, gen. **H₂strós*

12.1.1. Indo-Aryan: Sanskrit *stár-* f.? attested in Ṛgveda only as instr. pl. *stṛb^hiḥ*, next to forms without *s-* like pl. *tārah*, Pali sg. *tārā-*. The *s-* is preserved, for example, in Ashkun *istá*, Khovar *istari-* “star” (EWAI II, 755).

12.1.2. Iranian: Avestan *star-* (Old Avestan gen. pl. *strəm*, Young

Avestan acc. sg. *stāram*, dat. pl. *stərəbiiō*), cf. further the compounds *stəhr-paēsah-* “decorated with stars”; Khotanese *stāraa-*, Sogdian *’st’r’kt*, *’stry* /(*ə*)*stārē*/, Khwarezmian *’st’rk*, Parthian *’st’rg* /*astārag*/, Middle Persian *’st’rg^M*, *st’lk^Z* /(*i*)*stārag*/, *’str^M* /*astar*/, *stl* /*star*/, Persian *sitāra*, Sangisari *setawre*, Baluchi *istār*, East Baluchi *astār*, Kurdish *stēr(k)*, *steīrk*, Zazaki *āstāra*, Ossetic Iron *st’aly*, Digor (*æ*)*st’alu*, Pashto *stōrai*, Ormuri *starrak*, Parachi *estēč*, Munji *stōriy*, Yidgha *stārē*, Yazghulami *ǰaturag*, Shughni *ǰitērǰ*, Ishkashimi *strūk*, Wakhi *s(ə)tór* “star” (Stebelin-Kamenskij 1999, 324; KEWA III, 512; Blažek & Schwarz 2017, 255, 272, 290, 309).

12.1.3. Anatolian: Hittite *ḫašter(a)-* “star” (Kloekhorst 2008, 326: **H₂ster-*).

12.1.4. Armenian *astl* (**astil*), gen.-dat. *astel* “constellation, star” corresponds to Greek vocal alternation *é* : *e*. The mysterious *l* may be ascribed to the influence of the word “Sun” (Brugmann 1906, 339; Olsen 1999, 159-60), which is perhaps preserved in Old Armenian *owłp* “Sun, shine, glitter” (see § 1.1.3.).

12.1.5. Greek *ἀστήρ*, -έρος “star”, coll. *ἄστρα*.

12.1.6. Italic: Latin *stēlla* “star” < **stēr(o)lā*.

12.1.7. Celtic **ster-ā* > Old Irish *ser*, Welsh pl. *ser*, singulative *seren*, Middle Cornish pl. *steyr*, singulative *steren*, Breton pl. *ster*, singulative *sterenn* “star” (Schrijver 1995, 423; Matasović 2009, 355); cf. Gaulish ND *Sirona*, *Dirona* < **stēr-on-ā* (Watkins 1974, 11). The Old Irish word is *hapax* appearing only in one of the poems whose author should be Colmán mac Lénéni (†604):

ó ba mac cléib | caindlech ser | sirt cach n-ainm | ainm gossa fer

“because he was the child of a candle, | a bright star, | over all names | he spread the name “Forces of men” (= Fergus)

12.1.8. Germanic: Gothic *stairno*, Crimean Gothic *stein* [= **stern*], Old High German *stern(o)*, Old Icelandic *stjarna* “star” < Germanic **sternōn* (Lehmann 1986, 322; Kroonen 2013, 478).

12.1.9. ?Baltic: Latvian *stars*, gen. *stara* “ray (of the Sun); branch”.

12.1.10. Tocharian A pl. *šreñ*, B *šcirye* “star” < **ster-jo-* (Adams 1999, 640).

12.2. Etymology:

12.2.1. The most common interpretation is the agent noun (nomen agentis) **H₂s-tér-* (Krogmann 1936, 257f; Scherer 1953, 22; Bomhard 1986, 191). The only root ***H₂e(H₁)s-*, which may be considered, however, meant “hot ashes, fire place” (Sanskrit *āsa-* “ash”, Hittite *ḫāšš-* “ashes; dust; soap”, *ḫāššā-* c. “fire place, hearth”, Cuneiform Luwian *ḫāššanitt(i)-* “hearth”, Oskic *aasai* “on the altar”, i.e. “on the ritual fire

place”, Umbrian *asa*, Old Latin *asa*, Latin *āra* “altar”, Vedic *áśa*- “ashes”, Old Runic *azina*, Old High German *essa* “ash”, and others, P 68; de Vaan 2008, 49; Kloekhorst 2008, 318-19, 321-22).

12.2.2. Schrader & Nehring (1929, 481) derived the word from the Indo-European root **ster-* “to scatter” (P 1029-30), namely “stars” = “stars scattered across the sky”.

12.2.3. Părvulesu (1977, 47) assumed the original meaning of “perennial star” based on the Indo-European stem **ster-* “firm, solid, stiff” (P 1022).

12.2.4. Another possible alternative is the hypothesis (Zimmern 1915, 68; Illič-Svityč 1964, 6-7; Gamkrelidze & Ivanov 1984, 686) based on the assumption that the Semitic designation for “morning star” **šattar-* (*at-*) was adopted. This word appears more commonly as the god or goddess of fertility: Akkadian *ištaru*, later *išartu* “goddess”, *Eštar* “Inanna, goddess of love; the planet Venus”, Eblaite *aš-dar* |*šattar-*| ‘Inanna’, Ugaritic *štr* m., *štrt* f. names of gods which were sometimes interpreted as “morning star” or “evening star”, Phoenician *šštr* “goddess of fertility and war”, Moabite *šštr-kmš*, Hebrew *šašteret* ~ *šašóret* “goddess of Sidonians” [Sd 2.13; 10.6; 1S 7.3n; 12.101Kr 11.5; 2 Kr 23.13], Old Aramaic *štr* “name of deity, Aramaic *šattarsamīn* “god Attar in heavens”. This god was identified by Assyrian people as the deity of the planet Venus *Dilbat*, Syrian *šesterā*, Sabaic *štr* “male deity”. In Sabaic it is often accompanied by the word *šrqn* “east”; in Arabic it occurs only in toponyms like *Iteri*, correctly |*šattari*| from the oasis in western Sirhan, Geez *šastar* “sky” and others (Blažek 1996, 132). The semantic development of “morning star” < “star” has an analogy for example in Belorussian *zora*, Ukrainian *zorja* “star”, in other Slavic languages “morning star”. Some scholars (Đjakonov 1982, 20-21; Starostin, p.c.) suppose that the borrowing occurred in the opposite direction.

