



*Belkıs Dinçol ve Ali Dinçol'a Armağan*

**VITA**

*Festschrift in Honor of  
Belkıs Dinçol and Ali Dinçol*



Yayına Hazırlayanlar

Metin Alparслан

Meltem Doğan-Alparслан

Hasan Peker



*ege*

YAYINLARI



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# ASPECTS OF THE HITTITE SYSTEM OF NUMBERING

Harry A. Hoffner, Jr.\*

1. In the treatment of Hittite numbers in the forthcoming Hittite grammar by H. C. Melchert and the present writer<sup>1</sup> there are several areas that can be developed further. It was decided that these areas be left for a separate treatment by this writer. I dedicate them here to my two good friends and respected colleagues, Ali and Belkis Dinçol. And since I acknowledge here the status of this article as a development of the treatment in the grammar, I have retained much of the wording and formatting that will be found in the grammar, but considerably augmenting certain sections and curtail- ing or entirely deleting others.

## I. The Syntax of the Cardinals

2. Until recently research on Hittite numbers has focused on their morphology. Their syntax, while unclear in many points, is beginning to come into focus.

### A. Agreement in Case

3. The cardinal numbers 1 through 4 are declined like a substantive or pronoun, as are the higher cardinals when augmented by the suffix *-ant-* (§13). Declined cardinal numbers agree with the head noun in case: *nu≈šši ANA KUR URU Kargamiš URU Kargamišaš≈pat 1-aš URU-aš ŪL takšulait* “In the country of Carchemish, only Carchemish, the one town, did not make peace with him” KBo 5.6 ii 9-10 (NH), 1-*an* SAG.DU-*an* KBo 10.13 + KBo 10.12 ii 41, 1-*an ut-tar* “one thing” KUB 24.1 ii 3 (see also i 16), 1-*edani* AMA-*ni* KUB 23.102 i 15, *n=at 3-ēš* “they are three (both *-at* and *3-eš* are nom. pl. com.)” IBoT 1.36 iii 13 (MH/MS); *tēriyaš UD-aš mi-i-ú-wa<-aš> UD-aš KASKAL-an pāndu* “Let them travel a journey of three days (or) a journey of four days” KUB 43.60 i 10-11 (OH/NS), *šer=wa=kan UDU.NÍTA-aš 3-aš UZU UR-aš KUB 20.78 iii 6-7; nu mieuš kuiuš DUTU-uš tūriyan harši* “the four (draft animals) which you, O Sungod,

have harnessed” KUB 31.127+ i 52 (both underlined forms acc. pl. com.); *teššummiuš* (var. *tiššumiuš*) *4-uš tarli[p(it šuwamuš iyami)]* “I make four cups full of *tarlipa*-liquid” StBoT 8 ii 22 (OS) (underlined forms are all acc. pl. com.). Examples above “4” are probably inflected examples of cardinals with the suffix *-ant-*: 8-*andaš happešnaš* KUB 43.60 i 23; 8-*taš* (\*8-*antaš*) *kištunaš* KUB 31.143+ ii 1, 8, 8-*taš makitaš* ii 16, and *t=uš 9-aš* (\*9-*antaš*)<sup>GIŠ</sup>*tuhupziy[aš tianzi]* KBo 17.15 obv. 7 (OS) (see also: <sup>D</sup>UTU=*at 9-aš kuri[-...-aš ...]* KUB 36.49 i 10 [OS]) show case agreement in the dat.-loc. pl. In the case of 21-*aš* <sup>MUNUS.MEŠ</sup>*zintuhiyaš ŠA URU Kalpaššanašila* KBo 10.10 iii/iv 7 we may have a compound number TWENTY + \**šiedaš* (with “one” inflected in the pl.). The ablatives 3-*az=ma* 4-*az* 5-*az* 6-*az* 7-*az* KASKAL-*az* 617/p ii 9” (Haas and Wilhelm 1974: 181) may be ordinal numbers.

### B. Number agreement With Non-collectives

4. But the cardinal numbers above “1” do not always agree with their head nouns in **number**. For when non-collective head nouns were written with the numbers above “one”, the head noun could occur *either in the singular or plural*.

5. Old Hittite syllabic evidence shows singular head nouns with numbers higher than “1”: 5 *gāpinan* “five threads” KBo 17.1 iv 15 (OS), 3 NINDA *ān* “three warm breads”, 9 *muriyalan* (OS), 5 GUD *tāyugaš* “five two-year-old oxen” (OS), [(5 GUD)] *šaudišza* “five weanling oxen” (OS) (*tāyugaš*, and *šaudišza* are both sg. nom. common gender, according to our understanding), 2 NINDA *wagataš* (OS), 10 NINDA *haršin* (OS), 30 NINDA *hāliš* (OS), 3 NINDA *kištun* (OS), 10 <sup>DUG</sup>*haršiš* (OS), 2 NINDA *mitgaimuš* (OH/MS). Also possible is (“When the days of your fate arrive,”) *nu 9-an aralēn kappūwānzi n=an=ta kitkarza zikkanzī* “they will count off nine *aralē*’s and lay them(!) at

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<sup>1</sup> Hoffner and Melchert 2006.

your head” KBo 12.70 rev. 16’-17’; note that here not only is *aralten* ostensibly singular in form, but even the resumptive object pronoun *-an* is, whereas the imperfective *zikkanzi* suggests that there is a plurality of operations involved in laying the nine at his head. Similarly, *nu=tta 9-an ē[(tri)] / [adanna pe]škimī* “I will give you nine foods [to eat]” can show the cardinal “nine” taking a neut. sg. or pl. head noun *ētri*, but with an imperfective finite verb *peškimī* indicating plurality of action. In *tarmaš=šan 9-a[(n andan kitta)]* “A *tarmaš* —(a group of) nine — lies therein” KBo 17.3 i 4 (OS) the subject *tarmaš* is nom. sg. com., but the word order with head noun preceding might suggest that the *9-an* is appositional and the form specifying the composition of groups (“a group of nine”; see further below in §§16-17). Despite the imperfective verbs, however, it is likely that the rationale behind the choice of a singular head noun is the presence of a group. It is difficult to see, however, the rationale behind the plural head nouns in the following paragraph, since some of them seem also to constitute groups.

6. But beginning already in Old Hittite Script and continuing into the later periods, there are texts that also show cardinal numbers above “1” with plural head nouns: 2 <sup>D</sup>*hantašepuš* “two figurines of *h*.-deities” (OS), *teššummiuš 4-uš* “four cups” (OS), 3 <sup>NINDA</sup>*haršaēš* (OS), 2 <sup>MUŠEN</sup>*partūniuš* (OS), 20 [*pur*]*puruš* (OS), 3 <sup>GIŠ</sup>*palzaḫuš* (OS), 3 *ši-i-ú-uš* “three deities” (OS), 3 <sup>GIŠ</sup>*zaluwaniuš* (OS), 2 LÚ.MEŠ *ḫulḫuliyanteš* “two men fighting (each other)”, 3 *puššaleš* “three *p*.-garments”, 2 <sup>GIŠ</sup>*zaluwaniuš 2 ḫupparuš* “two *z*.’s (and) two *h*.-vessels”, 2 *tu[n]ingaš NINDA ḫaršauš* “two thick loaves (made) of *tuningaš*”, 2 <sup>KUŠ</sup>*annanuzziuš* “two leather harnesses” (OS), 8 <sup>TÚG</sup>*išḫimaneš neyanteš* “eight *i*.-garments (are) turned”, 2 <sup>LÚ.MEŠ</sup>*pi[tt]iyanduš* “two fugitives”, *aššū IGI.ḪI.A≈KA lāk LIM laplippuš kar(a)p* “turn (hither) your benevolent eyes; lift (your) thousand eyelashes” KBo 7.28 obv. 11 (OH/MS); 21-*aš* <sup>MUNUS.MEŠ</sup>*zintuḫiyaš ŠA URU Kalpaššanahila* KBo 10.10 iii/iv 7; *nu 10 walluš tianzi* “and they set out ten *walla-s*” KUB 29.1 iv 9; 2 NINDA.GUR<sub>4</sub>.RA KU<sub>7</sub>.KU<sub>7</sub> <sup>GIŠ</sup>BANŠUR-*i kianta* “two sweet thick breads lie on the table” KBo 20.8 obv.15 (OS) (note

KU<sub>7</sub>.KU<sub>7</sub> and the pl. verb.); 4 NINDA.GUR<sub>4</sub>.RA-*uš EMŠUTIM* StBoT 8 ii 23 (OS) (note the formal pl. adj. *EMŠUTIM*).

7. Some syllabic forms are ambiguous as to number, such as neuters and genitives: 2 *gipeššar* “two ells (of field)”, 7 <sup>GIŠ</sup>*hattalu* “seven bolts”, 6 *ḫarnāišar*, 10 <sup>NINDA</sup>*tānik* “ten *t*.-breads”, 2 *ḫūppar* “two *h*.-vessels” (OS), 8 *wakšur* (OS), 3 <sup>NINDA</sup>*wageššar* (OS), 3 *wat-taru* (OS), 2 *zipattanni* (OS), 100 <sup>GIŠ</sup>*gipeššar* (OS); *nu=šmaš=at 2-aš=pat / SAG.DU-aš ÚŠ-tar* “It will be (i.e., require) the death of those same two persons (lit. heads)” KUB 13.4 ii 49-50 (pre-NH/NS).

