

On higher numbers in Hittite

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Writing the Higher Numbers

1. In Hittite texts the numerical units 100 and 1,000 are written with signs reflecting Akkadian (not Sumerian) values: *ME* for Semitic *me'at* and *LI-IM* for Semitic *līm*, both represented without case endings. Both numbers belong to the decimal (rather than) sexagesimal system of counting. What appear as traces of the sexagesimal system in Hittite texts are simply features of the Sumero-Akkadian writing system and do not reflect Hittite counting patterns *per se*. The highest numerical sign in Sumerian -šár (3,600), which is of course sexagesimal, does not occur in Hittite texts. In Mesopotamia 3,600 became a symbolic number to represent an innumerable quantity. This is even reflected in an Akkadian letter to Babylonia from Ḫattušili III, where in a disparaging remark about a troublesome Babylonian official who has long outlived his usefulness the king says of him: "Itti-Marduk-balāhu, whom the gods have let live almost 3,600 years"¹, sixties are written with the Akkadogram *ŠUŠŠI* (i.e., *ŠU-ŠI*)². The *DIŠ* sign which usually has the value "one" also stands for "sixty" when accompanied by incremental number signs: 60 + 10 + 5 = 75. But again, this is merely the writing, not the underlying Hittite.

2. In Hittite the first 9 multiples of a "thousand" are written with the number sign followed by the signs *LI-IM*, the *status constructus* of the singular of the masculine noun *līmu*: 2 *LI-IM*, 3 *LI-IM*, etc. In these writings there is no formal indication of the plurality of the word for "thousand". But in the writing of the military rank *UGULA*^{LU.MEŠ} *LI-IM*^{MEŠ} *ŠĒRI*, in which *LĪMU* has the meaning "clans", the word is accompanied by the Sumerian plural marker *MEŠ*. All examples of number 2 through 9 + *LI-IM* take logograms as their head nouns, and these can be written singular or plural. But the only attestation of Hittite agreement for such a head noun, shows it be singular: *nu uni kuin 9 LI-IM ĒRIN.MEŠ* "Pitaggatalliš uwatet n=aš=mu zahḫiya tiyat n=an zahḫiyanun" "That 9,000-man army that Pigattalli led, joined battle with me, and I defeated it" KBo 5.8, iii 24-26 (AM 158f.).

3. The unit "10,000" is written not as "10 *LI-IM*", but with the *SIG*₇ sign in Hittite texts, and is attested preceded by numerals 1 and 2.

¹ KBo 1.10 + KUB 3.73, obv. 21, noted originally by J. Friedrich, *Aus dem hethitischen Schrifttum*, 1. Heft: *Historische Texte, Staatsverträge, Königliche Erlasse, Briefe, Gesetze, wirtschaftliche Texte*. Leipzig 1925, p. 25 n. 3, quoted by A. Hagenbuchner, *Die Korrespondenz der Hethiter*. 2. Teil. Heidelberg 1989 297; passage cited by S. de Martino and F. Imparati, "Aspects of Hittite Correspondence: Problems of Form and Content," in *Atti del II Congresso Internazionale di Hittitologia*, O. Carruba, M. Giorgieri, and C. Mora, eds. *Studia Mediterranea* 9. Pavia 1995, p. 105; cf. also CAD Š/2 36.

² Like *LĪM(U)* "thousand" the Akkadogram *ŠUŠŠU* "sixty" is used with or without preceding numbers: 1 *ŠU-ŠI* KBo 3.38, obv. 15, KUB 58.103, 5', KBo 13.254, 9', etc., or *ŠU-ŠI ĒRIN.MEŠ* "60 troops" KUB 23.68, rev. 2 (MH/NS).

4. Akkadian proper had no single word for “ten thousand”, which would have been expressed analytically, as in English. In western peripheral Akkadian (Alalakh and Mari) a West Semitic word was borrowed, which appears in the construct form *ribbat* following the number “one” or in the plural *rabbâtîm* following numbers higher than “one”. These Akkadian writings reflect the same word occurring in the plural forms of biblical Hebrew *r^ebābôt* and Ugaritic *rbbt* (**rababât*, “ten thousands”). This term represents the next level of magnitude higher than “thousand”. In the word order employed to express complex numbers, where the higher units precede the smaller ones, we find at Mari: 1 *rí-ba-at* 3 *li-mi* 4 *me-at* UDU.UDU “13,400 sheep”. In the reverse (i.e., ascending) order, used for emphasizing large numbers, compare the numerical units in Ugaritic: *'alpm* ... *rbbt* “thousands ... (yes, even) ten thousands”³. The West Semitic word is transparently derived from the adjective “large” (root *rbb*) and simply means a large multiple of “thousand”.

