

# Twelve cuneiform *tenû* numerals

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## 1 Summary

This document proposes filling the Cuneiform Numbers and Punctuation block with twelve cuneiform numerals used in the third millennium. Three of those

are additional numerals in the AŠ (or DIŠ) *tenû* series,  $7\text{ }-\text{ }9$ <sup>1</sup>, where  $1\text{ }-\text{ }=\text{ }$  through  $6\text{ }-\text{ }=\text{ }$  are already encoded. Their glyptic range and usage are discussed in §3. The other proposed characters constitute a new series of numerals, formed by  $\text{ }$  numerals crossing an  $=$  wedge. They are discussed in §4.

These characters are extensively used in Early Dynastic administrative corpus, which is published online<sup>2</sup> using Unicode cuneiform as part of the [ePSD2] project. They are also used in publications discussing third millennium administrative texts. Their absence from the Standard can be explained by the initial scope going back only to the Ur III period, and by the explicit exclusion of numbers from the scope of the Early Dynastic extension; see [L2/12-208; L2/24-210R, p. 19 sq. n. 17].

## 2 Proposed changes to the Standard

### 2.1 Core specification text

No change is needed in the core specification.

### 2.2 Code charts

The code charts for the affected block, including the character names list with proposed informative aliases, cross references, and informative notes, are shown on the following pages. A plain text file containing the [NamesList.txt](#) lines is attached to this document.

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<sup>1</sup>We follow [Gor23; Gor24] and use unit numerals rather than sign names in transliterations to indicate the type of numeral. Contrary to Gori, we use write the multiplicity of the sign rather than its value, as in ATF; thus  $3\text{ }<$  for both  $3(\text{bur}_3)$  and  $3(\text{u})$ , rather than  $30\text{ }<$  for the latter.

<sup>2</sup>See, e.g., the transcription of [P220703] in <http://oracc.org/epsd2/P220703/cuneified>. Note that the proposed characters, as well as the provisionally assigned ones proposed in [L2/24-210R], are missing from that text; cf. <http://oracc.org/epsd2/P131747/cuneified> for the Ur III [P131747], which does not have this issue.

	1240	1241	1242	1243	1244	1245	1246	1247
0	➡ 12400	☶ 12410	☒ 12420	☒☒☒ 12430	☒☒☒☒ 12440	☒☒☒☒ 12450	☒ 12460	☒ 12470
1	➡➡➡ 12401	☶☶ 12411	☒☒☒ 12421	☒☒☒☒☒ 12431	☒☒☒☒ 12441	☒☒☒ 12451	☒☒ 12461	☒ 12471
2	☒ 12402	☶☶ 12412	☒☒☒ 12422	☒ 12432	☒ 12442	☒ 12452	☒ 12462	☒ 12472
3	☒➡ 12403	☒☒ 12413	☒☒ 12423	☒ 12433	☒ 12443	☒ 12453	☒ 12463	☒ 12473
4	☒☒ 12404	☒☒☒ 12414	☒☒☒ 12424	☒ 12434	☒ 12444	☒ 12454	☒ 12464	☒ 12474
5	☒➡➡ 12405	☒ 12415	☒☒ 12425	☒☒ 12435	☒ 12445	☒ 12455	☒ 12465	☒ 12475
6	☒➡➡➡ 12406	☒ 12416	☒☒☒ 12426	☒☒☒☒ 12436	☒ 12446	☒ 12456	☒ 12466	☒ 12476
7	☒➡➡➡➡ 12407	☒ 12417	☒☒☒ 12427	☒☒☒☒☒ 12437	☒ 12447	☒ 12457	☒ 12467	☒ 12477
8	☒ 12408	☒ 12418	☒☒☒ 12428	☒☒☒☒☒ 12438	☒ 12448	☒ 12458	☒ 12468	☒ 12478
9	☒ 12409	☒ 12419	☒☒☒ 12429	☒☒☒☒☒ 12439	☒ 12449	☒ 12459	☒ 12469	☒ 12479
A	☒ 1240A	☒ 1241A	☒☒☒ 1242A	☒ 1243A	☒ 1244A	☒ 1245A	☒ 1246A	☒ 1247A
B	☒ 1240B	☒ 1241B	☒☒☒☒ 1242B	☒ 1243B	☒ 1244B	☒ 1245B	☒ 1246B	☒ 1247B
C	☒ 1240C	☒ 1241C	☒ 1242C	☒ 1243C	☒ 1244C	☒ 1245C	☒ 1246C	☒ 1247C
D	☒ 1240D	☒ 1241D	☒☒ 1242D	☒ 1243D	☒ 1244D	☒ 1245D	☒ 1246D	☒ 1247D
E	☒ 1240E	☒ 1241E	☒☒ 1242E	☒ 1243E	☒ 1244E	☒ 1245E	☒ 1246E	☒ 1247E
F	☶ 1240F	☒ 1241F	☒☒ 1242F	☒ 1243F	☒ 1244F	☒ 1245F	☒ 1246F	☒ 1247F

