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THE ETYMOLOGY OF HIEROGLYPHIC LUVIAN *TINA(N)T(A)-* 'TITHE'

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Abstract:
The likely meaning and general shape of Hieroglyphic Luvian *ti-na-ta*/*tá-* 'tithe' suggest derivation from an ordinal 'tenth'. Luvian historical phonology as currently known precludes an inherited **deḱmt́ó-* as a source. A new ordinal **deḱme*/*ont-ó-* based on an 'individuating' cardinal **deḱm-é*/*ónt-* is a possible preform, but must for now remain a mere suggestion.

Keywords: **deḱmt́ó-*, Hieroglyphic Luvian, ordinals, tenth, tithe

Our honorand's very broad interests include the PIE numerals and their possible reflexes in the Anatolian languages (see Blažek 2012 on the Hittite measure *wakšur* as derived from PIE 'six'). In recognition of his many contributions to our field I offer him the following reflections on the source of Hieroglyphic Luvian *tina(n)t(a)-* 'tithe'. I regret that several points must remain uncertain but hope to have advanced the state of the question.[1]

A neuter *a*-stem noun /tina(n)t(a)-/ is attested three times in Luvian texts of the Iron Age. The first two occurrences tell us only that the word characterizes objects presented to deities:

> ANCOZ 1 §2 (Hawkins 2000: 346f.)
> *a-wa*/*i za-ya* (ARGENTUM.DARE)*ti-na-tá* (LIBARE)*sa*$_5$+*ra*/*i-la-i-ti i-mara*/*i* (DEUS) CERVUS$_2$ (FEMINA)*á-lá*/*í* (DEUS)*ku*+AVIS-*pa-pa*[...]
> "They shall offer these tithes to the Stag-god of the Open Country and to Lady Kubaba..."
>
> BOYBEYPINARI 1-2 §§2f. (Hawkins 2000: 336–338)
> *a-wa*/*i zú*-[*ki*||-*t*]*a-za-sá*(URBS) *kwa*/*i-sa* |FLUMEN.DOMINUS-*sá wa*/*i-tà pa-sa-na* ⌜ti¹-*na-ti-i* PONERE-*wa*/*i-ha*
> "He who is the River-Lord of Zukita, for his tithe I dedicated them."[2]

---

[1] I am much indebted to Ilya Yakubovich for helpful correctives and references. The usual disclaimers apply.

[2] The River-Lord of Zukita is a human ruler, but the overall text makes clear that the installation (including the throne and table referred to in this sentence) is dedicated to Kubaba, so the author is

However, Hawkins (2000: 470) was able to argue from the context of the third example for the specific sense 'tithe':

> SULTANHAN §§22–28 (Hawkins 2000: 466)
> |*a-wa/i* |TONITRUS-*hu-za-sa* |*za-´* |*tu-wa/i+ra/i-sà-zá* || |*ma-sa-ha-ni-i-ti* |*a-wa/i* |*wa/i-ya-ni-i-sa* |PUGNUS-*ri+i-ti-i* |*tara/i-sa-zi-pa-wa/i* |*ya+ra/i-ti-i* |*a-wa/i* |MILLE *ti-wa/i-ta-li-na* |*á-ya-ti-i* |*wa/i-tu-u* |BOS(ANIMAL)-*sa* 9 CENTUM-*ha ma-tu-sà* |POST+*ra/i-ta-pa-wa/i a-ta* |sa_5+*ra/i-wa/i-ya wa/i-tu-u-ta* |*ti-na-ta-za* |POST+*ra/i-ta*
> "Tarhunzas shall make this vineyard grow, and the vine shall rise, and shoots shall stretch forth and make 1000 *t.* measures (of wine). He shall have 9 oxen and 100 (measures of) wine. While in the future…and he shall have a tithe in the future."