5. Both the Akkadian and West Semitic words for “thousand” occur as terms for numerically non-specific kinship groups, often translated as “clan”. Some scholars derive the kinship term from the numeral, but the existence in the Semitic language families of two entirely different words for “thousand”, West Semitic *'alp* and East Semitic *līm*, each a homonym of a word for “clan”, suggests that the semantic development moved in the opposite direction.

6. Although the higher figure 3,600 (Sumerian *šár*) was apparently known in the western peripheral Akkadian of the late Second Millennium (see paragraph 1), the unit “one thousand” remained as a base value for the highest level of numbering. This concept is reflected in the paleography of the western peripheral cuneiform tradition. The cuneiform sign for “ten thousand” (HZA #239) is a pseudo-logogram coined in western peripheral cuneiform, a *gunû* form of *LIM* “thousand” (HZA #288)⁴.

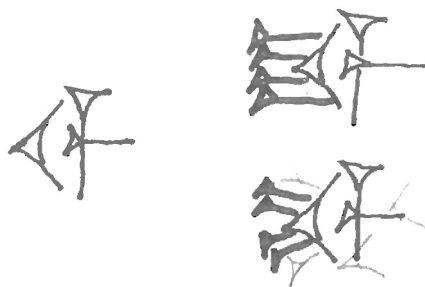


Figure 1: Sign Forms based upon IGI

³ English translation in M. S. Smith et al., *Ugaritic Narrative Poetry*. Atlanta 1997, p. 15 [KRT II 39-40, IV 17-18]).

⁴ See E. Forrer, *Die Boghazköi-Texte in Umschrift. Erster Band. Einleitung: Die Keilschrift von Boghazköi*. Leipzig 1922 [= BoTU I], p. 23, note to sign list No. 354 and CAD, L 198 sub *līmu* A).

7. The numerical sign IGI-*gunû* (HZL #239) is identical in appearance to SIG₇ “yellow-green”, and can be transliterated as SIG₇, as it is in Labat’s Akkadian sign list (sign #351)⁵ and in HZL. From Labat’s listing one can see the graphic development of the SIG₇ sign from its pictographic origin to the latest forms in Neo-Assyrian and Neo-Babylonian.

8. Not all gunated signs are semantically related to their un-gunated bases, but it has been demonstrated that at least some such pairs are interchangeable; i.e., the non-gunated variant can actually be used in place of the gunated one. And in a very few cases the semantic value of the *gunû* form is an intensification of the non-gunated base form: the DU sign in its value GIN means “to walk, go” (Akkad. *alāku*), while KAŠ₄ which is a *gunû* of DU means “to run” (Akk. *lasāmu*). In our case, the numerical nature of all variants assures a semantic relationship, and very probably a numerical progression. The SIG₇ sign is a “gunated” (or horizontally hatched) enlargement of the IGI sign, as reflected in the name given to the sign by Akkadian scribes IGI-*gunû*. But since semantically it makes no sense to derive an extrapolation of the number “thousand” from the Sumerian word IGI “eye”, this sign in its numerical value was based upon the two graphic constituents of the IGI sign, namely, U “10” times ME “100”. To this number was given by acrophony the phonetic value LIM, from the Akkadian word *līmu* “clan; thousand”. The Hittite scribes made no use of IGI to write “thousand”, preferring instead to write the Akkadian word syllabically with two signs as *LI-IM*.

9. We know of no sign complex yet in Akkadian cuneiform texts for a numerical unit higher than IGI-*gunû* (SIG₇) “ten thousand”. But there seems to have been one employed at Hattuša. In KBo 17.88++, iii 37-38, and again in iv 22-23⁶ a wish is expressed for long life for the king and queen. In Akkadian such a wish for extreme longevity would have employed the sexigesimal figure “3,600 years” (see paragraph 1). But the Hittite text reads as follows: *ma-ya-an-ti-ma* ^DUTU-šum-[(*mi*) *ta-wa-an-n(a-ni e-wa-li)*] (37) [*dalugau(š)*] MU.ḪI.A-uš *upp[i]škandu* (dupl. *peškandu*) “May (the gods) bring (dupl. give) long years to the youthful ‘Our Sungod’ and to the Tawannana *ewali*.” Following the finite verb *uppiškandu/peškandu*, in what is called by linguists “right-dislocation”⁷, is an expansion, in apposition to the words “long years” ([*dalugau(š)*] MU.ḪI.A). It reads: [(9-*an*)] *LI-IM* 9-*an* S[(IG₇-*a*)]*n*⁸ 9-*an* ‘GAŠAN+TI’⁹ MU.ḪI.A-uš “nine¹⁰ thousands, nine ten-thousands, nine ‘GAŠAN+TI’-s of years”¹¹.