8. Logographic head nouns following numbers higher than “1” also can bear plural markers or not, although in this case it is by no means certain that a logogram without the plural marker conceals a singular Hittite noun. For example, the complement on 100 ÉRIN. MEŠ-*za* (KBo 22.2 rev. 6, OS) shows it to be a true singular despite the MEŠ on the ÉRIN, and shows that all other examples of uncomplemented ÉRIN. MEŠ after numerals represent a singular head noun. In the case of logograms other factors, some purely (ortho)graphic, appear to determine the use of the plural marker. For example, there seems to be a pattern of using the marker when the Sumerogram consists of a single sign: 3 LÚ.MEŠ *našma* 2 LÚ.MEŠ “three or two men” KBo 6.2 ii 11 (OS),<sup>2</sup> 7 DINGIR.MEŠ “seven gods”, 9-*it* <sup>UZU</sup>ÚR.ḪI.A-*it* “(together) with the nine body parts”, 50 NINDA.ḪI.A KBo 22.1:13 (OS); 30 UDU.ḪI.A “thirty sheep”, 15 GUD. ḪI.A “fifteen oxen” KBo 6.2+ iii25 (Laws §57, OS), 120 AZ.ḪI.A “120 wild animals”, 2 MUL.ḪI.A “2 stars” KUB 8.12:8, 2 <sup>GIŠ</sup>TUKUL.ḪI.A “2 weapons”, 2 INIM.ḪI.A “2 compositions” KUB 43.60 iv 16, 3 EZEN<sub>4</sub>.MEŠ 143/u:1 (cited in KBo XIX, p. vii); whereas when the logogram is either a multi-sign Sumerogram or is an Akkadogram, it lacks a plural marker: 3 NINDA.GUR<sub>4</sub>.RA “3 thick loaves”; 20 NINDA.ZU<sub>9</sub> “20 tooth-loaves”, 2 NINDA.GÚG, 2 NINDA.KU<sub>7</sub>, 3 GUD.MAḪ “3 bulls”, 18 UDU.ŠIR “18 rams”, 5 UDU.NÍTA “5 male sheep”, 10 MÁŠ.GAL “10 he-goats”, 2 É NIM.LÁL “2 beehives”, 12 SAG.DU “12 persons” (OS),

<sup>2</sup> The reason for the use of the plural marker on the logogram here *may* be because it isn’t a *group* of 3 or 2 men, but three or two men *as individuals* who lose their lives.

300 NAM.RA “300 civilian captives”, 16 MA.NA “16 minas”, 5 GA.KIN.AG “5 cheeses” KBo 22.1:11 (OS); 3 <sup>GIŠ</sup>BANŠUR AD.KID, 2 IZKIM (graphically, IGI.DUB), 5 EMŠU “5 rennets” KBo 22.1:11 (OS); 2 QATAM “2 shares” KBo 6.2 iii 11 (Laws §53, OS), 3 KABALLUM KBo 22.1:10 (OS), 7 <sup>UZU</sup>TERANU KUB 34.18 rev. 9, 8 AYARI “8 rosettes” KUB 22.70 obv. 20, 10 <sup>ŠA</sup>TIR. “10 TIRANU”. In the sequence 7 GUD. ĪI.A *pai* 2 GUD.MU.2 3 GUD.MU.1 2 GUD *šaudišza* “seven cattle (in all): two two-year-olds, three one-year-olds, and two weanlings” KBo 6.2 iii 34 (Laws §60, OS) the plural marker ĪI.A occurs on the simple logogram UDU, whereas it does not occur on the compounded ones: GUD.MU.1 and GUD.MU.1 and GUD *šaudišza*. the Queen of Kaneš’ 30 DUMU.MEŠ “thirty sons” KBo 22.2 obv. 1 (OS), is to be contrasted with her 30 MUNUS.DUMU in line 6.

9. That there are a small number of exceptions to this pattern is clear: 4 GUD 72 UDU “4 oxen and 72 sheep”, 4 EZEN<sub>4</sub>, 2 ŠUKUR (graphically, 2 IGI.GAG) but also 2 ŠUKUR.ĪI.A (both OS); 3 GUNNI.ĪI.A (graphically, 3 KI.NE.ĪI.A), 2 NINDA.GUR<sub>4</sub>.RA.ĪI.A “two thick loaves”, 30 NINDA.SIG.MEŠ, and 2 DUMU.MUNUS.MEŠ KUB 43.4 i 7.

10. The most common exception is with simple GUD or simple UDU, and these exceptions tend to occur in late administrative texts. But it does appear that there is a pattern which has nothing to do with the actual singular or plural form of the underlying Hittite.

11. When occurring in the tripartite construction “x head noun + head noun”, the first head noun indicating the unit of weight or measure, when written syllabically, is singular: 1 ME <sup>GIŠ</sup>*gipešsar* A.ŠÀ KBo 6.2

i 8 (OS). And this does seem to correspond to a logogram that bears no formal plural marker: 3 DUG *mar-nuan*, 1 ME MA.NA KUBABBAR KBo 6.2 i 3 (OS); 20 GÍN KUBABBAR (OS), 1 PA. ŠE (OS);<sup>3</sup> 6 NAM-MANDU LÀL KUB 17.28 iii 32; 3 ŠATU ZÍD.DA ŠE, 5 BÁN BA.BA.ZA, 2 BÁN *šimalu* KBo 19.126 rev. 16, ... The apparent exception to this pattern, 10 GÍN.GÍN KUBABBAR ... 5 GÍN.GÍN KUBABBAR KUB 29.29 ii 4-5 (Laws §144, OS), where the double writing of GÍN might be a means of marking plurality, has an explanation.<sup>4</sup>

### With Collectives

12. There is a different method of indicating the numbers with collective nouns (Neu 1992). Collective nouns can be counted as well as non-collective ones. But with the former what is counted are either sets or numbers comprising a single set. In this usage logographically “one” is written 1-NUTUM<sup>5</sup> (Akk. *ištēnūtum*), and all numbers above “one” are written with numeral + TAPAL<sup>6</sup>: 2 TAPAL, 3 TAPAL, etc.<sup>7</sup> This way of writing the number with collective nouns (i.e., numbering sets) is found with both logographically and syllabically spelled head nouns: 1-NUTIM/4 TAPAL <sup>GIŠ</sup>ZA.LAM.GAR.ĪI.A “one tent/four tents” and 1-NUTIM *widār* “one portion of water” / 14 TAPAL *šeḫelliya*<š> *widār* “fourteen portions of water of purification.” Note that the second example, *widār* the formal plural of the already semantically collective *wātar*, shows that this practice applies to all collective plurals, not just to those nouns that occur only as collectives.

13. As noted by Melchert 2000 59f., a syllabically-written complementation of the numeral can occur,

<sup>3</sup> But [(2 PA)]-RI-SÍ ŠE KBo 6.2 iv 22 (Laws §85, OS) could be plural (Akkad. *parisī*). Yet since PA-RI-SI occurs also in 5 PARISI ZÍD.DA *še[p]pittaš arra[ntaš]* KBo 25.79+ iv 5, with a dependent genitive, it may be that it patterns differently from the other units of measure.

<sup>4</sup> But note that GÍN.GÍN is used three times in the same law, preceded by the digit “1” and therefore representing the singular of the Hittite word for “shekel” (KBo 6.12 i 3-4).

<sup>5</sup> Often abbreviated to 1-NU.

<sup>6</sup> The abbreviation of Akkad. TAPAL as TA in inventory texts (Siegelová 1986 704f) is due to the nature of those late texts, as seen by the wholesale abbreviating of words in them. With numbers above “1”, however, the effect is the same: both ≈-ta (for -anta) and ≈ TAPAL indicate that sets are being numbered.

<sup>7</sup> This is *not to say*, however, that TAPAL never occurs in Hittite with the number “one”. There are quite a few post-OS examples: KUB 30.32 obv. 19, 22, KBo 10.36 obv. 14, KBo 37.3 + KUB 28.87 rev. 5, etc. But since no example of “1 TAPAL” is yet attested in Old Hittite Script, it is possible that it was introduced later on (false) analogy with the numbers greater than “one”. See 2-NUTUM KUB 38.3 i 14, unattested in Akkadian, which shows the same false analogy.

which shows a stem *-ant-*.<sup>8</sup> This *-ant-* stem of the number is the Hittite equivalent of Akkadographic writings with 1-*NUTUM* or numbers above “one” followed by *TAPAL*.

14. The endings on the *-ant-* stem agree in gender and case with the counted collective noun, showing a neuter form either when marking a formally singular but semantically collective noun (e.g., *pahhur* or *happeššar*) or when modifying a marked pl. neut. head noun. But the pl. neut. ending *-anta* marks the number of sets, while the number of components in a single set is marked an ending *-an*, which could be the sg. neut. of *-ant-*.