## Common numeric signs

*These are used in multiple metrological systems.*

- 12400 ➡ CUNEIFORM NUMERIC SIGN TWO ASH  
     = 2 iku  
     → 12038 ← cuneiform sign ash  
     → 12551 □ cuneiform numeric sign two n01  
         → 1264D □ cuneiform numeric sign two n01 flat
- 12401 ➡ CUNEIFORM NUMERIC SIGN THREE ASH  
 12402 ⚫ CUNEIFORM NUMERIC SIGN FOUR ASH  
 12403 ⚫ CUNEIFORM NUMERIC SIGN FIVE ASH  
 12404 ⚫ CUNEIFORM NUMERIC SIGN SIX ASH  
 12405 ⚫ CUNEIFORM NUMERIC SIGN SEVEN ASH  
 12406 ⚫ CUNEIFORM NUMERIC SIGN EIGHT ASH  
 12407 ⚫ CUNEIFORM NUMERIC SIGN NINE ASH  
 12408 ⚫ CUNEIFORM NUMERIC SIGN THREE DISH  
     → 12079 ፩ cuneiform sign dish  
     → 1222B ፪ cuneiform sign min  
     → 12559 ፻ cuneiform numeric sign three n08
- 12409 ⚫ CUNEIFORM NUMERIC SIGN FOUR DISH  
     = 4 bariga  
 1240A ⚫ CUNEIFORM NUMERIC SIGN FIVE DISH  
 1240B ⚫ CUNEIFORM NUMERIC SIGN SIX DISH  
 1240C ⚫ CUNEIFORM NUMERIC SIGN SEVEN DISH  
 1240D ⚫ CUNEIFORM NUMERIC SIGN EIGHT DISH  
 1240E ⚫ CUNEIFORM NUMERIC SIGN NINE DISH  
 1240F ⚫ CUNEIFORM NUMERIC SIGN FOUR U  
     = 4 bur<sub>3</sub>  
     → 1230B ፲ cuneiform sign u  
     → 12399 ፳ cuneiform sign u u  
     → 1230D ፳ cuneiform sign u u u  
     → 12565 ፳; cuneiform numeric sign four n14  
         → 12659 ፳; cuneiform numeric sign four n14 flat
- 12410 ⚫ CUNEIFORM NUMERIC SIGN FIVE U  
 12411 ⚫ CUNEIFORM NUMERIC SIGN SIX U  
 12412 ⚫ CUNEIFORM NUMERIC SIGN SEVEN U  
 12413 ⚫ CUNEIFORM NUMERIC SIGN EIGHT U  
 12414 ⚫ CUNEIFORM NUMERIC SIGN NINE U  
 12415 ⚫ CUNEIFORM NUMERIC SIGN ONE GESH2  
     → 1256B □ cuneiform numeric sign one n34
- 12416 ⚫ CUNEIFORM NUMERIC SIGN TWO GESH2  
 12417 ⚫ CUNEIFORM NUMERIC SIGN THREE GESH2  
 12418 ⚫ CUNEIFORM NUMERIC SIGN FOUR GESH2  
 12419 ⚫ CUNEIFORM NUMERIC SIGN FIVE GESH2  
 1241A ⚫ CUNEIFORM NUMERIC SIGN SIX GESH2  
 1241B ⚫ CUNEIFORM NUMERIC SIGN SEVEN GESH2  
 1241C ⚫ CUNEIFORM NUMERIC SIGN EIGHT GESH2  
 1241D ⚫ CUNEIFORM NUMERIC SIGN NINE GESH2  
 1241E ⚫ CUNEIFORM NUMERIC SIGN ONE GESU  
     → 12574 □ cuneiform numeric sign one n48
- 1241F ⚫ CUNEIFORM NUMERIC SIGN TWO GESU  
 12420 ⚫ CUNEIFORM NUMERIC SIGN THREE GESU  
 12421 ⚫ CUNEIFORM NUMERIC SIGN FOUR GESU  
 12422 ⚫ CUNEIFORM NUMERIC SIGN FIVE GESU  
 12423 ⚫ CUNEIFORM NUMERIC SIGN TWO SHAR2  
     → 122B9 ● cuneiform sign shar2  
     → 12579 ● cuneiform numeric sign two n45
- 12424 ⚫ CUNEIFORM NUMERIC SIGN THREE SHAR2  
 12425 ⚫ CUNEIFORM NUMERIC SIGN THREE SHAR2 VARIANT FORM