13.1. Albanian (*h*)*yll* m., pl. (*h*)*yje* “star”

13.2. Etymology:

The following etymological attempts have been proposed until now:

13.2.1. Meyer (1891, 460) reconstructed **sūli-* or **sulno-*, while Pedersen (1899, 278) **sūlo-* or **sūli-* “sun”. This traditional approach faces obstacles because the proof for the change **s-* > Albanian *h-* is missing.

13.2.2. Hamp (1965, 132-33) tried to solve this problem by putting forth the hypothesis of *s*-mobile (**(s)uH₂l-* “sun”), but even this one lacks in the given example a clear analogy.

13.2.3. Huld (1976, 180-81; 1983, 132) proposed the starting-point **H₁us-li-*, cf. Old Norse *usli* m. "embers", Old English *ysl(e)* f. "spark, ash, ember", Middle Low German *ösele* "hot ashes", Middle High German *usel*, *üsel* f. "embers" (Orel 2003, 436: Germanic **uslōn* m. ~ **usljō* f.), all from the verb **H₁eus-* "to burn", attested in Greek ἔωω "I burn", Latin *ūrō* id., *ustus* "burnt", Albanian *ethe* "fever", Old Norse *ysja* "fire, blaze", etc. (Pokorny 1959, 347-48; Beekes & Adams, *EIEC* 87; *LIV* 245). Similarly, Demiraj (1994, 60, fn. 8; 1997, 206) who proposes proto-Albanian **ül-* < **H₁uslo-*.

13.2.4. Orel (1998, 518) speculated about pre-Albanian **skijlā* from **skijā* > Albanian *hije* "shadow".

13.2.5. A new solution should satisfy the rules of historical phonetics, word formation and semantics. A promising candidate seems to be the verbal root **H_aeus-/H_aues-* "to dawn" (P 86; *LIV* 292-93) > Old Indic *ucchāti* = Avestan *usaiti* "dawns", Old Indic *uśāh*, acc. *uśāsam* = Avestan *uśā*, acc. *uśāhəm* "dawn", Greek **āuhōs* > Homeric ἠώς, Attic ἔως, Doric αῶς "dawn", Latin *aurōra* "dawn" (**ausōsā* or **ausōrā*), Lithuanian *aũšta* "es tagt", Latvian *ausa* "dawn", etc.

The strength of the hypothetical derivative **H_aus-li-* ± "morning-star" can be further verified. There are the derivatives in *-li-* from the root **H_aeus-/H_aues-*: Greek ἔωλο "of the morning, of the morrow" < **H_a(e)uos-lo-*; Welsh *gwŷll* "twilight" < **H_auesljio-* (Hamp 1980, 213); 'Sabine' **ausel*, reconstructed by Kretschmer (*Glotta* 13, 1924, 111; *Glotta* 14, 1925, 310; see also Benveniste 1935, 43) on the basis of Hesychius' gloss ἀκῆλως ἔως ὑπὸ Τυρρηνῶν, corrected in **αῦσηλ^o*, cf. Etruscan *usil(-s)* "sun", *uslane* "at noon", and the theonym *Usil(-s)*, *Uśil(-s)* "God of Sun" (Bonfante 1983, 146; d'Aversa 1994, 57), probably of Osco-Umbrian origin, and the ethnonym *Auselii* = *Aurelii* by Paul. ex. Fest. 23 (Walde & Hofmann 1938, 86) < **Heusel^o*.

Let us also mention that Albanian *-ll-* is derivable from **-l-* and various clusters, including **-sl-*, cf. Albanian *kollë* "cough" < **k^hāslā* (Huld 1976, 180-81; Orel 1998, 189). Concerning *h-*, cf. Albanian *hypi* "to go up" < **H_aup-jo-* ~ Hittite *up-* "aufgehen (von Gestirnen)", against Albanian *vesh* "ear" ~ Latin *auris* id. < **H_ae_usis*; Albanian *hut* "vain, empty" should reflect **H_auto-*, while Greek αὔσιος "empty, vain", Gothic *auþeis* "desert, desolate" are derivable from **H_aeuti_{jo}-* (Beekes 1988, 102). The hypothesis about the derivation of the Albanian word for "star" from the root **H_aues-* "to dawn" implies the primary semantics **"morning star"*. The semantic development "dawn" → "morning star" → "star" is quite natural. The same semantic shift occurs e.g. in some of Slavic languages: Common Slavic **zorja* "dawn" continues in Belorussian *zará*, *zórka* and

Ukrainian *zorjá*, *zýrka* "star", while the derivative **zorǵnica* means "morning star" in Bulgarian *zorníca*, Macedonian *zornica*, Slovenian *zorníca*, Slovak *zornica*, Upper Sorbian *zernička*, archaic Polish *zornica*, Ukrainian *zirnýcja* (ZVSZ 428-29; Schuster-Šewc 1988-89, 1748-49; ESUM 265, 278-81). The same relation can be identified between Turkic **julduř* ~ **-dír* "star" > Turkish, Karaim, Turkmen etc. *jyldyz*, Azeri *ulduz*, Uzbek, Kumyk *julduz*, Chuvash *śǵʷldǵʷr* etc. "star", and Tungusic: Evenki *hil-de-nre*- "to dawn" (EDAL 1155-56).