15. Examples of numbers ending in *-anta*, marking the number of sets or groups: <sup>Giš</sup>*harpa*~*ma* 1-*anta* LU-GAL-*aš* GİR~*ši* *kitta* MUNUS.LUGAL-*š*~*a* 1-*anta* *kitta* “As for woodpiles, one (set of unspecified number within the set) lies at the foot<sup>9</sup> of the king, and one (at that) of the queen” KBo 17.3 iv 25-26 = StBoT 8 iv 28-29 (OS). It can be seen that in this case the head noun *harpa* has an overt collective ending *-a*. Hence, it takes its numeral with the stem form *-anta*.<sup>10</sup> The full complement 1-*anta* makes shorter writings of the numeral with simple *-ta* certain in older texts. 4-*ta* *TAPAL* EZEN<sub>4</sub> ITU.KAM *kuit karšan ešta* KUB 5.7 rev. 30 means “that four monthly festivals (conceived of as four sets of festival activities, *not* “a single group/set of four festivals” which would have been written \*4-*an* EZEN<sub>4</sub> ITU) had been neglected”. In this passage the collective subject (4-*ta* *TAPAL* EZEN<sub>4</sub> ITU.KAM) takes the singular verb *ešta* by the rule of pl.

neut. subj. taking sg. verb. The singular linking verb (*ešta*) in turn caused the predicate adjective *karšan* to be singular.<sup>11</sup> In New Hittite, however, and especially in administrative texts, where abbreviated writings are common, we cannot be sure that the TA sign following a cardinal number is not an abbreviation for *TA-PAL*: for example in KBo 18.163, where Siegelová 1986: 170-171 translates 12 TA and 2 TA as “12 Paar” and “2 Paar”.

16. As for examples of numbers ending in *-an*, marking the number of components in a single set, we find several with the number 7-*an* and one each with 8-*an*<sup>12</sup> and 9-*an*. The shorter ending *-an* occurs in 7-*an* modifying the head noun *pahhur* which shows no overt collective ending, although it is collective in sense: *INA* UD.3.KAM~*ma* *kēz* 7-*an* *pahhur* *kēzzi*~*ya* / 7-*an* *pahhur* *pariahhi* “On the third day I kindle a (single) group of seven fires on one side, and another group of seven fires on the other side” KBo 11.11 ii 5-6.<sup>13</sup> Each group of seven fires is regarded as a “set”. A second example is: *nu* 7-*an* 7-*an* *anda išhiškanz[i] ..... / nu išhiyatar* AN.TAḪ.ŠUM.SAR *iya[nzi]* “They bind together two sets of seven [...], and [they] make a bound-together (group) of ANTAḪ.ŠUM plants” KBo 25.163 v 4’-5’.<sup>14</sup> The number 7-*an* seems to show the singular collective ending, not only because groups or sets are so clearly visualized, but also because 7-*an* can hardly be the simple cardinal. I adhere to the view of Melchert (see AHP 181) and others that final *-an* is not the expected outcome of final syllabic *m* in \**septm* “seven”. It is likely that the beverage name *šiptamiya-*

<sup>8</sup> This analysis seems correct for many examples of collectives, but it does not account for all instances of numbers with collectives nor for all uses of 1-*NUTUM* and *TAPAL* with nouns.

<sup>9</sup> The possessive clitic *-ši* shows that the complete form was singular, \**padišši*.

<sup>10</sup> The form *m(i)uwaniyanteš* used in the horse-training texts for a team of four chariot horses (Eichner 1992 §3.4.4.1 nd 3.4.4.3), if correctly analyzed as a participle (so CHD L-N 308f.), in spite of the *-ant-* suffix, would have nothing to do with the collective (“a team of four [horses]”).

<sup>11</sup> This is the simplest accounting. Alternatively, since taking 4-*ta* as 4-*anta* makes it redundant with immediately following *TAPAL*, one could translate “that four monthly festivals for *you* had been neglected” KUB 5.7 rev. 30. The alternate reading 4~*ta* with d.-l. *-ta* “for you (O god)” could be defended on the basis of *UM-MA ŠU~MA [ANA] DINGIR-LIM~wa* EZEN<sub>4</sub> ITU.KAM ŠA ITU.6.KAM *karšan* KBo 14.21 i 8 (NH). This provisional solution, however, requires assuming that the graphic nexus between the numeral and the logogram *TAPAL* (which corresponds only to a stem on the declined number) could be broken by the enclitic pronoun which in speech would follow the stem and ending. Both solutions have their difficulties.

<sup>12</sup> *nu* 8-*an* NINDA.SIG *dāi* KUB 32.45 rev.? 11.

<sup>13</sup> Eichner 1992 83f. cites 7-*an* in KBo 11.11 ii 5-6 and saw that the *-an* could not be a reflex of PIE *septm*~. He thought it could have contained an “-nt- stem” meaning “seven at a time”, but he does not elaborate this idea. For such an -nt- “-times” one could invoke the variant *ma-ši-ya-an-te* for *mašiyanki* “however many times”, but see CHD L-N s.v., where possibilities of paleographic confusion (TE for intended KI) are raised.

<sup>14</sup> The status of 7-*an* in KUB 27.29 i 28’ is unclear, in part because of the broken context.

Numbering Sets/Groups in Nom.-Acc. (X = number of sets, Y = number in each set)	
1 X set(s), each set of unspecified number (Y) of sheep [Y is not expressed]	X- <i>anta</i> (X <i>TAPAL</i> or 1- <i>NU</i> < <i>TIM</i> >) UDU
2 One set consisting of Y sheep [X, which is always understood as “one”, is not expressed]	Y- <i>an</i> UDU
3 X set(s) of Y sheep [both X and Y expressed]	X- <i>ŠU</i> (or X- <i>anki</i> ) Y UDU

shows the *a* before the *m*, because it was formed early enough to retain the regular internal treatment. The second example is not contextually as clear, but fits the pattern observed elsewhere: NINDA.GUR<sub>4</sub>.RA<sub>2</sub>ya 7-*an* <sup>D</sup>Hebat paršiyannai / memiškezzi<sub>2</sub>ya QA-TAMMA “He breaks seven thick breads ... as for thick breads, he breaks a set of seven for Hebat, and speaks the same way” KBo 11.14 ii 30-31 (MH/NS). It is uncertain if the number in (§) 5-*an* zandanatar šarā [.....] KUB 8.62 iv 8 is a cardinal number modifying zandanatar, or an ordinal number (“a fifth z.”).

17. But the examples with 9-*an* are less certain, since the -*an* complementing “9” could also be the end of the uninflected cardinal number itself.

18. Since only in the nom.-acc. and d.-l. cases can the distinction between the singular and plural forms of the set-numbering (“collective”) numbers be distinguished, the following table summarizes how these pattern, using either the number of sets (“X”) or the number in each set (“Y”) or both numbers. In the first two rows of the table the number represented by X, if it has any Hittite complement, takes -*anta* (even its number is “1”!), while Y, if it has a Hittite complement, takes -*an*. In row 3 neither X nor Y show collective suffixes. X-*anki* is the regular formation for “X-times”, while Y would be the normal cardinal number. This third row is included here, not to illustrate use of the collective suffixes, but to show how the Hittites indicated both the number of sets and the number of items in each. For this purpose they did *not* use the collective suffix on either number.

19. Examples of row 1 can be found in §15, those of row 2 in §16.

20. An example of row 3: <sup>GIŠ</sup>zuppari 2-*ŠU* 9-*an* — kez! 9-*an* lukkanzi [k]ezzi<sub>2</sub>ya 9-*an* lukkanzi “torches:

two sets of nine — on one side they light a set of nine, and on the other side they light a set of nine”. Since in this case the number is “9”, we cannot tell of the -*an* ending is the final part of the simple cardinal, or is in its singular collective form.

21. In the oblique cases no distinctive collective ending shows on the head noun, but when the sense is collective, the stem of the number is enlarged by -*ant*-.

22. The following two examples with oblique case endings represent numbers of components in a single set (row 2 in the table above). For an instrumental form see 10-*antit*: [... I]ŠTU 2 QATI<sub>2</sub>KA 10-*antit* kalulup[it<sub>2</sub>titt<sub>2</sub>a...] “with your two hands, [and] with your (set of) ten fingers” KBo 17.32 obv. 12. In the latter example it isn’t ten “sets” of fingers, but ten fingers comprising a single set, which calls for the collective form of the numeral (i.e., with the -*ant*- suffix). Of course, the ablative and instrumental cases do not show distinctive singular and plural endings, but the semantics here favors the singular meaning, i.e., indicating the number of items in the set.<sup>15</sup> The d.-l. collective 9-*anti* ḥappešni KBo 21.14 obv. 13 means “on a/the set of nine members”.