That /tina(n)t(a)-/ refers to the prescribed offering to the god of one-tenth of the wine produced by the vineyard seems very plausible, and Hawkins' interpretation of the word has won widespread if qualified acceptance (e.g., Giusfredi 2010: 249–251, and Yakubovich ACLT). There is also ample evidence for the institution (in obligations to deities and human rulers) from other textual traditions near enough in time and space that we may reasonably assume its existence in Luvian texts from Commagene and Tabal from the 8th century BCE.[3]

The contextual evidence for the sense and the basic shape of the word make it difficult to avoid the inference that it is somehow derived from some form of the inherited word for 'ten' (PIE **déḱm̥*). This potential etymology is of more than passing interest, since other possible reflexes of this numeral in the Indo-European Anatolian languages are indirect and problematic (see the summary by Eichner 1992: 88–90).[4] Nevertheless, beyond the initial consonant such a derivation is fraught with phonological and morphological problems, as is clear from the only previous discussions known to me: Morpurgo Davies and Hawkins 1981: 283–286 and Ofitsch 1998: 496.

Morphologically, a neuter *a*-stem *tina(n)t(a)-* may represent a substantivization of a prehistoric *o*-stem cardinal adjective. The nom. sg. *ti-na-ta-za* (/tina(n)-tan=za/) shows the particle *-sa* that was effectively obligatory by the time of Iron Age Luvian in the neuter nominative-accusative singular, in its usual form

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saying that she made the dedication in fulfillment of an obligation of an overlord to the goddess, not as a payment to the ruler himself.

[3] A full survey is neither feasible nor necessary here, but see for Assyria and Babylonia the entries for Akkadian *ešrētu* and *ešrû* in *CAD* E: 368–389, for Ugaritic *ma'šaru CAD* M1: 358 and Huhnergard 2008: 164, and for Hebrew *'ašar* 'to tithe'and *ma'ašer* 'tithe' (*HALOT* 617 and 894) the detailed discussion in Jagersma 1981.

[4] But 10 *ha-sà-pa-ti-na* in ASSUR letter c §8 refers to a commodity or measure (Hawkins 2000: 535). Lycian *kbisñtãta* is more likely to mean 'twenty' than 'twelve' (Laroche 1974: 146, note 41, Hajnal 1995: 159, note 172, Melchert 2004a: 31, against Neumann 2007: 162). The very meaning of Lycian *sñta* is less than assured, and if it does mean 'ten' and not 'hundred' (or something else!), its derivation remains less than straightforward (compare Hajnal 1995: 160, note 174, Melchert 2004a: 58, and the thorough discussion with references in Neumann 2007: 329f.).

/-za/ after /n/.[5] We would expect that the dative-locative singular of an *a*-stem would end in *-a* (Yakubovich 2015, section 6.2), but this is true only for common gender *a*-stems. Neuter *a*-stems have consistently *-i*, so *ti-na-ti-i* in BOY-BEYPINARI 1-2 §3 is regular. The source of the *-i* lies in neuter consonant stems that developed *a*-stem variants in the nominative-accusative singular (Melchert 2004b: 472f.): a neuter *s*-stem /tanis-/ '(memorial) stele', with attested nom./acc. sg. (STELE)*ta-ni-sà* = /tanis=sa/ (SHEIZAR §4; thus with Hawkins 2000: 418) and dat./loc. sg. (STELE) *ta-ni-si* (MEHARDE §3) acquired a new nom.-acc. sg. (STELE)*ta-ni-sà-za* = /tanisan=za/ (MEHARDE §1) after true neuter *o*-stems like /istart(a)-/ 'throne' < virtual **estro-tó-*. By analogy even original neuter *o*-stems then adopted *-i* as the dative-locative singular ending: ("THRONUS")*i-sà-tara*/*i-ti* = /istarti/ (KARATEPE 1 §XVI).[6] What is far less obvious is just what the stem-formation of this *o*-stem cardinal adjective was. Since word-initial stops had been devoiced by attested Luvian (Melchert 1994: 18–20; Yakubovich 2015: section 5.1), we may assume that our word began with /t-/, but phonological problems begin with the first vowel.