14.1. Latin *sīdūs*, *-eris* n. "constellation"

14.2. Etymology: The original form can be reconstructed as the *s*-stem **sueǵd^(h)os*, gen. **sueǵd^(h)esos* (Hamp 1975b). This is a derivative of the stem **sueǵd^(h)-* "to shine" which is attested in Avestan *xʷaēna-* "glowing" < Iranian **hʷaiǵna-*, Latin *sūdus* "dry, sunny; clear (about weather)" < **suoǵd^(h)o-*, Lithuanian *svidù*, *-ėti* "to shine", Latvian *svīdu*, *svīst* "to become clear (the beginning of daylight)" (Pokorny 1959, 1042; de Vaan 2008, 596). Neither Latin nor Baltic *-d-* helps decide whether the given dental consonant comes from Indo-European **-d-* or **-d^h-*. Mann (1984-87, 1353) added further examples which should testify in favour of the unaspirated **-d-*: Armenian *kʷtʷit* "flash" < **suidǵstis*; Greek ἴδη "shine, gleam" < **suidā*; Old English *switel*, *sweteotol* "clear".

15.1. Old Irish *rind*, gen. *renda* n. "star"

15.2. Etymology: This is an old *u*-stem, and both Goidelic and Celtic protoform would be **rendu-*. Pedersen (I, 1909, 37) sees here a connection with New Irish *rinn*, gen. *rinne* & *reanna* "a point; the peak of something", and also with Greek *περόνη* "tip, apex", Armenian *heriun* "bradawel", but for example Vendryes, *LEIA*, R-32 does not see here any semantic link.

16.1. Balto-Slavic **ǵ^(h)uoǵsd^[h]ā*

16.1.1. Baltic **žuaizd(ij)ā* > Lithuanian *žvaigždė* & *žvaigzdė*, archaic and dialectal *žvaiždė* "star", Latvian *zvaigzne*, dialectal *zvāizne* id., ?Prussian acc. *swāigstan* "gleam, light", if these words really belong to this category (see Smoczyński 2001, 99-100 for other solutions).

16.1.2. Slavic **zvězda* next to depalatalized or non-palatalized variant **gvězda* < **ǵ^(h)uoǵsd^(h)ā*.

16.2. Etymology: No unambiguous etymology has been presented yet. Therefore only some alternative solutions can be considered:

16.2.1. Rather than the phonetically problematic comparison with Greek φωῖβος “brightly shining” (**ǵ^{uh}oǵ^h*-?), Irish *gead*, gen. *geide* “white spot on the head of an animal” can serve as an explanation. Hamp (*Eriu* 25, 1974, 279) reconstructed it back to **ǵ^huidā*.

16.2.2. Buck (1949, 56) pointed out the phonetic proximity of onomatopoeic words such as Lithuanian *žvigtī* “to whimper”, Old Church Slavonic *zvizdati*, Polish *gwizdać* “to whistle”. A paradoxical semantic development has a parallel in English *flash*, which, however, designated “splashing and sound of water” before the 14th century.

16.2.3. If we take Trubačev’s ideas (*ESSJ* 7, 1980, 182-83) as a starting point, we can suppose that the original word was a compound, whose first part would be the protoform **ǵ^(h)uoǵ^(h)*- and the second part one of the verbal roots **d^hē-* “lay” or **stā-* “stand”. Both of them would express the fact that the light is “constant”. The second possibility is supported by Prussian *swāigstan* “shine, light”. If we try to identify the first component, Irish *gead*, gen. *geide* “white spot on the head of an animal” analyzed by Hamp in §1 could be a suitable candidate, in the case that it is derived from a Celtic protoform **gidā*- < **ǵ^huid-ā*. This may be possible, cf. Irish *beach*, Old Irish *bech* “a bee” < **biko-*; Irish *fear*, Old Irish *fer* “a man” < **uiro-* (MacBain 1911, 31, 168). This hypothetical group of related words can be expanded by Greek φαῖδρός “clear”, φαίδιμος “shining”, which is usually connected with Lithuanian *gaidrūs* “clear (about weather)”. From the perspective of the theory of the Indo-European stem, it is difficult to explain the Greek diphthong *ai*. This difficulty also concerns the difference of Lithuanian *ž* in the word “star” as opposed to *g* in the word “clear”. In this case we can consider regressive assimilation, i.e. **ǵuajzdā* > **žvaj(g)zda*.

INDIVIDUAL STARS AND CONSTELLATIONS

IV. ORION

17.1. Greek Ὠρίων “Orion” (Homeric), also Ἰαρίων (Callimachus), Ὀαρίων (Pindar), and others. Let us mention what position Orion occupied among the constellations on Achilles’s shield which was made by Hephaestus [Il. XVIII, 483-489]:

⁴⁸³ ἐν μὲν γαῖαν ἔτευξ’, ἐν δ’ οὐρανόν, ἐν δὲ θάλασσαν,

⁴⁸⁴ἠελίον τ' ἀκάμαντα σελήνην τε πλήθουσαν,
⁴⁸⁵ἐν δὲ τὰ τεῖρα πάντα, τὰ τ' οὐρανὸς ἐστεφάνωται,
⁴⁸⁶Πηλιᾶδας θ' Ὑάδας τε τό τε σθένος Ὠρίωνος
⁴⁸⁷Ἄρκτόν θ', ἦν καὶ Ἄμαξαν ἐπὶ κλησὶν καλέουσι,
⁴⁸⁸ἣ τ' αὐτοῦ στρέφεται καὶ τ' Ὠρίωνα δοκεύει,
⁴⁸⁹οἷη δ' ἄμμορός ἐστι λοετρῶν Ὠκεανοῖο. [P 1]

“Therein he wrought the earth, therein the heavens therein the sea, and the unwearied sun, and the moon at the full, and therein all the constellations wherewith heaven is crowned – the Pleiades, and the Hyades and the mighty Orion, and the Bear, that men call also the Wain, that circleth ever in her place, and watcheth Orion, and alone hath no part in the baths of Ocean.” [P 2].