- 12426 ⚫ CUNEIFORM NUMERIC SIGN FOUR SHAR2  
 12427 ⚫ CUNEIFORM NUMERIC SIGN FIVE SHAR2  
 12428 ⚫ CUNEIFORM NUMERIC SIGN SIX SHAR2  
 12429 ⚫ CUNEIFORM NUMERIC SIGN SEVEN SHAR2  
 1242A ⚫ CUNEIFORM NUMERIC SIGN EIGHT SHAR2  
 1242B ⚫ CUNEIFORM NUMERIC SIGN NINE SHAR2  
 1242C ⚫ CUNEIFORM NUMERIC SIGN ONE SHARU  
     → 12582 ◉ cuneiform numeric sign one n50
- 1242D ⚫ CUNEIFORM NUMERIC SIGN TWO SHARU  
 1242E ⚫ CUNEIFORM NUMERIC SIGN THREE SHARU  
 1242F ⚫ CUNEIFORM NUMERIC SIGN THREE SHARU VARIANT FORM
- 12430 ⚫ CUNEIFORM NUMERIC SIGN FOUR SHARU  
 12431 ⚫ CUNEIFORM NUMERIC SIGN FIVE SHARU  
 12432 ⚫ CUNEIFORM NUMERIC SIGN SHAR2 TIMES GAL PLUS DISH  
 12433 ⚫ CUNEIFORM NUMERIC SIGN SHAR2 TIMES GAL PLUS MIN

## Area measures

- 12434 ⚫ CUNEIFORM NUMERIC SIGN ONE BURU  
     → 1258E ★ cuneiform numeric sign one buru curved  
     → 12582 ◉ cuneiform numeric sign one n50
- 12435 ⚫ CUNEIFORM NUMERIC SIGN TWO BURU  
 12436 ⚫ CUNEIFORM NUMERIC SIGN THREE BURU  
 12437 ⚫ CUNEIFORM NUMERIC SIGN THREE BURU VARIANT FORM
- 12438 ⚫ CUNEIFORM NUMERIC SIGN FOUR BURU  
 12439 ⚫ CUNEIFORM NUMERIC SIGN FIVE BURU