23. One also finds numbers without phonetic complement with nouns that appear to be collectives, both logograms and syllabically written words: 2 <sup>GIŠ</sup>KANNUM beside 2 *TAPAL* <sup>GIŠ</sup>KANNUM “two racks/stands”, 1 *galgalturi* beside 1-*NUTIM* *galgalturi* “one (set of) cymbals.” It is uncertain whether such writings are abbreviated for \*1-*anta*, \*2-*anta* or reflect a genuine alternative use of the simple cardinal numbers with collectives. But the alternation with *TAPAL* in the first instance and 1-*NUTIM* in the second show that these are X numbers, numbering the sets, not indicating how many members were in each set. When the

<sup>15</sup> The form 10-*anza* in 10-*an*-za annan[*ešhi*-...] “a set of ten annan[*ešhi*-s]” KBo 24.11 rev. 10 could be com. sg. nom. form of the suffix.

numbers lack complementation, it is only the context that can show whether they are X or Y numbers.

### C. Counting Non-decimal Sets

24. The PIE number nomenclature implies a ten-base system of counting. But just as in some IE languages other groupings can occur (“four-score”, “two dozen”) (Buck 1949: 936 #13.31), so also in Hittite larger numbers were sometimes expressed in multiples other than tens, hundreds. The multiplier is regularly written with the Akkadian suffix  $-šU$ , while the multiplied number has either no complement or rarely the regular complement  $-an$  (see 9- $an$ ). Note, however, that while the multiplicand varies (the favored numbers being 7 and 9), the multiplier does not exceed 4 and rarely exceeds 2, and the multiplicand is always larger than the multiplier. Only with 9, the highest of the multipliers is a multiplier larger than the multiplier  $2\sim šU$  used. A rare exception to this is the expression 8- $anki$  8 “eight times eight” KBo 53.47 obv. 1’-3’. Whether the regular writing with  $-šU$  for the multiplier in this construction always stands for the adverb in  $-anki$  is uncertain. Of the syllabically written numbered items used in the expressions only  $kappin$  is unequivocally singular, while  $kištunaš$ ,  $makitaš$  and  $šarama$  are unambiguously plural. See also below in §49.

$2\sim šU$	4	= 8	NINDA $wageššar$
$2\sim šU$	7	= 14	$ētri^{HI.A}$ , $kappin$ , $paššilaš$ , GIŠGAG
$2-iš$	8- $taš$	= 16	$kištunaš$ , $makitaš$
$2\sim šU$	9	= 18	$šalakar$ , NINDA.UMBIN. HI.A, UDU.HI.A
$2\sim šU$	9- $an$	= 18	GIŠ $zupari$
$3\sim šU$	9	= 27	EME.MEŠ, NINDA. KUR <sub>4</sub> .RA
$4\sim šU$	9	= 36	NINDA.ÉRIN.MEŠ
5.TA.<À>M	10	= 50	NINDA $šarāma$

#### Sets of Two (Pairs)

25. When numbers of “pairs” of objects or persons were expressed, scribes wrote the number +  $yugan$  “yoke, pair” (or logographically as number +  $šIMDI$ ) + the noun in the plural: 9  $yugan$  LÚ.MEŠ  $hunepiš$

LÚ.MEŠ  $halliyareš$  nine pairs of  $h$ -men (and) singers”; 2  $šIMDI$  GUD.HI.A  $tu-ri-ya-an-zi$  “they shall hitch up two pairs/teams of oxen” Laws §166; 20  $šIMDU$  ANŠE.KUR.RA. HI.A  $waškan$  /  $[k]arū parā neḥḥun$  “I have already dispatched 20 teams of (chariot) horses” HKM 19:21-22 (MH/MS). Some words introduced by 1- $NUTUM$  or number +  $TAPAL$  have meanings where “pair” or “team (of two)” would be suitable: HUB.BI “earings”, KUŠE.SIR. HI.A “shoes”, GIŠ  $huhupal$  “clapper” (or similar concussive musical instrument), GUD.HI.A “oxen.” In these cases it is possible that some Hittite expression like  $yugan$  “pair, yoke, team” underlies 1- $NUTIM$  or  $X TAPAL$ , rather than a number in  $-ant-$ . But one should not exclude the possibility that, as in Akkadian, “pair” was simply conceived as a “set (consisting of two)” (see §12).

#### Counting large numerical units

26. Fairly common are logographic expressions like  $x ME$  “x hundred”,  $x LIM$  “x thousand” and even  $x SIG_7(-an)$  “x ten-thousand”. Of these only the last-mentioned shows a Hittite complement. And since we do not know the Hittite word for “ten thousand”, it is impossible to know if the final  $-an$  is part of the root, a case ending or a special suffix such as that used to indicate the size of individual groups (§§16-18). One even finds such complex numbers (e.g.,  $x ME$ ) followed by units of measure and the items measured: 1  $ME$  GIŠ  $gipeššar$  A.ŠÀ KBo 6.2 i 8 (Laws §6, OS), showing all members in the same case and number.

#### Counting units of weight or measure

27. Many of the units of weight, size, or measure are logograms: BÂN, GÍN, MA.NA, etc. But some are syllabically written:  $tarnaš$ ,  $gipeššar$ ,  $kapunu$ , etc. For extensive documentation see van den Hout 1990. For the syllabic terms we have some indication of the syntax of counting with units of weight or measure. The grammatical gender of terms for units of weight and measure are not always clear, and of course with neuters the plural is often indistinguishable from the singular. One assumes this to be the case, for example, with  $kapunu$ ,  $gipeššar$ ,  $wakšur$  and  $šekan$ , and possibly also with  $hazzil-$ ,  $nahši-$ , and  $zipaddani-$ . If so, there is no way to tell if these occur in the plural unless a Sumerian plural marker is attached. And failing other inflected forms, even the form  $pūtiš$  used

with salt measure cannot be proven to have a stem *pāti-*, although this is generally assumed (see CHD P 402 with lit.). Both *tarnaš* and *naḥ(ha)šiš* are assumed to be from the stems *tarna-* and *naḥ(ha)ši-*, although neither is attested in case forms other than nom. sg. com. But since s-stems seem unmotivated for these forms, the assumed stems may very well be correct. And if so, then the pattern for counting units of weight and measure is the same as counting non-collectives using singular head nouns (see §§4, 5, 7, 8), and the only difference is that the item that follows the unit of weight or measure simply agrees with it in case instead of being a genitive.

28. The pattern is demonstrated by the following: 1 *kapunu* A.ŠÀ KBo 22.1:14 (OS); 6 *kapunu* A.ŠÀ KBo 3.7 iv 24; 7 *kapunu* 10 IKU Ú.[SAL-LUM] 1312/u 18'; 125 *kapunu* 20 IKU A.ŠÀ SBo 1.3 = LSU 3 obv. 6; 1 *naḥḥašiš* Ì.NUN KUB 42.105 iii 13; 1 *pātiš* MUN KUB 32.123 ii 18; 3 *pātiš* MUN KUB 35.142 iv? 14; 1 *tarnaš* Ì.NUN KUB 42.105 iii 9, 17; 2 *gipeššar aršiš* KBo 6.12 i 13 (Laws §103, NS); A.ŠÀ 1 *gipeššar* KBo 6.26 i 47 (Laws §168, NS);

29. CHD L-N 342 notes the interesting word order pattern with *naḥ(ha)ši-* that without preceding numeral the unit follows the head noun (LÀL *naḥziš*), whereas with the numeral it precedes (1 *naḥḥašiš* Ì.NUN). The same pattern can occasionally be seen with *tarna-*: 1 *tarnaš* Ì.NUN, 1 *tarnaš* LÀL KBo 38.229:5; 1 *tarnaš* GİŠGEŠTIN.ḪÁD.DU.A KBo 38.229:6; but NINDA. GUR<sub>4</sub>.RA *tarnaš*. If the parallel with *naḥziš* is genuine, it would exclude interpreting the latter construction as a genitive of *tarna-*. But here there are many exceptions: 1 NINDA.KU<sub>7</sub> *tarnaš* KUB 33.62 iii 15; 5 NINDA.SIG 1 *tarna[š]* Bo 6046:12; and NINDA. KU<sub>7</sub> ŠA ½ [UPNI]; 2 NINDA.GUR<sub>4</sub>.RA EMŠUTIM ŠA 2 UPNI KBo 9.140 iii 6; 2 NINDA.GÚG *nu* 1-*išša* ŠA 2 UPNI which seem to indicate a following genitive, when the unit of measure is “one”. Compare similarly: 1 UPNU ARZANNU KUB 42.105 iii 11, but 1 NINDA.GUR<sub>4</sub>.RA EMZU ŠA UPNI KBo 17.75 i 30; 5 NINDA.GUR<sub>4</sub>.RA KU<sub>7</sub> ŠA UPNI KUB 53.14 ii 21; 2 ½ ŠADU ZÍD.DA but x ŠA y ŠATI.

## Other Sets

30. In many languages there are nouns referring to objects consisting of multiple parts that inflect only as plurals (the pl. tantum of the classical languages; see Latin *aedēs* “temple” or English “scissors, pants”). In the case of the English examples cited one always says/writes “one pair of scissors/pants.” Many such nouns in Hittite clearly are treated as *collective* plurals and are counted as described above in §12 and following. On the other hand, there are also examples that appear to be inflected only as *count* plurals. These also are attested with 1-NŪTUM and TAPAL:<sup>16</sup> 1-NŪTUM *manniniš* “one necklace”, [x T]APAL *manniniuš* “x necklaces.”<sup>17</sup> The contrast with 1-NŪTUM *ḫuḫhurtalla*, also “necklace” of some kind, shows that we cannot easily predict whether the Hittites viewed a particular composite object as a collective or set of discrete parts. Thus we do not yet know for many examples attested as logograms with 1-NŪTUM and TAPAL whether we should assume collective or count plurals.