17.2. Etymology

17.2.1. Renaud (1996, 2003; cf. also Guglielmino et al. 2017, 172) tried to explain the internal Greek etymology. He proceeded from Homer’s note on the connection of the stars of Orion and Sirius which rises in the summer, i.e. at harvest time, and which is called Orion’s dog [*Iliad* 22.27-29]

ὅς ῥά τ' ὀπώρης εἶσιν, ἀρίζηλοι δέ οἱ αὐγαὶ
 φαίνονται πολλοῖσι μετ' ἀστράσι νυκτὸς ἀμολγῶ,
 ὃν τε κύν' Ὠρίωνος ἐπὶ κλησὶν καλέουσι. [P 3]

“like to the star that cometh forth at harvest-time, and brightly do his rays shine amid the host of stars in the darkness of night, the star that men call by name the Dog of Orion.” [P 4]

Elsewhere [*Iliad* 5.5.] Sirius is directly called ἀστὴρ ὀπωρινός “summer star”:

δαῖε οἱ ἐκ κόρυθός τε καὶ ἀσπίδος ἀκάματον πῦρ
⁵ἀστέρ' ὀπωρινῶ ἐναλίγκιον, ὅς τε μάλιστα
 λαμπρὸν παμφαίνησι λελουμένος Ὠκεανοῖο. [P 5]

“She kindled from his helm and shield flame unwearied,
⁵ like to the star of harvesttime that shineth bright above all others
 when he hath bathed him in the stream of Ocean.” [P 6]
 Trans. A.T. Murray (1924)

Renaud concluded that the theonym Ὠαρίων reflects Proto-Greek

**ōhar-īwōn*, which was a derivation of the word **ōhar* “summer”.

17.2.2. The name of the constellation looks exotic at first sight, and therefore a non-Indo-European origin would not be surprising. The source for borrowing may be sought out in a civilization with a good knowledge of astronomy. From this perspective, the hypothesis of Bobrovova and Militarev (1993, 320) seems appealing, namely that the model for the Greek name of the bright constellation could have originated in another bright star (probably a Cassiopeia) of the Sumerian sky called ^{MUL} / ^d*u₅.rī.in*.

V. PLEIADES

18.1. ***k^hrt-*

18.1.1. Indo-Aryan: Vedic *Kṛttikāḥ* “Pleiades” [Atharvaveda] (MW 304);

18.1.2. Anatolian: Hittite *kurtāl* “Pleiades”.

18.2. Etymology:

18.2.1. The origins here can probably be found in the derivatives of the stem **k^hert-* attested in Sanskrit *kart-* “to spin”; Hittite *kurtal(i)-*, *kurtalli-* “wicker container, basket”, Greek *κῤῥτία* “wicker goods”, *κῤῥτη* “sieve, screen” (Puhvel 4[1997], 277-79).

18.2.2. Other names of the Pleiades are motivated similarly:

18.2.2.1. Latin *Vergiliae* : Lithuanian *vārža* “wicker fish trap”.

18.2.2.2. Finnish *seulaset* “Pleiades”: *seula* “sieve”, Estonian *sõel* “Pleiades” = “sieve” (Puhvel 1991, 1243).

18.2.2.3. Meadow Mari (documented by G. F. Müller in the early 18th century): *сокма шудеръ* “Pleiades”, lit. “sieve star” < *sokte* (in the Malmyž dialect that Müller documented, *šokte* in all other Meadow Mari dialects) “sieve” + *šüδâr* “star”.

19.1. ***p_lH_ui-*

19.1.1. Iranian: Young Avestan acc. pl. f. *paoiriiaēiniias(-ca)* “clustering of stars” (Yt. VIII, 12) < **parūjainī-*, Pashto pl. f. *pērūne* “Pleiades” < **parūjān-*, Kurdish *pērū* id., Baluchi *panwar* id., Persian *parv*, pl. *parvīn* “Pleiades” (Bartholomae 1904, 876). The names in question are extended by the suffix **-aina-*, which creates, for example, the Avestan names of colours: *zaranaēna-* “golden”, *tamaṇhaēna-* “dark” (Scherer 1953, 142-

43).

19.1.2. Greek Πλειάδες, Homeric Πληϊάδες “Pleiades”, next to the isolated noun Πλειόνες, first attested by Pindar (Scherer 1953, 144), was reserved by astronomers for the star 28 Tau. Later mythographers specified that their mutual relationship is *Pleióné*, a mother and her seven daughters – the Pleiades, cf. for example Ovid in his *Fasti* [V, 81-84]:

*duxerat Oceanus quondam Titanida Tethyn,
qui terram liquidis, qua patet, ambit aquis,
hinc sata Pleione cum caelifero Atlante
iungitur, ut fama est, Pleiadasque parit.* [P 7]

Tethys, the Titaness, who wedded of old by Ocean, who encompasses the earth, far as it stretches, with his flowing waters. Their daughter Pelione, as report has it, was united to Atlas, who upholds the sky, and she gave birth to the Pleiads. [T 1]
(ed. and trans. Sir James George Frazer, 1933)

The suffix *-αδ-* in the word Πλειάδες would be the same as in the derivatives of numerals like δεκάς, *-άδος* “grouping of tens”, and others, that is, in the case of the Pleiades it would mean “grouping of many”.

19.2. Etymology: The name was probably derived from the Indo-European root **pelH₁u-* “many” (P 800), as one can conclude according to names of the Pleiades in other languages: Sanskrit *bahulāḥ* “Pleiades” (Pāṇini), literally “numerous”; Gallo-Latin *Massa* “Pleiades”, literally “pile” (Gregory of Tours, *De cursu stellarum* 28, 51); Russian *Kúčki* “Pleiades” : *kúčka* “a small pile” (Scherer 1953, 143). Similarly, even Hebrew *Kīmah* “Pleiades” in the Book of Job [9.9; 38.31] primarily means “pile” (Puhvel 1991, 1242, note 4). Arabic *turayyā* “Pleiades” is probably related to *ʔatra* “rich”, although the semantic motivation may also mediate the meaning *tariyy* (also “rich, numerous”) and *taryān*. The multiplicity of the Pleiades is expressed also in their historically oldest designation: in Sumerian ^dMUL.MUL, which by its reduplication presents one of the ways for expressing the plural, here specifically from the word MUL “star”.