The regular reflex of short **e* in Luvian is *a* (except after yod where it is umlauted to *i*). Morpurgo Davies and Hawkins (1987: 285) speculate that in a preform **deḱantas* < **deḱm̥tos* the sequence **deḱan-* gave **deyan-*, then **diyan-* and finally **din-*. Ofitsch (1998: 426) assumes word-medial "lenition" (voicing) of the **ḱ*, then loss with compensatory lengthening of the preceding **e*, and the known change of **ē* to *i*. Neither of these scenarios is remotely possible in the light of current evidence. As per the revised analysis of PIE dorsal stops in Luvo-Lycian by Melchert (2012: 207–211), a medial voiceless palatal stop would have either been preserved as *k* or affricated to *t*^{s}. There is no evidence for a development of **ḱ* to yod or the raising of **e* to *i* before it.[7] We obviously must somehow assume loss of the **ḱ*, and an intermediary stage **gm̥* may be helpful (see further below), but Ofitsch's assumption of compensatory lengthening to a prehistoric **ē* is contradicted by her own cited example: **negno-* > *nāna-* 'brother'. If one assumes compensatory lengthening in this word (as per Hajnal 1995: 140 and 233, note 297, as cited by Ofitsch!), one must suppose that the regular change of short **e* to *a* took place *first*, and then the new vowel was lengthened.[8] We must seek another explanation for the *i* in /tina(n)t(a)-/.

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[5] For the the particle's prehistory see Jasanoff 2010. We may leave open here the question of whether we should assume phonetic [t^{s}a] with epenthesis or [za] with voicing assimilation.

[6] Due to this effective merger of *historical* neuter *o*-stems with consonant stems, I follow Yakubovich (2015, section 6.2) in analyzing these as synchronic semi-vocalic stems, hence *istart(a)-* etc.

[7] Kizzuwatna Luvian *t(i)yamm(i)-* 'earth' cannot reflect **d^{h}ég^{h}om* (contra Steer 2015: 53 *et al.*). As per Kimball (1994: 78), the geminate *-mm-* requires a delocatival formation **d^{h}g^{h}émi-*. The reflex of **d^{h}ég^{h}om* appears rather in Iron Age Luvian /takkam-/ 'country' (Čop 1970: 91).

Voiceless intervocalic stops were "lenited" (or voiced) between unaccented vowels already in Proto-Anatolian (Eichner 1973: 100, note 86; Morpurgo Davies 1982/83; Adiego 2001). This means that a /tinat(a)-/ must have been accented on the vowel preceding or following the intervocalic /-t-/ (assured by the hieroglyphic spelling with ⟨ta⟩ and ⟨tá⟩, as shown by Rieken 2008). If we assume rather that the stem is /tinant(a)-/ (see below), this argument does not apply. However, on various grounds it is highly probable that the latter stem would also have been accented on a non-initial syllable.

The question then becomes: would a pretonic short **e* have led to /i/ in Luvian? This change has long been regarded as possible (e.g., Melchert 1994: 262), but truly compelling examples have been hard to find. I am therefore much indebted to Ilya Yakubovich for the suggestion (personal communication) that Iron Age Luvian ("SOLIUM")*isnu(wa)-* 'to seat, settle', ("LECTUS")*is(a)n(a)-* 'couch', *istarl(a)-*/*istral(a)-* 'chair', and ("THRONUS")*istart(a)-*/*istrat(a)-* 'throne' reflect derivatives of **h₁es-* 'to sit (down)' with precisely a change of pretonic **e* > *i* (see already independently Kloekhorst 2008: 254). For an extended discussion I refer readers to Melchert forthcoming, but the gist is that the only other phonologically viable explanation for the *i-* in these words, a prehistoric long **ē*, is highly unlikely (a PIE lengthened grade being very hard to justify on morphological grounds). The first vowel of /tina(n)t(a)-/ is thus at least compatible with our current knowledge of Luvian prehistoric sound changes.

The next problem we face is the absence of the expected reflex of the voiceless stop **ḱ* in a preform based on **deḱm+*. Predictably, evidence for the outcome of medial voiceless palato-velar or velar stop plus non-syllabic nasal in Luvian is very sparse.[9] We do find in Kizzuwatna Luvian an adjective *šakn(u)wānt(i)-* of unclear meaning, but it is hard to exclude that the preservation of the *-k-* is due to the transparent derivation (for Luvian speakers) from an *n-* or *r*/*n*-stem base. There is therefore no compelling counterexample to assuming that **ḱ* was lost before **m* or **n*. We may also appeal to the tendency for sporadic lenition or voicing of medial stops observed elsewhere in numerals: e.g., *-gintī*/*ā* in

[8] The vocalism of Lycian *nẽne-* requires the same relative chronology. However, since **gn-* was a permissable syllabic onset in PIE and still in Hittite (*g(a)nešš-* 'recognize' < **gnēh₃s-*), it is far from clear that the long vowel of Luvian *nāna-* is due to compensatory lengthening: one may also assume *[né.gno-] > *[ná.gna-] > *[ná.na-] > [ná:na-] with regular lengthening in an accented open syllable.