## Variant stacking patterns

- 1243A ⚫ CUNEIFORM NUMERIC SIGN THREE VARIANT FORM ESH16  
 1243B ➡ CUNEIFORM NUMERIC SIGN THREE VARIANT FORM ESH21  
 1243C ⚫ CUNEIFORM NUMERIC SIGN FOUR VARIANT FORM LIMMU  
 1243D ⚫ CUNEIFORM NUMERIC SIGN FOUR VARIANT FORM LIMMU4  
 1243E ⚫ CUNEIFORM NUMERIC SIGN FOUR VARIANT FORM LIMMU A  
 1243F ⚫ CUNEIFORM NUMERIC SIGN FOUR VARIANT FORM LIMMU B  
 12440 ⚫ CUNEIFORM NUMERIC SIGN SIX VARIANT FORM ASH9  
 12441 ⚫ CUNEIFORM NUMERIC SIGN SEVEN VARIANT FORM IMIN3  
 12442 ⚫ CUNEIFORM NUMERIC SIGN SEVEN VARIANT FORM IMIN A  
 12443 ⚫ CUNEIFORM NUMERIC SIGN SEVEN VARIANT FORM IMIN B  
 12444 ⚫ CUNEIFORM NUMERIC SIGN EIGHT VARIANT FORM USSU  
 12445 ⚫ CUNEIFORM NUMERIC SIGN EIGHT VARIANT FORM USSU3  
 12446 ⚫ CUNEIFORM NUMERIC SIGN NINE VARIANT FORM ILIMMU  
 12447 ⚫ CUNEIFORM NUMERIC SIGN NINE VARIANT FORM ILIMMU3  
 12448 ⚫ CUNEIFORM NUMERIC SIGN NINE VARIANT FORM ILIMMU4  
 12449 ⚫ CUNEIFORM NUMERIC SIGN NINE VARIANT FORM ILIMMU A

## Slanted numerals

*These are used in multiple Early Dynastic metrological systems, as well as Ur III dates and subtractive notations.*

- 1244A ⚫ CUNEIFORM NUMERIC SIGN TWO ASH TENU  
     = 2 diš tenū  
     → 12039 ḫ cuneiform sign ash zida tenu

- 1244B ☰ CUNEIFORM NUMERIC SIGN THREE ASH TENU  
 1244C ☱ CUNEIFORM NUMERIC SIGN FOUR ASH TENU  
 1244D ☲ CUNEIFORM NUMERIC SIGN FIVE ASH TENU  
 1244E ☳ CUNEIFORM NUMERIC SIGN SIX ASH TENU

## Capacity measures

- 1244F ✕ CUNEIFORM NUMERIC SIGN ONE BAN2  
   • 12226 ✕ should be used for 1/2 diš  
     → 12226 ✕ cuneiform sign mash  
     → 12593 ✕ cuneiform numeric sign one ban2 curved
- 12450 ✖ CUNEIFORM NUMERIC SIGN TWO BAN2  
 12451 ✷ CUNEIFORM NUMERIC SIGN THREE BAN2  
 12452 ✸ CUNEIFORM NUMERIC SIGN FOUR BAN2  
 12453 ✹ CUNEIFORM NUMERIC SIGN FOUR BAN2 VARIANT FORM  
 12454 ✺ CUNEIFORM NUMERIC SIGN FIVE BAN2  
 12455 ✻ CUNEIFORM NUMERIC SIGN FIVE BAN2 VARIANT FORM  
 12456 ✼ CUNEIFORM NUMERIC SIGN NIGIDAMIN  
   = 2 bariga  
   → 12079 ✼ cuneiform sign dish  
   → 1255A ✽ cuneiform numeric sign two n08
- 12457 ✽ CUNEIFORM NUMERIC SIGN NIGIDAESH  
   = 3 bariga

## Area measures

- 12458 ✾ CUNEIFORM NUMERIC SIGN ONE ESHE3  
   → 1258C ✾ cuneiform numeric sign one n22
- 12459 ✿ CUNEIFORM NUMERIC SIGN TWO ESHE3