20. The Pleiades constitute a very bright star cluster consisting of approximately 250 stars up to 17th magnitude in size.

20.1. Only ten are visible by the naked eye, but ancient observers

considered only six stars to form the Pleiades, and one “invisible” one, as we can read for example in Ovid’s calendar work *Fasti* for the second of April [IV, 169-78]:

Pleiades incipient humeros relevare paternos,
¹⁷⁰ *quae septem dici, sex tamen esse solent:*
seu quod in amplexum sex hinc venere deorum.
(nam Steropen Marti concubuisse ferunt,
Neptuno Alcyonen et te, formosa Celaeno,
Maian et Electram Taygetemque Iovi),
¹⁷⁵ *septima mortali Merope tibi, Sisypho, nupsit;*
paenitet, et facti sola pudore latet:
sive quod Electra Troiae spectare ruinas
non tulit, ante oculos opposuitque manum [P 8]

the Pleiads will commence to lighten the burden that rests on their father’s shoulders; seven are they usually called, but six they usually are; whether it be that six of the sisters were embraced by gods (for they say that Sterope lay with Mars, Alcyone and fair Celaeno with Neptune, and Maia, Electra, and Taygete with Jupiter); the seventh, Merope, was married to a mortal man, to Sisyphus, and she repents of it, and from shame at the deed she alone of the sisters hides herself; or whether it be that Electra could not brook to behold the fall of Troy, and so covered her eyes with her hand. [T 2]

(ed. and trans. Sir James George Frazer, 1933)

The numeral seven plays a universal role in the designation of the Pleiades both in the Indo-European and non-Indo-European languages.

20.2. Anatolian: Hittite ^DIMIN.IMIN.BI “the deity of seven [stars], i.e. “Pleiades” written in ideograms with Sumerian reading (Tischler 2001, 234).

20.3. Greek: Late Greek ἐπτάστερον, literally “seven stars”. Further the attribute ἐπτάπορος [πλειάς] (Eurippides, *Iph. Aul.*), which Puhvel (1991, 1244-45) contrary to the traditional interpretation as “seven ways” translated based on the verb παίρω “I stab” as “[sieve] with seven openings”.

20.4. Germanic: Old High German *sibunstirri*, *sipunstirni* (glosses

from the 9th century), German *Siebengestirn*, Middle Dutch *sevensterne*, Old English *sifunsterri*, Old Icelandic *siaustirni*, Icelandic *sjöstirni*, Swedish pl. *sjustjärnor* (Scherer 1953, 145).

The word “Pleiades” is formed similarly in other languages of northern Europe and Asia:

20.5. Uralic: arch. Estonian poet. *seitse tähte taeva sõelas* “seven stars in the celestial sieve”.

20.6. Turkic: Middle Turkic, Chaghatai *jāti-gän* “Pleiades” vs. Middle Turkic *jāti* “7” (Räsänen 1969, 199).

20.7. Written Mongol *oytaryuin doluyan burqan* “Pleiades”, literally “seven celestial gods” (Ramstedt 1935, 284).

20.8. Japanese *shichiyōsei* : Sino-Japanese *shichi* “seven” and *-sei* “star”.

VI. NORTH STAR

21.1.1. Indo-Aryan: Sanskrit *D^hruvā-* m. (possibly already in RV IX, 86.6; Ṛg̃hyasūtras; Mahābhārata and others). According to Indian religion, the god Viṣṇu installed Dhruva in the center of the sky (Viṣṇu-purāna I, 11). However, in India the North Star can only be seen in the northern part of the sky and even there it does not rise high above the horizon. The North Star’s position is central on the sky only much further to the north. Indo-Aryan people obviously brought this memory from their original homeland, although an influence of their northern neighbours then – most probably Finno-Ugric peoples – cannot be ruled out (Blažek 1993, 34).

21.1.2. Etymology: Literally “standing firmly” (Scherer 1953, 117), cf. Sanskrit *d^hruvā-* “solid, standing firmly, remaining, steady” (RV); Young Avestan *druua-* “healthy”, Old Persian *duruva-* “solid, steady”, Parthian *drwd* “health” = Middle Persian *drōd* = Persian *darōd* next to Middle Persian *drust* = Persian *durust* “correct, true, healthy”; the relationship to Slavic **sъ-dorvъ* “healthy” remains ambiguous (EWAI I, 798-99; Klingenschmitt 1982, 247). If we consider the root, we can proceed from the verb attested in Sanskrit *d^har-* “hold firmly”, Avestan *dāraiiaṭ* “holds firmly”, Khotanese *dār-* “to hold”, Ossetic *daryn* “hold firmly”, Hittite *dar-* id., Lithuanian *derù* “I am able” and others, cf. also Latin *fīrmus* “firm” (EWAI I, 778-79).

21.2. Germanic: Old Norse *leiðarstjarna*, Middle English *lodestar*, Dutch *leidstar*, Middle Low German *leidersterre* (1190), Old High German

leitesterre, Middle High German *leitsterne*, all lit. “guiding star”, besides Old English *scip-steorra*, lit. “ship-star” – all these terms are motivated by orientation (Scherer 1953, 129).

VII. SIRIUS

22.1. ***triH₂strijo-*

22.1.1. Indo-Aryan: Sanskrit *Tiṣya-* metrically had three syllables originally, **Tiṣya-*, m. “name of a star, probably Sirius”. We can conclude that it is a perennial star based on the verse from RV, 54.13 *ná yó yúcchati Tiṣyò yáthā diváh* “the one who does not disappear from the sky such as *Tiṣya*”.