[9] That attested /tinat(a)-/ reflects a preform with a syllabic nasal is not credible. A "remodeling" of a **dekanto-* < **deḱn̥to-* to **deknato-* (Morpurgo Davies and Hawkins 1987: 285) would be entirely unmotivated, as is a resyllabification **degm̥* > **dēm* (Ofitsch 1998: 426). Furthermore, now that Goedegebuure (2010: 300–312) has shown that Cuneiform Luvian *zanta* means 'down' and is cognate with Hittite *katta* and Greek κατά/κάτω 'down', its only plausible source is **ḱn̥t+*, showing that **ḱ* became an affricate before syllabic nasal, surprising as that may be (cf. Melchert 2012: 211). A **deḱn̥to-* would have thus led to **tazanta-*.

Latin decads for expected **-kintī/ā* (attributed by Weiss 2009: 372, to "allegro style pronunciation characteristic of serial counting").[10] There is also the unexplained *d* in Latin *quadrāgintā* 'forty' and *quadruped-* 'four-footed', labeled "obscure" by Weiss 2004: 369. Compare Szemerényi 1964: 167, with non-committal reference to Endzelin's idea of dissimilation to original preceding and following voiceless stops. Most directly relevant for our word is Greek ἑβδο- in ἕβδομος 'seventh' and related words. Szemerényi (1964: 6–8, modifying a suggestion of Sommer) argues that the voicing here reflects a pre-Greek change of **-ptmV-* where the two oral stops preceded a *non-syllabic *m*. Since our *-n-* is undeniably non-syllabic (however we wish to account for it), a similar change in Luvian of **-eḱm/nV-* to **-egm/nV-* is also conceivable. The example cited above of **negno-* > *nāna-* 'brother' shows that a *voiced* palato-velar stop surely would have been deleted in this environment. We may thus say at least that no compelling evidence contradicts assuming loss of the **ḱ* before a nasal consonant in our word.

Our next difficulty is to account for the fact that the nasal appears as an *n*, not the *m* we expect in a derivative of PIE 'ten'. As argued above, there is no motivation for a "remodeling" to **deknato-* of an assimilated **dekanto-* < **deḱm̥-to-* (Morpurgo Davies/Hawkins 1987: 285). If **deḱm̥to-* had led to **dekanto-*, it would surely have stood in a transparent relationship to a cardinal **dekan* < **deḱm̥*. Ofitsch's assumption (1998: 426) of a distant assimilation of **dēm* to **dēn* lacks credibility. We know that word-final **-m* becomes *-n* in Luvian, as in Hittite (as seen in the animate accusative singular and neuter nominative-accusative thematic ending **-om* > *-an*). Hittite also attests cases where this word-final result migrates into medial position within a paradigm or closely related words: the Hittite word for 'earth' has an oblique stem *takn-* for expected **tagm-* < **dʰéǥʰm-* next to nom./acc. *tēkan* < **dʰéǥʰōm*. It is true that Iron Age Luvian *takkam-* 'country' (in the dative-locative /takkami/) does not show this development (see footnote 7). However, this does not preclude that the final *-n* of the cardinal 'ten' was transferred to medial nasal of the ordinal 'tenth', *provided that* at the time the ordinal was created there was a close formal resemblance between the two.[11]

Bearing this consideration in mind, we may return to the matter of how we are to motivate a preform that would contain a *non-syllabic* nasal after the **ḱ*. As we have seen (footnote 9), there is little hope of doing this starting from an ordinal **deḱm̥to-*. Szemerényi (1964: 85–87) argues that **deḱm̥to-* is the oldest PIE

[10] For other accounts see Szemerényi 1964: 167–169.