## Fractions

- 1245A ✿ CUNEIFORM NUMERIC SIGN ONE THIRD DISH  
 1245B ✿ CUNEIFORM NUMERIC SIGN TWO THIRDS DISH  
 1245C ✿ CUNEIFORM NUMERIC SIGN FIVE SIXTHS DISH  
 1245D ✿ CUNEIFORM NUMERIC SIGN ONE THIRD VARIANT FORM A  
   = 1/3 aš curved  
   = 1/3 diš curved  
   → 12598 ✿ cuneiform numeric sign ninda2 times  
     she plus one ash curved
- 1245E ✿ CUNEIFORM NUMERIC SIGN TWO THIRDS VARIANT FORM A  
   = 2/3 aš curved  
   = 2/3 diš curved  
   → 12599 ✿ cuneiform numeric sign ninda2 times  
     she plus two ash curved
- 1245F ✿ CUNEIFORM NUMERIC SIGN ONE EIGHTH ASH  
   = 1/8 iku  
   → 12587 • cuneiform numeric sign one eighth iku  
     curved  
   → 12588 ☽ cuneiform numeric sign one eighth iku  
     curved variant form
- 12460 ✿ CUNEIFORM NUMERIC SIGN ONE QUARTER ASH  
   = 1/4 iku  
   → 12589 ☿ cuneiform numeric sign one n01 reversed  
   → 1258A ☿ cuneiform numeric sign one quarter iku  
     curved variant form
- 12461 ☰ CUNEIFORM NUMERIC SIGN OLD ASSYRIAN ONE SIXTH

- 12462 ☰ CUNEIFORM NUMERIC SIGN OLD ASSYRIAN ONE QUARTER

## Capacity measures

- These are used in Umma in the Ur III period with a gur of 4 bariga.*
- 12463 ✿ CUNEIFORM NUMERIC SIGN ONE QUARTER GUR  
   = 1 bariga variant form
- 12464 ✿ CUNEIFORM NUMERIC SIGN ONE HALF GUR  
   = 2 bariga variant form  
   • The sequence 12464 ✿ 12463 ✿ is used for 3/4 gur

## Elamite fractions

- 12465 ☿ CUNEIFORM NUMERIC SIGN ELAMITE ONE THIRD  
 12466 ☿ CUNEIFORM NUMERIC SIGN ELAMITE TWO THIRDS

## Elamite numeric signs

- 12467 ☿ CUNEIFORM NUMERIC SIGN ELAMITE FORTY  
 12468 ☿ CUNEIFORM NUMERIC SIGN ELAMITE FIFTY

## Variant stacking patterns

- 12469 ☰ CUNEIFORM NUMERIC SIGN FOUR U VARIANT FORM  
 1246A ☱ CUNEIFORM NUMERIC SIGN FIVE U VARIANT FORM  
 1246B ☲ CUNEIFORM NUMERIC SIGN SIX U VARIANT FORM  
 1246C ☳ CUNEIFORM NUMERIC SIGN SEVEN U VARIANT FORM  
 1246D ☴ CUNEIFORM NUMERIC SIGN EIGHT U VARIANT FORM  
 1246E ☵ CUNEIFORM NUMERIC SIGN NINE U VARIANT FORM

## Slanted numeral

- 1246F ☽ CUNEIFORM NUMERIC SIGN SEVEN ASH TENU

## Punctuation

- 12470 ✿ CUNEIFORM PUNCTUATION SIGN OLD ASSYRIAN WORD DIVIDER  
   → 1039F ✿ ugaritic word divider  
   → 103D0 ✿ old persian word divider
- 12471 ✿ CUNEIFORM PUNCTUATION SIGN VERTICAL COLON  
 12472 ✿ CUNEIFORM PUNCTUATION SIGN DIAGONAL COLON  
 12473 ✿ CUNEIFORM PUNCTUATION SIGN DIAGONAL TRICOLON  
 12474 ✿ CUNEIFORM PUNCTUATION SIGN DIAGONAL QUADCOLON