⁵ R. Labat, *Manuel d'épigraphie akkadienne*, Sixième édition augmentée d'addenda par Florence Malbran-Labat ed. Paris 1988, pp. 160-61.

⁶ See the edition in J. Klinger, *Untersuchungen zur Rekonstruktion der hattischen Kultschicht*. StBoT 37. Wiesbaden 1996, pp. 318, 324.

⁷ H.A. Hoffner and H.C. Melchert, *A Grammar of the Hittite Language*. Winona Lake, IN 2007, § 30.11.

⁸ My reading SI[G₇(i.e., IGI-*gunû*)-*a*]*n* in both lines for “*d[a-a]n*” in the edition (Klinger, StBoT 37, pp. 318, 324) was confirmed by collation S. Košak (7-27-2005).

⁹ “(Let the gods send years to the king and queen) — nine thousands, nine ten-thousands, nine hundred-thousands(?) (of them)”. Not only are these ascending numerical units very large, but the number “nine” itself in Hittite numerical symbolism often expresses an indefinite but very high number.

¹⁰ The complement -*an* on the cardinal number may be the bare root of the cardinal “nine”, indeclinable before the high numerical units (hundred, thousand, ten-thousand, etc.). It can hardly be an acc. pl., either common or neuter.

¹¹ Restored from iv 22-23: 9-*an* [*LI-IM*] 9-*[an]* SIG₇-*an* [9-*an*] “GAŠAN+TI” <MU.ḪI.A-uš>.

KBo XVII 88+ iii 9' (EZEN₄.ITU)

[9-*an*] *LI-IM* 9-*an* SI[G₇-a]*n* 9-*an* "GAŠAN+TI" MU.ḪI.A-*uš*

Figure 2: Photo¹² & copy of KBo 17.88+, iii 38

10. As shown by the threefold repetition of the number 9-*an* preceding each, we have here three high numerical units, beginning with "thousands" (*LI-IM*), followed by "ten thousands" (*SIG₇-an*). Judging from the ascending progression, we must assume that the complex represented by the conventional reading "GAŠAN+TI" was an even higher numerical unit such as 100,000 (or even "a million").

11. The Mainz photo of the line (Figure 2) shows that the scribe definitely drew that word as *two* signs. The original of this composition was Old Hittite, but KBo 17.88+, our earliest copy, is Middle Hittite script. Until an OS copy is found to prove the opposite, it is highly probable that the MH scribe of this text did not understand the sign or signs before him in his OS archetype. This is the only example to date in published texts where this number sign occurs. Scribes would not have been familiar with it, whereas they could easily confuse it with the two signs GAŠAN-TI commonly used to represent Akkadian *BĒLTI* "lady".

¹² Photo courtesy of G. Wilhelm and the Mainzer Boğazköy Archiv.