## D. Word Order in Counting

31. Numerals precede their head nouns. Exceptions are appositional: *n≈ašta* URUḪattušaš≈pat URU-riaš 1-*aš ašta* “Ḫattuša the city alone (lit. as one) remained (loyal)” KBo 10.2 i 26 (OH/NS); [<sup>m</sup>Ku]panta-<sup>d</sup>LAMMA-*aš≈ma≈kan* LÚ URUArzauwa 1-*aš ḫūwaiš* “Kupanta-Kuruntiya, the man of Arzawa, fled alone” KUB 23.21 obv. 31-32 (CTH 143); *nu≈mu≈kan* <sup>m</sup>Pittaggatališ≈pat / 1-*aš išparzašta* KBo 5.8 iii 31-32; to see that these are really appositional see the unabbreviated form in [(<sup>m</sup>Tapalazunauliš≈ma≈k)] *an* 1-*aš* SAG.DU-*aš išparzašta* KBo 3.4 ii 77; and <sup>m</sup>Mammališ≈ma≈kan 1-*aš* S[AG.DU-*aš išparzašta*] “Mammali as the sole per[son escaped]” KBo 40.6 + KBo 14.7 i 6'; *nu≈šši* ANA KUR URUKargamiš URUKargamišaš≈pat 1-*aš* URU-*aš* / ŪL takšulait KBo 5.6 ii 9-10; *nu≈za ammuk* 1-*aš* INA É≈YA 15,500 NAM.RA.MEŠ *uwatenun* “And I alone led off 15,500 captives to my house” KUB 14.16 iii 20-21 (AM), *nu zik* 1-*aš ūnni* “You drive here alone!” KUB 21.1

<sup>16</sup> Although we do not know that the Hittite equivalent in this case was the number suffixed with *-ant-*, this seems likely.

<sup>17</sup> The formal singular *manniniš* merely reflects the fact that Hittite can use singular or plural with any number (§§482-483) and does not argue against the idea that “necklace” is a noun viewed as a unit (or set) consisting of many parts.

+ KUB 19.6+ ii 69. It is also possible that 1-*aš* here stands for *šielāš* “alone, single” (§56). Note that all examples above are the number “1”. For numbers other than “1” see: <sup>[NINDA]</sup>*haršaēš* 3-*ēš* KBo 17.58 i 5 (OS); *teššummiuš* (var. *tiššummiuš*) 4-*uš* StBoT 8 ii 22 (OS); *tarmaš=šan* 9-*a*[(*n andan kitta*)] KBo 17.3 i 4 (OS); <sup>GIŠ</sup>*harpa≈ma* 1-*anta* KBo 17.3 iv 25 = StBoT 8 iv 28 (OS); NINDA.GUR<sub>4</sub>.RA≈*ya* 7-*an* <sup>D</sup>*Hebat paršiyannai* KBo 11.14 ii 30 (MH/NS); <sup>GIŠ</sup>*zupari* 2-*ŠU* 9-*an* “torches: two sets of nine” KBo 20.34 rev. 10 (Ḫantitaššu ritual); ÉRIN.MEŠ 100 *IŠTU* É.GAL *piyanzi* KUB 58.58 i 17 (NH).

32. A genitive dependent upon the head noun precedes it, following the number: 20 <sup>NINDA</sup>*šaramnaš* *ḫā*[*liš*] KBo 25.15+:7 (OS), unless the head noun is a logogram: 10 <sup>DUG</sup>*DÍLIM*.GAL *kuškušuw*[*aš*] KBo 25.15+:10 (OS). This is simply the pervasive word order rule in Hittite: that attributive adjectives precede their head nouns unless that head noun is a logogram.

33. Integers plus fractions precede the common head noun: 2 ½ MA.NA. But rarely the integer and the fraction are individually followed by the identical head noun: 19 PA. ½ PA. *šepet* HKM 111:11 (MH/MS); 2 GÍN 1 ½ GÍN KÙ.BABBAR KUB 29.39 i 11; 2 DANNA ½ DANNA=*ya* KUB 1.13 i 39.

## II. Fractions

34. The sign MAŠ (HZL #20, which may also be transcribed as “½”) serves to represent the noun “half”, to which the plural marker ḪI.A (MAŠ.ḪI.A or ½.ḪI.A “halves”) or the Akk. sg. acc. phonetic complement -AM (MAŠ-AM or ½-AM) can be appended. The

underlying Akkadian noun is *mišlu(m)* “half”. No syllabic writing of the underlying Hittite word has yet been identified. See §60 for more fractions as components of compound numbers.

35. All that can be determined at present is that it was neuter: *kuit* MAŠ-AM *ḫarzi n=at* KUB 20.99 ii 8-10.<sup>18</sup> But although the cuneiform writing system contained words and signs<sup>19</sup> for other fractions,<sup>20</sup> they are so far unattested in Hittite texts. As for the syntax, “one half of an X” is written with the head noun (“X”) in the same case as the noun for “half”: ½ <sup>NINDA</sup>*ḫaršiš* KBo 16.71 iii 6 (OS); ½ <sup>NINDA</sup>*tunik* KBo 20.3 iii 14 (OS).

36. A second graph that has been claimed for “half” in Hittite texts is ŠU.RI.ÀM (HZL 123 #68). But in the two occurrences known to me it immediately follows the ½ (i.e., MAŠ) sign in a redundant manner: “half” is doubly written (KUB 30.62 + KBo 31.7:8, 10).

## III. Ordinal Numbers

37. Only the following primary **ordinals** are attested in syllabic writings: *ḫantezzi(ya)*- “first” (this declines), *dān* “second” (that is indeclinable). “Second” is also written Akkadographically as 2- *NU-Ú* (i.e., Akk. *šanû*) or with cipher plus complement as 2-*an*. The Hittite *t/damai*- (an extension of the stem *dā*- “two”) can serve as a declinable ordinal “second” (Eichner 1992: 54, 57), but often means only “another”.<sup>21</sup>

38. *āšma* is not, as used to be thought (HW and HW<sup>2</sup> sub voce, Eichner 1992: 43f.), the adverbial ordinal “firstly”<sup>22</sup>. *dān* means “second” (adj.) or “secondly, thereafter” (adv.). It is not also a multiplicative (“two-times, double, twice”).

<sup>18</sup> One example shows neuter *kuit* but *n=an* resuming: *nu* ZAG-*ni-it* [QA-TI-ŠU] / *ku-it* ½-AM *ḫar-zi na-an-ša-an* <sup>D</sup>*IŠTAR-aš i*[š-ta-na-ni] ZAG-*az* / *da-a-i* GÜB-*li-it-ta* QA-TI-ŠU *ku-it* ½-A[M ḫ ar-zi] / *na-an-ša-an i*[š-ta-na-ni] GÜB-*la-az d*[a-a-i] KuT 53 ii 43-46, ed. Wilhelm 2002 342-343. The same text just quoted for common gender agreement has another example where assimilation of the sequence *nš* > *šš* shows a survival of OH phonology in a MH/MS text: *nu* [Z]AG-*ni*[t QATE≈ŠU] / *ku-it* ½-AM *ḫar-zi na-aš-ša-an* <sup>D</sup>IM-*n*[a-aš iš-ta-na-ni] / ZA[G]-*az da-a-i* GÜB-*li-it-ta* QATE≈ŠU *k*[u-it] / ½-AM *ḫar-zi na-aš-ša-an* <sup>D</sup>IM-*na-aš iš-ta-na-ni* / GÜB-*la-az da-a-i* KuT 53 ii 15-19. Although KuT 53 is a MH composition, not a copy of an older text, the unexpected resumption with -*an* (which contradicts the *kuit*!) may be due to a false resolution of a dictated *na-aš-ša-an*. The assimilated form *na-aš-ša-an* dictated to the scribe in two parts of the text would actually be from *na-at-ša-an* (see §149). But confused by two possible sources (*n=at=šan* and *n=an=šan*), he resolved one instance falsely as *na-an-ša-an*.

<sup>19</sup> E.g., ŠANABI “two thirds”, KINGUSILA “five sixths”.

<sup>20</sup> For the Akkadian see GAG §70 f-m.

<sup>21</sup> Eichner 1992: 59 also derives *takiya... takiya* “to one... to another” from this stem.

<sup>22</sup> On the Adverb/interjection *āšma* see Hoffner 2002-2003. *āšma* is not an ordinal adverb “first”, against HW and HW<sup>2</sup> sub voce and Eichner 1992:43-44 and thus gives no evidence for a stem *ā* “one” in Hittite.

39. The question arises: were the ordinals above “second” indeclinable or declined? Contextually (i.e., its singular verb), one is required to see the “11” in the following example as an ordinal, but it lacks complementation: *mān* <sup>URU</sup>*Arinna* 11 *ITU-as tiēzzi* “When in Arinna the eleventh month arrives” KBo 6.2 ii 61 (Laws §50, OS).