[11] A comparable, though not strictly parallel example is provided by Luvian compounds of the type *tuppalan-ura-* 'chief of the scribes'. As persuasively argued by Yakubovich (2017: 41–43), these result from reanalyzed univerbations of superlative phrases with a genitive plural in **-an* < **-ōm*.

ordinal for 'ten', formed from a base **dekm̥t* by the PIE process for making cardinals, namely adding the thematic suffix **-o-* (1964: 70–85).[12] Since it is attested in Tocharian *śkänt*/*śkante*, we are permitted to assume that **dekm̥to-* was also inherited in Anatolian. Szemerényi (1964: 85–94) explains the ordinal suffix **-to-* as the result of a reanalysis of **dekm̥t-o-* as **dekm̥-to-* based on the cardinal **dekm̥*, beginning already in late IE and spreading with varying degrees of productivity in the individual subbranches. Further reanalyses led to vowel-initial variants such as **-etos* (Celtic) and -ατος (Greek).

In view of our almost total ignorance of the numerals in Anatolian, one might be tempted to reconstruct a similar scenario for our apparent Luvian ordinal suffix *-ata-*, even at the cost of a series of unverifiable steps. However, such an account has virtually no possibility of being correct. Like others, I have up to this point ignored the accentuation of the ordinals, but there are good reasons to suppose that the productive suffixes were **-tó-* and **-th₂ó-* added to zero-grade bases: Vedic *pakthá-* 'fifth'< **pn̥kʷ-th₂ó-*, Old Prussian *uschts* 'sixth' < **uḱtos* (see Emmerick 1992: 181–183; Schmidt 1992: 200 and Weiss 2004: 374).[13] If **-tó-* originates in reanalysis of **dekm̥t-o-* as **dekm̥-to-*, then surely the latter was likewise **dekm̥t-ó-* .[14]

As already cited above, voiceless stops between unaccented vowels were lenited (or voiced) in Proto-Anatolian This would have led to **degm̥tó-* next to a cardinal **dékm̥*. If the variation in the second stop was not tolerated in pre-Luvian, the only plausible "repair" would have been generalization of one variant or the other: **dék m* and **dekm̥t-ó-* or **dégm̥* and **degm̥tó-*. Present evidence suggests that the first pair would have led to Luvian **tazan* and **tazanta-* (see footnote 9). Intervocalic voiced palato-velar stops in Luvian were palatalized to yod before front vowels (Kimball 1994 and Melchert 2012: 212f.). Loss before back vowels seems likely, but is less than assured (Melchert 2012: 214). Since **m̥* acts as a fronting environment for **ḱ*, if we assume the same for **gm̥*, we would be led to expect a yod: **tayan* and **tayanta-*.[15]

Whatever the details, the main point is that as long as the formal relationship of the cardinal and ordinal remained transparent, there would have been no motivation for alteration of the ordinal to **deg*/*ḱnVto-*, even if we assume that

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[12] For Szemerényi (1964: 67–69) **dekm̥t* was the original form of the cardinal, and **dekm̥* a preconsonantal sandhi variant. Others prefer to see the **-t-* as a suffix (e.g., Schmidt 1992: 214–216, Meier-Brügger 2003: 236, the latter with a further variant **-t(e)h₂* to explain the cardinal ending **-th₂-o-*).

[13] Unsurprisingly, the ordinals are also attested with full grade of the base, by analogy to the corresponding cardinal, but as emphasized by Schmidt (*loc. cit.*), the zero grade variants must be older.

[14] Even if one rejects Szemerényi's account and assumes a real suffix **-t(h₂)ó-*, the other ordinals cited argue for an oxytone **dekm̥-tó-*.

[15] I must emphasize that **e* before at least original yod appears regularly as *a:* in denominative verbs in **-e-ye*/*o-* the present third plural ending **-eyonti* leads to *-ainti*.

the development of **m̨* to **Vn* in word-final position and before dental stop had already taken place before changes in the palato-velar stops: **deg/ǩVn(to)-*. If the allomorphy in *déǩm̨* and **degm̨tó-* was not eliminated, the two forms would have diverged in their consonantism and vocalism at some point in pre-Luvian, but there would likewise have been no reason for any treatment of the **m̨* other than eventual *an*.[16] In sum, there is no viable path by which an inherited **deǩm̨tó-* could have led to /tinat(a)-/.