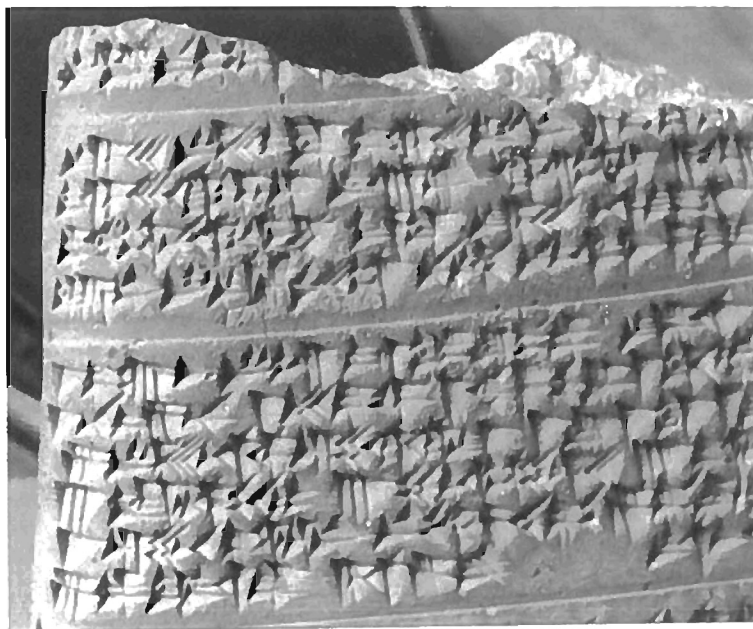


Figure 3: KBo XXII 1, showing OS forms of IGI, ME & WA¹³

12. I maintain, therefore, that in the OS copy this complex was not two signs, but a single one (compare the fifth sign in the fourth line from the bottom, in Figure 3, with my drawing of the left-hand sign in Figure 1). Notice how the head of the main horizontal wedge clearly protrudes slightly to the left of the main vertical wedge. This writing could have confused a MH scribe into thinking that in the sign drawn in the lower righthand position on this slide (see Figure 1) there were two signs instead of one, and that the second one was TI.

13. The reconstructed Old Script form of the so-called “GAŠAN+TI” (Figure 1, lower right) is an elaboration of the SIG₇ sign (upper right-hand sign). As mentioned earlier, SIG₇ itself is an elaboration of the IGI sign (“1,000”) (lefthand sign), by a process called “gunification” (the four horizontal wedges), Akkadian *gunû* from Sumerian **gùn.a** meaning “variegated”. *Gunû* signs are signs created from simpler ones by the addition of horizontal or vertical strokes, often parallel ones: sometimes only two, at other times three or four. There are no parallels to my knowledge of gunified *gunû*-signs; that is, the *gunû* elaboration seems not to have been repeated in order to create a third sign. But there *are* examples of gunified signs transformed into new signs by the process known as *šessig* (the pale wedges in Figure 1).

¹³ Author’s photo.

Abb.4: Die šessig-Zeichen
















Zeichen (Name)	Zeichen- form	verglichenes Zeichen	Merk- mal
KAŠ ₄ (DU-šessig)		DU: 	
		DU: 	
SIG ₄ (LUM šessig)		LUM: 	
ŠUDUN (1. UR-gunû-šessig) (2. TUN ₃ -gunû-šessig)		UR-g.(?): 	
		TUN ₃ -g.: 	

Figure 4: šessig-signs (Y. Gong, *Die Namen der Keilschriftzeichen*. Münster 2000)

14. Šessig differs from *gunû*, in that a group of four winkelhakens resembling the ŠE sign (see Figure 4, far right column) are either incorporated in the middle of the base sign (see ŠUDUN = UR-*gunû*-šessig, and the EZEN×ŠE variant of EZEN used at Boğazköy and now transcribed as EZEN₄)¹⁴, or are added to its periphery (see SIG₄ = LUM-šessig in row 2 of the table in Figure 4).

15. The assyriological evidence is unambiguous that SIG₇ is IGI-*gunû*. Our new sign (the so-called “GAŠAN+TI”) is therefore IGI-*gunû*-šessig in the descriptive terms used by Mesopotamian scribes to create sign names. The *gunû* elaboration of the sign U+ME (i.e., IGI) “thousand” produced SIG₇ “10,000”, and the šessig elaboration of SIG₇ “10,000” produced an even higher multiple. At this point it would be risky to guess at whether this sign indicated 10×10,000 (i.e., 100,000) or 100×10,000 (i.e., 1,000,000). In any event, we are dealing with a cipher, not a word in the language. We have to allow that the Hittite spoken equivalent may have been a compound word or two-words.

16. We have no direct evidence for the Hittite readings of these high numbers. In English we have a single word for “thousand”, but we have to express “ten thousand” analytically, as a multiple of the noun “thousand”. And “million” is a Latinism, while “billion”, “trillion”, etc., are multiples of “million” with Latin prefixes. The highest numerical term in the Hittite language for which we have concrete written evidence that it was a single word is “ten thousand”, as seen in the writing SIG₇-an with a phonetic complement¹⁵. Of course, since a single word can be a

¹⁴ See also MUN (DIM×ŠE).