## Slanted numerals

- 12475 ☽ CUNEIFORM NUMERIC SIGN EIGHT ASH TENU  
 12476 ☽ CUNEIFORM NUMERIC SIGN NINE ASH TENU

## Numerals for Early Dynastic regnal years

*These are used in regnal years of the rulers of the first dynasty of Lagash.*

- 12477 ✿ CUNEIFORM NUMERIC SIGN ASH TIMES ONE DISH TENU  
 12478 ✿ CUNEIFORM NUMERIC SIGN ASH TIMES TWO DISH TENU  
 12479 ✿ CUNEIFORM NUMERIC SIGN ASH TIMES THREE DISH TENU  
 1247A ✿ CUNEIFORM NUMERIC SIGN ASH TIMES FOUR DISH TENU  
 1247B ✿ CUNEIFORM NUMERIC SIGN ASH TIMES FIVE DISH TENU  
 1247C ✿ CUNEIFORM NUMERIC SIGN ASH TIMES SIX DISH TENU  
 1247D ✿ CUNEIFORM NUMERIC SIGN ASH TIMES SEVEN DISH TENU  
 1247E ✿ CUNEIFORM NUMERIC SIGN ASH TIMES EIGHT DISH TENU  
 1247F ✿ CUNEIFORM NUMERIC SIGN ASH TIMES NINE DISH TENU

## 2.3 Properties

Add to the respective UCD files the lines given in this section. These are available as plain text files attached to this document. Changes to derived files are not listed.

### 2.3.1 Name, General\_Category, Numeric\_Value, etc.

Attached: [UnicodeData.txt](#).

```
1246F;CUNEIFORM NUMERIC SIGN SEVEN ASH TENU;N1;0;L;;;;7;N;;;;;
12475;CUNEIFORM NUMERIC SIGN EIGHT ASH TENU;N1;0;L;;;;8;N;;;;;
12476;CUNEIFORM NUMERIC SIGN NINE ASH TENU;N1;0;L;;;;9;N;;;;;
12477;CUNEIFORM NUMERIC SIGN ASH TIMES ONE DISH TENU;N1;0;L;;;;1;N;;;;;
12478;CUNEIFORM NUMERIC SIGN ASH TIMES TWO DISH TENU;N1;0;L;;;;2;N;;;;;
12479;CUNEIFORM NUMERIC SIGN ASH TIMES THREE DISH TENU;N1;0;L;;;;3;N;;;;;
1247A;CUNEIFORM NUMERIC SIGN ASH TIMES FOUR DISH TENU;N1;0;L;;;;4;N;;;;;
1247B;CUNEIFORM NUMERIC SIGN ASH TIMES FIVE DISH TENU;N1;0;L;;;;5;N;;;;;
1247C;CUNEIFORM NUMERIC SIGN ASH TIMES SIX DISH TENU;N1;0;L;;;;6;N;;;;;
1247D;CUNEIFORM NUMERIC SIGN ASH TIMES SEVEN DISH TENU;N1;0;L;;;;7;N;;;;;
1247E;CUNEIFORM NUMERIC SIGN ASH TIMES EIGHT DISH TENU;N1;0;L;;;;8;N;;;;;
1247F;CUNEIFORM NUMERIC SIGN ASH TIMES NINE DISH TENU;N1;0;L;;;;9;N;;;;;
```

### 2.3.2 Line\_Break

Attached: [LineBreak.txt](#).

```
1246F ; AL # N1 CUNEIFORM NUMERIC SIGN SEVEN ASH TENU
12475..1247F ; AL # N1 [11] CUNEIFORM NUMERIC SIGN EIGHT ASH TENU..CUNEIFORM NUMERIC SIGN
 ↳ ASH TIMES NINE DISH TENU
```

### 2.3.3 Script

Attached: [Scripts.txt](#).

```
1246F ; Cuneiform # N1 CUNEIFORM NUMERIC SIGN SEVEN ASH TENU
12475..1247F ; Cuneiform # N1 [11] CUNEIFORM NUMERIC SIGN EIGHT ASH TENU..CUNEIFORM NUMERIC
 ↳ SIGN ASH TIMES NINE DISH TENU
```

## 3 DIŠ *tenû* numerals

This section discusses the following proposed characters:

- U+1246F  CUNEIFORM NUMERIC SIGN SEVEN ASH TENU
- U+12475  CUNEIFORM NUMERIC SIGN EIGHT ASH TENU
- U+12476  CUNEIFORM NUMERIC SIGN NINE ASH TENU

### 3.1 Name

The existing numerals in the  series are named U+12039  CUNEIFORM SIGN ASH ZIDA TENU for the first one and U+1244A–U+1244E  CUNEIFORM NUMERIC SIGN *n* ASH TENU for the others.