40. There are a few examples of ordinals in series, attested up to 10, all ending in -an- na.<sup>23</sup> But contrary to the claims of Sommer and Friedrich (e.g., HE §133 b), there is no Hittite ordinal suffix-anna. The allaget examples all consist of the ending -an and the geminating conjunction -a “also” (attested in a series: “...also a second (time), and also a third (time)”, etc.) (Eichner 1992: 62, 67, crediting Hrozný for his analysis). In the attested examples of acc. ordinal numbers some modify common gender nouns, such as *zašhain* “dream” KUB 17.1 ii 4-11 or *hubrušhin* KBo 5.2 ii 57-61, iii 1-12, and others neuters such as 5-an *zandanatar* “a fifth z.” KUB 8.62 iv 8 and 6-an *zandanatar* “a sixth z.” KUB 8.62 iv 17. But since the complement can stand for -an or -antan, one cannot prove that examples modifying common gender head nouns did not agree in gender. That being the case, nothing proves that the final *n* is part of an ordinal stem, or that the ordinals above “second” did not decline<sup>24</sup>. But in the clause LUGAL-uš-ša-an nam-ma 3-an 3-an pé-di / <sup>NINDA</sup>at[a-pár-w]a-šu-u-i <sup>GIŠ</sup>kal-mu-uš / ta[k-ša-an] e-e[p-]zi KUB 2.10 iv 33-35 the form “second(ly)” occurs in LUGAL-uš-ša-an nam-ma da-a-an / <sup>NINDA</sup>taparwašui <sup>GIŠ</sup>kalmuš / ták-ša-an e-ep-zi KUB 2.10 iv 24-26, which means pretty much the same thing. If so, then we would have evidence that indeclinable 3-an “third” also occurred, at least in combination (“Univerbierung?”) with following peda- “place”, perhaps on analogy with *dān* *pedaš* DUMU “son of second rank/place”.

41. In a passage from the Song Kumarbi 3-ann≈a≈tta armahhun nakkit <sup>D</sup>Tašmit “and thirdly I have impregnated you with the noble god Tašmišu” KUB 33.120

i 33, the form 3-an has to be a sg. neut. used adverbly (“thirdly”). The only other option, that it refers to the third deity, would require that it agree with the instrumental noun nakit <sup>D</sup>Tašmit (which it patently does not) or be indeclinable.

42. Other numbers with -an complementation are probably not ordinals, but cardinals, some if not all are of the “collective” type (see § 16.)

43. The forms “third (time)” (*teriyan*, also written 3-an), fourth (time)” (4-an) and “fifth (time)” (5-an) also existed in syncopated forms *terin* 4-in 5-in KBo 11.14 ii 15:<sup>25</sup> *ziqq≈a* <sup>D</sup>UTU-uš *īt nu terin* 4-in 5-in / *wēllui tūriya lā dariyantān* / *tūriya≈ma waršiyantān* “But you, O Sungot, go! And hitch (them) up in the meadow – a third (time), a fourth (time), a fifth (time): unhitch the worn out one, and hitch up the fresh one!” The appearance of -in with 4 and 5 indicates that those ordinals also ended in -i(y)an, the *i* not being a part of the root of those numbers. This needs explanation. Either analogy with *teri(ya)n* is at work, or one has to posit an initial *i/ya* to the ordinal suffix (see § 52 and *šiptamiya*). The form of the ordinal numbers here is sg. nom.-acc. used adverbially. “Thirdly”, etc., has the force of “a third time”. They are probably not acc. com. gender forms modifying the animal in question, because an unhitched animal, one given rest, would be re-hitched up, as the immediately following context indicates.

44. Logographic writings of such time expressions as UD.(numeral). KAM, ITU.(numeral). KAM, and MU.(numeral).KAM, and of one non-temporal word DUB.(numeral).KAM have an ambiguity that only the context can resolve: they can reflect either cardinal or ordinal numbers. Thus UD.1.KAM in one context may mean “one day” and in another “day number one”. Similarly DUB.2.KAM can be either “two tablets” or “tablet number two” (= the second tablet). The original meaning of .KAM in the above

<sup>23</sup> Since the KBo 5.2 ii 57 – iii 13 the series *hantezzin*... 2-ann≈a ... 3-ann≈a ... 4-in ... 5-n≈a ... 6-n≈a ... 7-n≈a ... 8-n≈a ... 9-n≈a ... 10-n≈a continues with 11≈ma (intending 11-an≈ma) ... 12≈ma ... 13-ma ... 14-ma, one could say that ordinal forms are attested even higher. But 10-n≈a is the highest one attested with the explicit complement -an.

<sup>24</sup> Another example of agreement with an sg. acc. com. head noun is 3-an *ŠU-an* “a bird hand” KBo 9.79:6.

<sup>25</sup> Noted as syncopated ordinals by Eichner 1992: 67f., but with no comment on neuter gender.

constructions was the Sumerian genitive suffix  $-(a)k+$  the enclitic copula  $-am$  “it is”. This fused in writing as the single sign KAM. But Hittite scribes, ignorant of the real meaning of KAM in such constructions, abstracted from UD.1KAM “firs day” or “day number one” the discontinuous elements UD and KAM and created a new logogram UD.KAM “day”. By the same process they generated MU.KAM “year” and ITU.KAM “month”, but not \*DUB.KAM “tablet”. A second indication of their lack of understanding of the (NOUN).(NUMERAL).KAM construction was their generating by analogy with DUB.(number).KAM a writing *TUP*-(number)-*PI* “x tablets” or “tablet number x”. Scribes also abstracted from the prefixed and suffixed determinatives of city names (e.g., <sup>URU</sup>*HA-AT-TI*<sup>KI</sup> KBo 3.45:3’) a logogram URU.KI “city”.

#### IV. Ordinals in -t-

45. The only candidates for ordinals in oblique cases with Hittite complementation seem to show a stem containing  $-t-$ : 9 MU.ḪI.A-*aš kappūwantaš* <sup>D</sup>Alaluš AN-*ši* LUGAL-*uš ēšta* 9-*ti~an* MU-*ti* <sup>D</sup>Alaluwi <sup>D</sup>Anuš *menahḫanda zahḫain* [pa]i<sup>š</sup> “For a mere nine years<sup>26</sup> Alalu was king in heaven; in the ninth year Anu gave battle against Alalu” KUB 33.120 i 12-13 (Song of Kumarbi), ed. García Trabazo 2002 162f. with n.31, compare i 18 (9-*ti~an* MU-*ti*). See also: [(9-*an-t*)]i KASKAL-*ši~ma* “but on the ninth time” KBo 10.45 ii 37 w.dupl. IBOT 2.128 rev. 7-8, ed. Otten 1961: 124, 157. This occurrence might show that the suffix was  $-ant-$ , but we cannot exclude the possibility that the

$-an-$  portion is the end of the number “9”, and the  $-ti$  the regular d.-l.sg. termination of a  $-ta-$  stem (perhaps an inherited  $*-to$ <sup>27</sup>).

46. The dental suffix –whether it is  $-ant-$  or  $-t(a)-$  – serves here to differentiate the final member of a numbered sequence from its predecessors. The ninth year is set off from the first eight, as is the ninth time the celebrant speaks, the conjunction  $-al-ma$  marking that contrast. This is the expected function of an ordinal suffix in an older Indo-European language.<sup>28</sup> If the suffix is rather  $-ant-$ , it would serve an individualizing or demarcating fuction analogous to its use with nouns for seasons of the year: as *ḫamešḫanti* (“in particular spring”) differs from *ḫamešḫi* (“in springtime = any spring”).<sup>29</sup> In either case the function is that of an ordinal, and we classify these examples as such. For another view see Eichner 1992: 86.

#### V. Syntax of the Fractions and Ordinals (47)

#### VI. Multiplicatives

47. As multiplicative *adverbs* in the meaning “x-number of times” (for both temporal repetition and purely mathematical multiplication) we find numbers with phonetic complements in  $-anki$ <sup>30</sup> or  $-kiš$  /  $iš$ <sup>31</sup> or written with the Akkadographic suffix  $-šU$  (GAG §71a). In the absence of contrary evidence we suggest that the Hittite suffix was  $-anki(š)$ .<sup>32</sup> On possible adjectives in  $-(l)iš$  modifying bread names see §51.

<sup>26</sup> The “nine” yerars of these heavenly reigns could be understood as expressing innumerable years, since the number “nine” is used in its symbolic sense of an incalculably large number. See Hoffner forthcoming. See fn. 15. But it is not excluded in this one case, especially with the use of *kappuwant-* “countable, few” (cf. *kappuwanta<š>* UD.KAM.ḪI.A-*aš* “in just a few days” KBo 10.2 ii 17) and the asyndetically introduced following clause “in the ninth year...” that the nine years are not aged but actual years and are meant to indicate truncated reins. See Hoffner 1998: 42 (“for a mere nine years”).