¹⁵ KUB 8.67, iv 13', 18' (ed. J. Siegelová, *Appu-Märchen und Hedammu-Mythus*. Wiesbaden 1971, pp. 40-41). There are only two examples known to me of a Hittite case ending to LI-IM: (1) the genitive

compound, the Hittite words underlying SIG₇ and SIG₇-šessig could have been compounds containing the word for “thousand”.

17. All three of these signs or sign complexes for high numbers (*LI-IM*, SIG₇, and SIG₇+šessig) are usually preceded by a number, even if that number is “one”: 1 *ME* for 100, and 1 *LI-IM* for 1,000¹⁶. “10,000”, however, can be written either 1 SIG₇(-an) or just SIG₇(-an). The Hittite phonetic complement -an on SIG₇ was written only in OS and MS copies¹⁷. That complement shows that in the writing of “so-many ten-thousands of ...” both the “so-many” number and the word for “ten-thousand” were singulars.

18. Complex large numbers are written with combinations of these logograms plus their preceding ciphers: 1 SIG₇ 5 *LI-IM* 5 *ME* NAM.RA.MEŠ “15,500 captives” (in KUB 14.16, iii 20), etc.

The Role of the High Numbers in the Hittite Royal Ideology

19. There are traces in Hittite phraseology indicating that in their thinking the numerical unit “thousand” symbolized the highest attainable number: This is reflected in three hyperbolic expressions in their language. The fig contains “one thousand seeds”¹⁸. The wicker basket-sieve is called *pattar* 1 *LI-IM* IGI.ĪI.A-wa “basket (with) one thousand holes”¹⁹. And the pantheon, the aggregate of all possible gods, was called “the Thousand Gods” (written 1 *LI-IM* DINGIR.MEŠ).

20. The wish in the EZEN₄.ITU text for the longest conceivable life for the king and queen expresses the lifespan with three terms all based upon the unit of a “thousand”, each one multiplied by “9”, the highest multiplicand usable with *LI-IM*, since 10 *LI-IM* would always be

singular form *LI-IM-aš* KUR-*e-aš* “of a thousand countries” KUB 31.142, r. 4 (Eichner 88), and (2) *LI-IM-tili* “by the thousands”. But although Germanic **thūs-hundi-* “thousand” might suggest that the Hittite word “thousand” had a dental at the end, caution is in order, since the form 450 NINDA.ÉRIN.MEŠ 10-*tiliš* KUB 31.79, 6’ and 17’ can hardly indicate that “10” ended in a dental. In PIE high numbers of this kind are usually compounds (see O. J. L. Szemerényi, *Introduction to Indo-European Linguistics*, Oxford 1996, pp. 221-227 and M. Meier-Brügger, *Indogermanische Sprachwissenschaft*, Berlin-New York 2000, pp. 214-218).

¹⁶ If this rule applied also in compounds, it means that the title ^{LÚ}UGULA *LI-IM* cannot mean “overseer of a thousand”.

¹⁷ Without preceding “1” in the Song of Release: *nu* SIG₇-an GUD.ĪI.A-un *ħatteš* ... SIG₇-an GUD.ĪI.A-un *ħatteš* (17) 3 SIG₇ UDU UDU.ŠÚ KUN.ĪI.A-n=*a ħatteš* “She slaughtered 1,000 oxen ... 1,000 oxen ... 30,000 fat-tailed sheep” KBo 32.13, ii 15-17 (MS); with preceding “1” in 1 SIG₇-an MU.KAM.ÀM “10,000 annually” KBo 25.123, 9 (OS).

¹⁸ KUB 17.12, iii 8-9.

¹⁹ M. Popko, “Notes on Hittite Vocabulary”, *JCS* 26 (1974) 181-182 followed by CHD, Š/I sub *šakui-* 2. M. Mazoyer, *Télepinu, le dieu au marécage. Essai sur les mythes fondateurs du Royaume Hittite*. Paris 2003 102f., basing himself on a remote and somewhat unconvincing parallel containing *partawar* instead of this text’s *pattar*, translates “une aile, mille yeux et ensuite les *karaš* des béliers de Kamrušepa” (p. 77). The “thousand” would indicate a number beyond counting, regardless of which interpretation one chooses.