22.1.2. Iranian: Young Avestan *Tiṣtrīia-* “Sirius”, cf. *yejñhā ainikō brāzaiti yaθa Tiṣtrīiō.stārahe* “like the face of the star *Tiṣtrīia-*” [Yašt X, 143], *Tiṣtrīiaēinī-* f. pl. [Yašt VIII, 12; Nyāyišn I, 8] to the non-attested adjective m. **Tiṣtrīiaēna-* (Bartholomae 1904, 652). In Yasht VIII, 43.48 it is called *səuuīštō* “the mightiest, the strongest”, which is fitting for the brightest perennial star of the night sky (Forssman 1968, 56); and Middle Persian *Tiṣtar*. The Avestan form preserves the assumed Indo-Iranian protoform **tiṣtrīia-* almost without any change. The simplification of the initial cluster **tr-* to **t-* finds an analogy in the Indo-Iranian numeral “three”, cf. Sanskrit nom.-acc. f. *tisrās*, Avestan nom. f. *tišrō*, gen. *tišraqm*, where the development **ti-sr^o* < **tri-sr^o* is expected. The following development in the Indo-Aryan branch led to the dissimilatory elimination of the other *-t-*. The expected result **Tiṣriya-* would show the cluster *-šr-*, which does not correspond to Indian sound laws. Therefore, if only one sound *-š-* and not *-sr-* replaced it, it cannot be considered to be an accommodation to *púšya-* “flourishing, belonging to flourishing”, the attribute of the star *Tiṣya-*.

22.1.2.1. Indo-Iranian > Fenno-Volgaic **täštä* “star” (UEW 793) > Finnish *tähti*, gen. *tähden* “Stern, Star, Blesse, Sternchen”, *tähtää-* “zielen”, Karelian *tähti, tähte-* “Stern, Zeichen, Merkzeichen”, Estonian *täht*, gen. *tähe* “Zeichen; Stern” | Saamic **tästē* “star” (Lehtiranta 1989, 132, #1233) > South *daastaa*, Koltta *tä’sst*, Kildin *tä’st*, Ter *täšte* | Mordvinian **täš’tä* (Keresztés 1986, 167) > Erzya *tešče, teš’te*, Mokša *täš’tä* “Stern; Zeichen, Merkmal” | Mari **tištâ* (Bereczki 1992, 76) > JT *tište*, MK JO V *tistâ*, CK ČN *tiste*, Č *šiste* “Hausmarke, Hauszeichen, Namenzeichen, Stempel” (see Blažek 2005, 170).

22.1.3. Greek: Σείριος “Sirius” (by Hesiod) may originate in **Sírios*, while the substitution of the long vowel by the diphthong was probably

caused by the similar appearance of the word Σείρηνας “Sirens”. If we proceed from the protoform **tri-H₂strijo-*, later **trīstrijo-* after the disappearance of the laryngeals, we can reconstruct the word’s further development in the following steps: **ūstrijo-* with dissimilative loss of one of the two *-r-*, **ūsrijo-* with dissimilative loss of one of the two *t*, **īhrijo-* after the pan-Greek shift **s > h*, and **sī(h)rijo-* after the assibilation **ti > si* in a part of the Greek dialects (cf. Fischer 1969).

22.2. Etymology: The anticipated original form ***tri-H₂str-ijo-s* means “belonging to three stars”. The primary compound denoting “three stars” should have the form ***tri-H₂stro-m*. “Three stars” probably refer to the the waist of Orion, as the three stars δεζ of the constellation Orion are traditionally counted (their Arabic names *Mintaka*, *Alnilam*, *Alnitak* mean “waist”, “chain of pearls”, and “belt” respectively). We should add that in India the waist of Orion is called *Iṣus trikāṇḍā* “arrow with three nodes” (the “nodes” of bamboo are meant here, cf. Forssman 1969, 58- 59).

The brightest perennial star of the night sky, Sirius (α Canis Maior), and also the whole constellation of Canis Maior can appear on the northern hemisphere as an extension of the waist of Orion. This was true for the past going back at least 4000 years ago, as computed by the German astronomer Wolfgang Strohmeier.

Hamp (1974, 1048) presented an alternative hypothesis as he speculated that these “three stars” denoted an almost equilateral triangle whose three vertexes were three distinct stars of the winter sky: Sirius from the constellation of Canis Maior, Procyon from Canis Minor and red Betelgeuse from Orion. The connection of Sirius representing the constellation of Canis Major with Orion was already documented by Homer in the *Iliad*, although Homer does not directly mention the name of the star [*Il. XXII, 26-29*]:

παμφαίνονθ' ὥς τ' ἀστέρ' ἐπεσσύμενον πεδίοιο, ὅς ρά τ' ὀπάρης
εἶσιν, ἀρίζηλοι δέ οἱ ἀύγαι φαίνονται πολλοῖσι μετ' ἀστράσι
νυκτὸς ἀμολγῶ, ὃν τε κύν' Ὠρίωνος ἐπὶ κλησιν καλέουσι. [P 9]

like to the star that cometh forth at harvest-time, and brightly do
his rays shine amid the host of stars in the darkness of night, the
star that men call by name the Dog of Orion. [P 10]

(trans. A.T. Murray, 1924)

VIII. BIG DIPPER

23.1. *septm-st(e)rijo-

23.1.1. Italic: Latin *septentriōnēs* “Big Dipper” < *septm-(s)trijo(n)-

23.1.2. Celtic: Old Irish *sechtarét* gloss ‘arctus’ (reshaped according to *rét* “star”) < *sechtarenn < *sektadderion- < *sektan-terion- < *septm-(s)ter-ion- (Hamp 1974, 1051; the author assumed that a similar compound caused the presence of *s-* in the Brythonic numeral “7”, where *h-* is normally expected).

23.2. Etymology: This word literally means “consisting of seven stars”.

24. “Bear”

24.1.1. Vedic *īkṣa-* “bear” (1 x RV; ŚB). However, already in the R̥gveda the plural *īkṣāḥ* denoted also the constellation of Ursa Major, also called the Big Dipper, cf. RV I, 24.10:

*amī yá īkṣā nihitāsa uccā náktam dádr̥ṣre kúha cid díveyuh
ádabdhāni Váruṇasya vratāni vicākaṣac candrāmā náktam eti*

Yonder Bears [= stars of Ursa Major], set on high, are visible at night; they have gone somewhere else by day. The commandments of Váruṇa cannot be cheated: the moon goes at night, earnestly looking around.