Hieroglyphic Luvian orthography does not spell a preconsonantal nasal. We therefore should consider the possibility that the word is actually /tinant(a)-/. This step is further recommended by the well attested presence in Anatolian of a suffix **-e/ont-* with an individuating function, including when added to numerals. Such numerals are used in particular in Hittite and Lycian when counting collective plurals (Melchert 2000: 60 and Hoffner and Melchert 2008: 159–162): Hittite 4-*ta TAPAL* EZEN$_4$ ITU.KAM *kuit karšan ēšta* "that four monthly festivals had been neglected" (KUB 5.7 rev. 30); Lycian *ãm̃mama kbisñtãta uwa* "(as) penalty twenty/twelve (units of) cattle" (TL 111,4). In view of Hittite 9$^{!}$-*andaš ḫappešnaš šer* "on the nine limbs/members" (KUB 43.60 i 23) we should also suppose the same usage in Kizzuwatna Luvian 12-*tāti ḫappišāti* "with the twelve limbs/members" (KUB 35.24+ Ro 10 etc.). The suffix may be used more generally, however, to underscore individuation: *a-wa/i ha-ta-ta-na*(URBS) || URBS-MI-*ni-na* "1"-*ti-i* ("ANNUS")*u-si-i* ("AEDIFICIUM")*u-pa-ha-´* "I founded the city Hatata in a single year" (Iron Age Luvian, ARSLANTAŞ §2, Hawkins 2000: 246).

We would not expect the individuating suffix itself to function also as an ordinal, but given its specifying/selecting sense (contrast with Goetze 1951: 470 Hittite *ḫamešḫi* 'in springtime' vs. *ḫamešḫanza* 'the spring'), it could easily have served as the base for a thematic derivative with an ordinal sense. Other uses of the individuating suffix in Anatolian show that it was an athematic **-e/ont-* (see Melchert 2000: 68–70, with reference to Goetze 1951; Solta 1958 and Oettinger 2001). As per Yakubovich (2015: section 6.2), the phenomenon of so-called "*i*-mutation" in Luvian leads to an effective merger of prehistoric thematic and athematic inflection except in the neuter nominative-accusative singular. This fact means that in most forms of the paradigm a cardinal in *-ant-* and an ordinal in *-anta-* would be formally indistinguishable. The contexts of most occurrences are also functionally ambiguous. However, we seem to have at least one instance

[16] Since we do not control the relative chronology of the changes in consonantism and the change of pretonic **e* to *i*, one may also entertain variants **déǩm̨* and **digm̨tó-*. This multiplies the number of possible levelings, adding **díǩm̨* and **diǩm̨tó-* and **dígm̨* and **digm̨tó-*, but neither these preforms nor the resulting **tizan* and **tizanta-* or **tiyan* and **ti(ya)nta-* provide any motivation for a reshaping to *tinata-*.

of an ordinal in Iron Age Luvian: 9-*ti-sa-ha-wa*/*i-ti-*ˈ*i*ˀ ANNUS-*sa*$_4$-*si-sá-*´ |*kwa*/*i-ti* |*ta-i* "Also when/as the ninth (month[?]) of the year comes…" (HİSARCIK 1 §3). Likewise in Hittite, where similarly in most of the paradigm *-ant-* and *-anta-* cannot be distinguished, we find once 9-*ti*=*an* MU-*ti* ^{d}*Alaluwi* ^{d}*Anuš menaḫḫanda zaḫḫain* [*pa*]*iš* "In the ninth year Anu gave battle to Alalu" (KUB 33.120 i 13). If we project the creation of a putative ordinal in **-e*/*ont-ó-* (shared by at least Hittite and Luvian) back to Proto- or Common Anatolian, we may suppose that from **déḱm̥* there was derived not only an individuating **deḱm-é*/*ónt-*, but also an ordinal **deḱm-e*/*ont-ó-*. A series of pre-Luvian sound changes compatible with current evidence plus a plausible analogical spread of word-final **-n* from the cardinal to the ordinal would lead to a Luvian ordinal **tinant(i)-* 'tenth', the substantivized neuter form of which may be attested in *tinant(a)-* 'tithe'. It should be obvious, however, that the number of unverifiable hypotheses in this account render it no more than a possibility.

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