written “1 SIG₇”. At least in Hittite writing, if not in spoken numbers, the same would be true of SIG₇: there are no multiples of SIG₇ higher than “9”, since “10 SIG₇” would be written “1 SIG₇-šessig”! Thus the number “9” here represents the end of counting, the highest multiplicand usable with these words! And this accords with what Prof. Oettinger has demonstrated in his article in this volume. Each of the first two gods who ruled over heaven in the Song of Kumarbi (Alalu and Anu) ruled for a stretch of nine years (9 MU.ḪI.A-aš kappūwantaš “nine ‘counted’ (i.e., paltry) years”²⁰ KUB 33.120, i 12, 18), in which the choice of ‘nine’ must stress the upper limit beyond which each could no longer rule, even if that limit in this case produced a very short reign (see my translation “a mere nine years” in H. A. Hoffner, Jr., *Hittite Myths*, Atlanta, 1998, p. 42). In the *Song of Ullikummi*, Tablet 3 (KUB 33.106+) i 20-21, the stone monster’s dimensions are 9,000 miles in height and breadth. Note too how the Stormgod goes down to the shore of his *nine* seas (KUB 36.89, rev. 4; V. Haas, *Der Kult von Nerik*. Roma 1970, p. 150). The aggregate of the parts of a human body is given the number “9”. And a very wealthy man is expected to give extremely generously in gratitude to the Sun-god who made him wealthy: “And if you, O Sun-god, give wealth (lit., ‘goods’) to someone, let him give you ‘nine’. (But) he who is a poor man, let him give you a single sheep” VBoT 58, iv 11-12.

21. Quite aside from the literal enormity of the thousands, ten-thousands, and hundred-thousands of years, and aside from the symbolic use of the number nine, we need to be aware of the crucial role played by the word “thousand” in the royal traditions derived from the Hattians and their language. Here we are indebted to the research of the late H. S. Schuster²¹. EZEN₄.ITU itself has clear connections to the Hattic traditions, and is accordingly included in Jörg Klinger’s *Untersuchungen zur Rekonstruktion der hattischen Kultschicht*²².

22. In a recent article on the royal title Tabarna/Labarna²³, Soysal concurs with Schuster’s derivation of the title from the Hattic number /far/ “thousand” (written *pār*, *pa-ar* and *wa_a-ar*²⁴, indicating a pronunciation /far/ or /var/). Among other uses of the Hattic word *far* “thousand” Schuster cites Hattic *ta=par=wa=šhap* “the thousand Gods”. Schuster interprets the Hattic word

²⁰ For the this use of the pl. of *kappuwant-* cf. *kappuwanda<š>* UD.KAM.ḪI.A-aš “in just a few days” KBo 10.2, ii 17, *kappū[wanteš=pa]t antuḫšeš išparter* “only a few people escaped” KUB 14.4, obv. 52, and the English expression “his days were numbered” (i.e., he had few days left to live).

²¹ H.-S. Schuster, *Die Hattisch-hethitischen Bilinguen. II. Textbearbeitungen. Teil 2 und 3*. Brill 2002, pp. 245-247.

²² Klinger, *Untersuchungen*. (StBoT 37).

²³ O. Soysal, “On the Origin of the Royal Title Tabarna / Labarna”, *Anatolica* 31 (2005).

²⁴ Schuster, *Die Hattisch-hethitischen Bilinguen. II*, p. 247.

tafarna as meaning “lord of/over a thousand” (literally “the (one) of a thousand”: *ta* “the one” + *far* “thousand” + *n* “of” + *-a* [pronominal?]). Soysal accepts the identification of the *far* component in *Tabarna*, but rejects Schuster’s interpretation of the *n* component as the genitive, and compares the structure of the pair of titles: *ta=far=na* and *ta=wanan=na*. If the longevity wish for king and queen in EZEN₄.ITU which we have just been interpreting, wishing for them thousands and multiples of thousands of years, relates to these titles, the *Tabarna* title might describe the king as endowed with this divine longevity. On the other hand, the use of *far* “thousand” for the unlimited scope of the Hattic pantheon in *tafarwašḫap* “thousand gods” may rather describe him as empowered, perhaps even indwelt, by the entire pantheon. To extrapolate further gets us into idle speculation. But Schuster’s identification of the Hattic word *far* “thousand” in *tafarwašḫap* “thousand gods” and in the title *Tabarna* seems to me firm.

23. And whether or not the literal meaning of the title *Tabarna* makes reference to the king’s longevity, the wish in this Monthly Festival text gives us a *vivid* explanation of what is meant by the oft-repeated request for “long years” (*talugauš wittuš*, MU.ḪI.A GÍD.DA) for the king and queen.