(trans. Stephanie W. Jamison & Joel P. Brereton, 2013).

24.1.2. Greek ἄρκτος mean primarily “bear” or rather “she-bear”. In the *Iliad* Homer clearly states that the constellation of Ursa Major and the Big Dipper are the same [XVIII, 487-88]:

⁴⁸⁶Πληϊάδας θ' Ἰάδας τε τό τε σθένος Ἰωρίωνος
⁴⁸⁷Ἀρκτόν θ', ἦν καὶ Ἄμαξαν ἐπὶ κλησιν καλέουσιν,
⁴⁸⁸ἦ τ' αὐτοῦ στρέφεται καὶ τ' Ἰωρίωνα δοκεύει,
⁴⁸⁹οἷη δ' ἄμμορός ἐστι λοετρῶν Ὠκεανοῖο. [P 11]

... The Pleiades, and the Hyades and the mighty Orion, and the Bear, that men call also the Wain, that circleteth ever in her place, and watcheth Orion, and alone hath no part in the baths of Ocean.
[P 12]

(trans. A.T. Murray, 1924)

24.2. Etymology: The mystery of why a constellation reminding one of a wagon or dipper at first sight was called a bear or she-bear is best explained by the hypothesis first presented by Schrader & Nehring (1929, 481) and later again by Szemerényi (1962, 190-91). These authors proceed from the Akkadian name of the constellation “Ursa Maior” *ereqqu(m)*, or rather from its feminine form **ereqtu*, which is attested in pl. *e-re-qá-tim*. Its primary meaning, however, is “(freight) wagon”, similarly Sumerian ^{GIS}MAR.GÍD.DA “wagon” and ^{MUL}MAR.GÍD.DA “Ursa Major” (cf. also Akkadian *ereqqu šamê* and Sumerian ^{MUL}MAR.GÍD.DA.AN.NA “Litter Dipper = Ursa Minor”, literally “sky wagon”; see von Soden 1965, 238). According to the historical phonology of Akkadian, the original form might have been m. **HarVqq-u(m)*, f. **HarVqt-u(m)* for *H* = **š*, **γ*, **h*, and *V* = **a*, possibly **i*. In the event that the vowel of the second syllable was **i*, the shift **a* > **e* in the first syllable occurred even if **ʔ*, or **w* was in the anlaut position. An external comparison with Ugaritic *šrq* “wagon, cart” (Olmo Lete & Sanmartín 2003, 184), in a form which was unknown to Schrader & Nehring, as well as to Szemerényi, unambiguously confirms a reconstruction of the Semitic protoform m. **šar[a]qq-u* / f. **šarqat-u*.

The hypothetical original form **šara/iqt-* or **šariqt-* could have been adopted by the Greeks from West Semitic or Hurrian and identified with the acoustically most similar word ἄρκτος. Probably an independent loanword from Mesopotamia is the Vedic designation of the same constellation for which we also have to assume a similar scenario, i.e. identification with the acoustically close word *śkṣa-* “bear”. Szemerényi (1962, 191) explained in a similar way the Avestan designation for the constellation of the Big Dipper, *haptō-irīnga-*, and its Persian adaptation *haftōrang*. The traditional etymology assumes a relationship between the second part of the Iranian compound and Sanskrit *liṅga-* “sign”, thus “seven signs”. According to Szemerényi, two different words were mixed here: the Indo-European designation for a constellation consisting of “seven stars” (cf. Latin *septentriōnēs*) and the Akkadian base *ereqq-* denoting the constellation evoking a “wagon”.

24.3. Note: The verse Ἄρκτον θ', ἦν καὶ Ἄμαξαν ἐπικλήσιν καλέουσιν

[II. XVIII, 487] demonstrates that already for the Homeric tradition it was natural to designate the constellation of Ursa maior as “wagon”. The same has been proposed for Phrygian, where Hesychius’ gloss κίκλην τήν ἄρκτον τὸ ἄστρον. Φρύγες has been explained as the word with an original meaning “(wheeled) wagon”, cf. Greek κύκλος “circle” (Scherer 1953, 138). The designation of Ursa maior motivated by “wagon” is known e.g. in the Germanic traditions too, cf. Old Norse *vagn a himnum* “wagon on heavens”, Old High German *vagan in himile* [Rhabanus], Middle High German *himmelwagen* [Konrad von Megeberg], besides *woenswaghen*, lit. “Wodan’s wagon” or East Swedish *kvällvagnen*, lit. “evening-wagon” etc.

PLANETS

In the Ṛgveda it is not possible to differentiate between the planets and the fixed stars. According to some indologists (Leumann 1928, 4f.) the term *ādityāḥ* attested in Atharvaveda 8.2.15, representing a *vrddhi* derivation from *aditi-* “exuberance, freedom”, denoted “planets” as literally “sons of freedom”. However, others suggest that the term *aditi-* meant primarily only “to be freed from debt” (Oldenberg). In later Sanskrit (Maitrāyaṇī Upaniṣad; Mahābhārata) the word *graha-* is used most commonly and it literally means “one who catches”. This word was first attested in Śatapatha Brāhmaṇa (IV 6,5,1.5), although it means “Sun” there. It is a derivative of the verb *grb^hṇāti* “catches” (~ Old Church Slavonic *grabiti* “to rob, steal”), cf. *grāhāḥ* “one who catches; a predatory animal, snake”. In Greek history, an unambiguous designation for planets appeared in Xenophon (*Mem.*) in connection with *πλάνητες ἀστέρες* “stray stars”, similarly *ἄστρα πλανητά* and Plato (*Leg.*), and in *ἀστέρες πλανῆται* next to *οἱ πλάνητες* in Aristotle (*Meteorologica*), mostly authors living in the fourth century BCE. The Greek model was adopted by Latin: *tēllae errāticae* (Varro apud Gell.), *stellae errantes* (Cicero); and German *Irrstern* was also created according to this pattern (Erasmus Francisci 1676). A calque or a parallel semantic construction is presented by Old Icelandic *villistiarna* (around 1200), literally also “stray star”.