<sup>27</sup> For PIE  $*-th_2o-$  as an ordinal suffix, see Meier-Brügger 2000: 219, 2003: 236.

<sup>28</sup> See the description of the ordinal in PIE: “Den Ordinalzahlen kam im Uridg. ... die Aufgabe zu, den Abschluß einer Reihe anzugeben (vgl. *Wir waren neun Nächte unterwegs. In der zehnten aber...*)” (Meier-Brügger 2000: 219).

<sup>29</sup> See Goetze 1951: 469-470; followed by Melchert 2000: 58-61, 68-69.

<sup>30</sup> The abbreviated complement  $-ki$  is known: 2-*ki pāi* “he shall give twice/twofold” Laws §70.

<sup>31</sup> The meaning of the form  $a-an-ki$  in KUB 4.1 iv 36, 38 remains unclear. Eichner 1992: 42-43 (with false citation as “KUB IV 2 iv 36, 38”) interprets *ānki* as “once”, the reading for 1-*anki*. But the adverb *āšma* no longer provides support for  $\tilde{a}-$  as a stem for “one”: see fn. 27 and references there. On *šia-* as the stem for “one” see Goedegebuure 2006. A sence “an equal number of times” for *ānki* (see (L<sup>U</sup>)*ānt-* “equal” [written hyperplane as L<sup>U</sup>*a-a-an-za*], as per Goedegebuure 2002: 64-68) does not seem contextually likely and one would have expected a hyper-plane writing  $*a-a-an-ki$  according to that theory. The most likely scenario is that the scribe twice wrote  $a-an-ki$  for 2-*an-ki*. The “2” and “A” signs are quite similar, and the alternation of “once” and “twice” fits well in that context of dance moves.

<sup>32</sup> One may compare for this alternation Grek πολλάκι/πολλάκις “many times”.

48. Repetition focusing on the temporal aspect. NUMBER+*-iš šipanti* seems to be equivalent to NUMBER+*-ŠU šipanti* (“NUMBER-times”). This is particularly clear where the two writings alternate in immediate context: *nu 3~ŠU QATAM<MA> memai § [INA] 3 KASKAL-NI~ma 1-iš kiššan memai* “He/She speaks three times in the same way, but the third time (s)he speaks once as follows” KUB 30.15 + KUB 39.19 obv. 33-34 (Ottén 1958 68f). Likewise for NUMBER+*-anki*: *°E.A-aš<sup>GIŠ</sup> arašiyaš 5-anki hinkueni...nu ANA °E.A 15~ŠU hinkueni* “We will bow five times at the *araši-* of Ea... we will bow fifteen times to Ea” KUB 33.106 ii 22-23. Such multiplicative numerals do not occur in clauses with imperfective (*-ške-*) forms. See for example: *āššu~ya 3~ŠU šarnikzi* KBo 6.4 i 5 (late laws), *3~ŠU harnikta* KBo 12.3 iii 5 (OH/NS), *nu~mu LÚ.MEŠ<sup>URU</sup> Ulma MÈ-ya menahhanda 2~ŠU awer* KBo 10.2 i 34-35 (OH/NS), *nu~za UD-an 2~ŠU 3~ŠU ēt* KUB 1.16 iii 30 (OH/NS), *3~ŠU ekuzi* IBoT 1.29 obv. 27 (MH). Exceptions are when in addition to the multiplicative numeral there is also a distributive expression present, for example in *n~e~tta~kkan MU.KAM-ti MU.KAM-ti peran 3~ŠU [halziškan]du* “Let them read them (scil. The tablets) aloud before you three times *year by year*” KUB 21.1 + KUB 19.6+ iii 74 (NH). An indefinite relative form based upon the stem *maši-* “how many” exists in the word *mašiyanki* “however many times” (see CHD s.v.).

49. Repetition of sets in mathematical multiplication. Multiplicative adverbs meaning “x-times” in the mathematical sense (i.e., “two times [i.e., repetitions of] two is four”) are also written logographically with NUMERAL + Akkad. *-ŠU* and with NUMERAL+*iš* or NUMERAL+*-anki*. Examples: *8-anki 8* “eight repetitions of eight (i.e., eight times eight)” KBo 53.47 obv. 1’-3’; *[kuwapi~ma....w]ātar halkiya~ma~at 10-iš 20-iš naešhu[t]* “[Where ...] there is water, divert it to the crop(s) ten times, twenty times” KBo 12.40 iii 12 (=Theth 11:38 iii 6, OH/NS). Note that the ending *-iš* does not agree in gender or case with the noun *wātar*. It must therefore be a fixed (i.e., indeclinable) form. See also above in §24.

50. The form *10-pa* in *ŠEŠ~YA mal~wa~za tepu~ya / Ū[L ša]kki UR.SAG-tar~ma~šši 10-pa piyan* “My

brother – he has not even a little intelligence, but valor is given to him ten times over” KUB 33.113+ KUB 36.12 i 35-36 seems to be a multiplicative.

51. Because any phonetic complement may exist in longer or shortened form, the shortened forms of two different suffixes may appear to be identical. It is therefore not certain that all numerals complemented by *-iš* are the same. Above we suggested that one group may be multiplicative and the same as forms showing longer complements in *-kiš*. But another line of evidence suggest shortened forms in *-iš* equivalent to longer forms in *-liš*. The sequence: *4~ŠU 9<NINDA>ÉRIN.MEŠ 30-iš 2 NINDA harnantaššiš 10-iš / 2 NINDA GIDIM 10-iš 2<sup>NINDA</sup> wakiššar 10-li 2 NINDA.ÉRIN.MEŠ 10-iš / adannaš 9 NINDA.ÉRIN.MEŠ 30-iš* KBo 21.1 i 3-5 shows the numbers *30-iš*, *10-iš*, *10-iš*, *10-li*, *10-iš*, and *30-iš*. The only number measuring bread weight or size that modifies a clearly neuter noun (<sup>NINDA</sup>*wakiššar*) is *10-li*. This suggest that the *-iš* forms are abbreviated for *-liš*, and that these are adjectives modifying the bread names. And indeed the following passage seems to confirm this theory: *10 NINDA.ÉRIN.MEŠ harpanza 20-liš* KBo 41.1b obv. 3. The theory is not without its problems: the *-iš* form is attested with <sup>NINDA</sup>*tunik* and <sup>NINDA</sup>*kaḫaret*, both of which *look like neuthers*. And the neuter form in *-li* only occurs with <sup>NINDA</sup>*wageššar*, not with the other mentioned neuter bread names <sup>NINDA</sup>*tunik* and <sup>NINDA</sup>*kaḫaret*.

52. Hittite *may* have possessed another set of multiplicative adjectives (“twofold”, “threefold”, “sevenfold”, etc.). This possibility is suggested by the fact that or the factitive verbs in *-ahḫ-* built to such adjectives all exhibit a base ending in *-(i)ya-*, even for numbers whose stem in the cardinal form does not end in *i/y*: *3-yahḫ-* “to make threefold, multiply by three” (*\*teri-(i)ya-+ahḫ-*), *4-yahḫ-* “to make fourfold, multiply by four” (*<me(ya)w-+(i)ya-+ahḫ-*).<sup>33</sup> Two of the three factitive verbs based upon numerals known to date have this *-yahḫ-* ending. The exception, *2-ahḫ-* could either be a shorter variant of the longer complement *-yahḫ-* (compare the free variants *SIG<sub>5</sub>-yahḫan* / *SIG<sub>5</sub>-ahḫan* and *SIG<sub>5</sub>-yahḫir* / *SIG<sub>5</sub>-ahḫir*), or a factitive built to a special adjective “twofold” not formed

<sup>33</sup> See Szemerényi 1996 227f., who shows the IE ordinal sequence *\*tri-yo* and *k<sup>w</sup> tur(i)yo-*.

by derivation with *-(i)ya-*, not unusual typologically for the number two. An alternate account of 3-*yaḥḥ-* 4-*yaḥḥ-* would assume that the former was built directly to the numeral *teri-* + *-aḥḥ-* “to make three(fold?)”, and that 4-*yaḥḥ-* is remodeled on analogy to 3-*yaḥḥ-*. This second account cannot explain *šiptamiya-* (name of a beverage), which directly attest a suffix *-(i)ya-*, if as usually assumed it is derived from the PIE cardinal number “seven”.

53. Consecutive incremental numbers are sometimes used to express approximation or alternatives: *nu=za UD-an 2=ŠU 3=ŠU ēt* “eat two (or) three times a day” KUB 1.16 iii 30 (OH/NS); *nu 2=ŠU 3=ŠU n=uš ezazzi* “he eats them two or three times” KUB 7.1 ii 10; MUNUS.ŠU.GI *kiššan memai / aḥra wahran allapaḥ* DINGIR.MEŠ *karpin / AB pangawaš EME-an 3=ŠU 4=ŠU allapaḥ* “The Old Women speaks as follows: Spit *aḥra wahran!*. Spit the god’s anger (and) the tongue of the multitude three (or) four times!” KUB 9.34+ iii 21-23, etc. At other times with a longer string than two numbers it is for heightening the effect of the total number: 1=ŠU *ekuir 2=ŠU ekuir / 3=ŠU e[(kuir)] 4=ŠU ekuir 5=ŠU ekuir / 6=ŠU [(ekuir 7)]=ŠU ekuir* “they drank one time, two times; they drank three times; they drank four times; they drank five times; they drank six times; they drank seven times” KUB 33.102 ii 28-30 with restorations from KUB 33.98 ii 23-24 (Ullik.). Rarely the increment is greater than one, as in: *[n=a]n=za=an 5=ŠU dāš / [namma=ma=an=z]a=an=kan 10=ŠU dāš* “he took her (sexually) five times; finally, however, he took her ten times” KUB 33.98 + KUB 36.8 i 19-20 (Ullik.).