The ancient world knew only five planets besides the Earth. Sometimes the moon was also included.

Here is the comparison of planet names in Old Indian, Greek and the ancient Near East languages (see Scherer 1953; Eilers 1976; abbreviations: IE Indo-European, ^M Manichaean, RV Ṛgveda, ^Z Zoroastrian):

| Planet | Mercury | Venus | Mars | Jupiter | Saturn |
|--|---|--|--|---|---|
| India | <p>jña- wise</p> <p>indu-putra-/ja- son of the moon [= of drops]</p> <p>śaśija- son of the moon [= of a hare]</p> <p>candrin- belonging to the moon</p> <p>pañcarcis five rays</p> | <p>śukrá- clear f. śveto graha- white planet</p> <p>Bhr̥gu-ja-/ putra-/sūnu- Bhr̥gu's son</p> <p>ṣodaśāṃsu- sixteen rays</p> | <p>aṅgāra- coal lohita- red lohitād^hipa- red chieftain b^hūmi-putra-/ja- son of the Earth lohitāṅga- with red limbs vakra- running back maṅgala- happiness, a good sign lohitārcis- with red rays</p> | <p>Bṛhas-pati- the lord of magic power (sura-)guru- teacher (of gods) vāk-pati- the lord of the speech sūri- wise man</p> | <p>asita- black kāla- black śani- slow śanaīścara- slowly moving manda- slow</p> <p>sūrya-putra- son of the Sun</p> <p>Yama- god of death</p> <p>saptārcis seven rays</p> |
| Iranian (Avesta) (Middle Persian) (New Persian) | <p>Tīra-</p> <p>Tīr Failak (: pēlak arrow?)</p> <p>tīr-i-bāzū-i-čarx arrow/arm of the sky</p> | <p>Anāhitā-</p> <p>Nāhīd</p> | <p>(Vərəθraγna-)</p> <p>Varhrām god of fire Bahrām</p> | <p>Ahura-mazda-</p> <p>Hurmuzd</p> | <p>Zurvān</p> |

| | | | | | |
|------------------|---|--|--|--|--|
| Armenia | Tiowr P'ailacou cf. p'ail glare | Arowseak < Middle Iranian arūs white Lowsaber torch-bearer | Hrat , cf. howr , gen. hroy fire | Lowsnt'ag crown of light (halo) | Erewak cf. erewal be visible |
| Greek | Στίλβων cf. στίλβω I shine Ἐρμῆς | Φωσφόρος torch-bearer Ἐωσφόρος the one who brings morning Ἐσπερος evening star Ἀφροδίτη | Πυρόεις fiery Ἄρης | Φαέθων shining, bright Ζεὺς | Φαίνων cf. φαίνω make visible Κρόνος |
| Old Testament | | Malkat haššamayim queen of the sky | | | Kēwān Kiyydn (Amos 5:26) |
| Babylon | šāhiṭu jumper ᵀNabû god of wisdom | ᵀIštar | šalbatānu cf. šalāpu be evil Simut (Elam.), cf. Babylonian sīmūtu redness ᵀNergal god of underworld | dapīnu wild ᵀMarduk (Bēl) | kayyamānu permanent ᵀNinurta |
| Sumer | ^{MUL} GUD | ^ᵀ NIN.DAR. AN.NA lady of the sky shining ^{MUL} DIL.BAT < acc. diliptum sleeplessness | | ^{MUL} U.BABBAR white star ^{MUL} ud-al-tar wild storm | ^{MUL} MI black storm ^{MUL} SAĜ.ŪŠ permanent |

CONCLUSION

The present overview summarizes and analyzes the astronomical knowledge of Indo-Europeans from the point of view of distribution, etymology and semantic motivation of the studied terms. Only one astronomical term, ***H₂ster-* “star”, is known in both the Anatolian and non-Anatolian branches, explicitly confirming the protolanguage age. Paradoxically, this is also the only word that seems to be borrowed from Semitic **ʕattar-(at-)* “morning star”.

The common designation of “sun” or its derivatives is attested practically in all non-Anatolian branches, while in Anatolian, namely in best-known Hittite, a hypothetical trace might be identified in the theonym *Šuwaliyaz*. The promising external relatives in Nostratic perspective confirm the protolanguage status of this term.

The designation of “moon” also differs in non-Anatolian and Anatolian, but it probably expresses the common idea of “time-measurer”.

There are several common models in the nomenclature of some considerable stars or constellations: Sirius = “(belonging to) three stars”, Pleiades = “basket or sieve”, “numerous” or “seven stars”. The last pattern, based on the numeral “seven,” appears also in designations of Big Dipper, besides the similarity with “wagon”.

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P 7 <<http://data.perseus.org/citations/urn:cts:latinLit:phi0959.phi007.perseus-lat1:5>>

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P 9 <<http://data.perseus.org/citations/urn:cts:greekLit:tlg0012.tlg001.perseus-grc1:22.1-22.37>>

P 10 <<http://data.perseus.org/citations/urn:cts:greekLit:tlg0012.tlg001.perseus-eng1:22.1-22.37>>

P 11 <<http://data.perseus.org/citations/urn:cts:greekLit:tlg0012.tlg001.perseus-grc1:18.462-18.489>>

P 12 <<http://data.perseus.org/citations/urn:cts:greekLit:tlg0012.tlg001.perseus-eng1:18.462-18.489>>

T 1 <<http://www.theoi.com/Text/OvidFasti5.html>>

T 2 <<http://www.theoi.com/Text/OvidFasti4.html>>

Acknowledgement:

The present study was prepared thanks to the grant of the The Czech Science Foundation (GAČR), Nr. GA15-12215S. My deepest thanks belong to specialists for their valuable corrections and explanations of the first draft, namely (in alphabetical order): Hrach Martirosyan, Craig Melchert, Norbert Oettinger, Ilya Yakubovich. I am also grateful to Zuzana Handlová, Christopher Culver and PM Cicchetti for translation into English and useful comments.