54. Other pairs of multiplicatives in *=ŠU* or *-anki* not incrementally consecutive are intended to be multiplied together as multiplier and multiplicand: *kāša ANA GAM GÌR.MEŠ / GAŠAN=YA 3=ŠU 9=ŠU AMQUT* “I fall at the feet of my Lady twenty-seven times (lit. three times seven times)” KBo 18.1 rev.

4-5 (THeth) 16/2: p.3); *AMQUT ANA GAM GÌR.MEŠ EN=YA 2=ŠU 7=ŠU* “I fall at the feet of my Lord twice seven times” KBo 9.82 obv. 3.

## VII. Distributives

55. Distributives (“two each”, “four apiece”, etc.) are expressed with the Sumerian suffixes *-ĀM* (signs: *-A.AN*) and *-TA.ĀM* (signs: *-TA.A.AN*) (HZL 274, sign #364).

## VIII. Derivative Adjectives and Verbs (56-)

56. A “degenitival” adjective *šiel-* “single; of one and the same” derived from the genitive *šiel* of *šia-* “one” (Hoffner 2006.) This word is the Hittite translation of Akkadian *ēdēnu* “single, unattached; unmarried” in the lexical text KBo 1.44 + KBo 13.1 i 54, edited by Otten and von Soden 1968 17. In its nom. pl. form *šieleš* Laws §31, it describes the legal status of free man and slave woman prior to their contracting a marriage (*n=an=za ANA DAM=ŠU dāi*).<sup>34</sup> It is a necessary part of the “if” clause, because the focus of the law is upon the division of property when the marriage is dissolved, and this would be affected if the man (for example) had another wife with legal claim to part of his property. Because of the equation with *šieleš* in the lexical text, we can assume that this was the Hittite reading underlying *ēdēnu* as a logogram elsewhere in Hittite text. The same derivational suffix *-ela-*, occurs in the adjective *apella-* “the...of that one”. We also assume an adjective *2-ela-* “paired in twos”, literally “(they) of two” (see Hoffner 2006),<sup>35</sup> derived from the genitive of the number “two” (*2-el*), showing the same suffix *-ela-* attested in *šiel-* “of one, single”. The forms *1-ela* and *2-e/ila* represent an adverbial use of the nom.-acc.pl. neut. of the same adjectives, meaning respectively “one at time” and “together, as a pair, both”.<sup>36</sup> Examples: *LÚSANGA*

<sup>34</sup> The prescribed division of goods upon the partners separation implies a cohabitation entailing legal claims. The ratio of distribution of assets upon the dissolution of that assets upon the dissolution of that cohabitation is the central issue in this law, and that ratio would be affected if either party had a (nother) spouse with a claim on part of his or her assets.

<sup>35</sup> *na-at-kán 2-e-lu-uš-pát A-NA* <sup>G18</sup>MÁ *ša-ra-a [pa-a-ir]* (19) <sup>d</sup>GILGAMEŠ-*uš* <sup>m</sup>Ur-ša-na-bi-iš-ša “And they – just (*-pat*) the two of them (lit., ‘they of the two’)- Gilgamesh and Uršanabi went up into the boat” KUB 8.50 iii 18-19 (NH). *2-e-lu-uš* is a late Hittite nom. com. pl., showing the regular nom. pl. ending for a-stems in that period.

<sup>36</sup> The variation in vocalism in *2-e/ila* is unsurprising if the Hittite stem was as expected *\*dwela-*: see AHP 144-145.

DUMU-*ašš-a* <sup>d</sup>U <sup>d</sup>Kataḫḫa <sup>d</sup>X[] / <sup>d</sup>Telipinu <sup>d</sup>ḫalkin  
<sup>d</sup>U AN-E 1-*ela akuwanzi* “The priest and the prince  
 drink the Storm-god, Kataḫḫa,...(and) the Storm-god  
 of Heaven one at a time” KUB 53.17 iii 10' – 12' (cited  
 by Eichner 1992 38 as Bo 2071 iii 12'); [...2]-*ila≈pat*  
*kar(ap)pianzi* “The two lift [ ] together” (or “They lift  
 the two (nom.-acc. pl. neut.) [ ] together”) KBo 17.30  
 ii 3 (OS, for restoration see 2-*ila* in ii 1); [.....(-)*t*]a  
 LÚ.MEŠ SANGA 2-*ila* <sup>URU</sup>Zuppara *pānzi* “the priests go  
 to Zuppara in pairs (or ‘both of them’)” KUB 60.152  
 i 6; *n≈at* 2-*ela* ANA AB[U≈YA] *kattan uēr* “And they  
 came to my father together” KUB 19.7 i 8' -9' (DŠ frag.  
 27, NH), *n≈uš* 2-*ila≈pat šakuwanzi* “They š. (some  
 form of punishment) them both together” KUB 13.9  
 iii 18. Although this suffix is not yet found on other  
 numerals, there is a priori nothing to prevent Hittite  
 speakers from having formed \*3-*ela*- “in threes”, \*4-*ela*-  
 “in fours”, etc.

57. A likely derivative from the PIE root for “one”  
 is \**šumuman-*, an adjectival derivative in –*uman-* from  
 the number \**sm-* “one”, seen in the factitive verb  
*šumumahḫ-* “to unite” (Rieken 2000). For other facti-  
 tive verbs based upon multiplicative adjectives in –  
*iya-* see §52.

## IX. Numbers in Compounds

58. In combination “two” occurs in *tā-yugaš* “two-  
 year-old (animal)” and the ordinal *tān* “second” oc-  
 curs in the name of a cut of meat from an animal,  
<sup>UZU</sup>*dānḫašti* (literally “second bone”). There is a pos-  
 sibility that the number “three” (*teri-*) is the root of  
 the verb *teripp-* “to plow”, since the threefold action  
 of plowing is expressed in West Semitic by the same

triconsonantal root as the number “three”: Ugaritic *tlṭ*  
 (Hebr. *šlš*)

59. Another kind of use of numbers in compounds are  
 numbers such as “fifteen”. In other IE languages such  
 numbers are compounds (Meier-Brügger 2000: 217-  
 218). The existence in Hittite of writings like 21-*aš*  
 with case inflection (see §§3, 6) suggests that such  
 forms were “Univerbierungen” rather than consisting  
 of multiple words.

## X. Compound Numbers

60. Compound numbers are not the same as numbers  
 in compound words. Rather they are quantitative ex-  
 pressions involving two or more mathematical units.  
 In Hittite an example would be 6 IKU 5 *gipeššar*  
 A.ŠÀ, where the larger unit (the IKU) is given first  
 followed by the smaller one (*gipeššar*). From vari-  
 ant writings of the same expression we gather that  
 what is sometimes written digitally as (for example)  
 19 ½ PA. *šepit* (see HKM 111:11).<sup>37</sup> In other words,  
 although the unit (*PARISU*) remained the same the  
 tally proceeded from whole numbers to the noun for  
 the fraction (“half”), itself perhaps preceded by the  
 cardinal number “one” (*šia-*). This seems to be espe-  
 cially common when what is numbered is a unit of  
 measure rather than a simple commodity. In expres-  
 sions containing a whole number and the word “half”,  
 sometimes the Sumerogram for “half” is preceded by  
 the DIŠ sign (“1”), in which case 2 GÍN 1 MÁŠ GÍN  
 (KUB 29.39 i 11) should not be read as “two shekels”  
 plus “one and half shekels” but “two shekels (and) one  
 half shekel”.<sup>38</sup>

<sup>37</sup> See also *n≈aš* 2 DANNA ½ DANNA≈*ya pennai*, 2 GÍN KÙ.BABBAR, ŠA 1 UPNU ½ UPNI, [1?] BÁN 5 UP-NU ½ UP-NU [...] KUB 58.49 iii  
 7, *parqašti* 1 SIG. KÜŠ; but see: 2 GÍN 1 ½ KÙ.BABBAR KUB 29.39 i 11, 1 ½ IKU A.ŠÀ SBo 1 2 obv. 12, 1 ½ PA. ARTU <sup>GIŠ</sup>BURAŠI *kinan*,  
 where the 1 ½ is of a different commodity.

<sup>38</sup> Why otherwise is 2 GÍN 1 1 / 2 GÍN KÙ.BABBAR *iya[tten]* KUB 29.39 i 11' not written as 3 GÍN ½ GÍN KÙ.BABBAR *iya[tten]* or 3 1 / 2 GÍN  
 KÙ.BABBAR *iya[tten]*?

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