Some<sup>3</sup> technical terms used in cuneiform character names are derived originate from the structural descriptions of cuneiform signs by Akkadian-speaking scribes in late second and first millennium lexical texts. [TODO(egg): Cite Yushu Gong on *tenu* itself] In particular, the word *tenû* is used to describe slanted signs or parts

<sup>3</sup>TODO also note *gunû* but contrast CROSSING rather than *gi-li-mu-u*, SQUARED rather than *li-mu-bu* *i-gi-gu-ub-bu-u*

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**b) DIE SCHIEFEN KEILE UND DIE WINKELHAKEN (für die Einheiten von 1-9, neben den senkrechten keilförmigen Zahlenzeichen).**

a) bei : RTC. 276:   
*Bart. III 116, 249: 3 gín igi--gál ū.*  
*Legr. TRU. 310: uá- kam.*  
*Gen. TD. 5487: áb.*

b) vor kam und àm:  
*Bart. III 152, 398: áub--ám*  
*Legr. TRU. 42: a-du--kam*  
*a-du -kam*  
*a-du -kam*  
*a-du -kam*  
*Legr. TRU. 346: 1 máš-gal-še -kam-uš*  
*i udu-še -kam-uš*  
*Siehe: itu-šu--ša; itu šu--ša; itu šu--ša.*

c) nach gud, áb, anše, zur Bezeichnung des Alters.  
*ITT III, II 4956: 20 áb--še 3 qa-ta*  
*ITT III, II 6090: 3 anše-sal-; 1 anše-nita*   
*Pinch. AT. I. 53: 3 gud ; 1 áb*   
*Bart. III 106, 191: 3 anše-nita*   
*ITT II, I. 6965: 20 zu-gud- 15 zu-gud*

Figure 1: [Sch35, p. 135]

of signs: thus is described as *tenû* in [P365233, rev.i 46']<sup>4</sup>, as *tenû* in [P391514, rev.ii 47; P467315, obv.ii 80], as *tenû* in [P391514, p. ii 33], as (containing) — *tenû* in [P365267, obv.16']<sup>5</sup>. In most cases, the direction of the slant not explicitly specified. The terms *kaba tenû* and *zida tenû*, from Sumerian gab₂ “left” and zid “right” respectively, are used in [P345960], which contrasts described as *kaba tenû* and described as *zida tenû*.

In modern transliteration, numerals are described as — *tenû* (ATF: *asz@t*) or *tenû* (ATF: *disz@t*), the latter being more common<sup>6</sup>. Informative aliases using *diš tenû* have been recommended for the existing characters in [L2/24-239]. The proposed names use ASH TENU for consistency with the already-encoded characters, and the proposed annotations include informative aliases with *diš tenû*.

### 3.2 Ur III usage

As described in [Sch35, p. 135] (see Figure 1), slanted signs are used in Ur III economic texts primarily in subtractive notation with *lal*<sup>7</sup>, as well as for ordinals<sup>8</sup> and for

<sup>4</sup>Note that while the third millennium and are related by a 45° rotation, in the Neo-Assyrian style used by this list, these signs look like and , so that only one wedge is slanted, as noted in [Gong2000].

<sup>5</sup>TODO something on spelling out names ga-na te-nu-u<sub>2</sub> and še te-nu-u; *ku te-nu-u*, etc.

<sup>6</sup>For an example of a transliteration using *aš tenû*, see [Greco2021]; note that only the HTML version uses *aš tenû*, the PDF uses *diš*.

<sup>7</sup>As noted in [L2/24-210R, p. 25 n. 40], the sign (*lal*, “minus”) is often ligated with the following numerals, with the subtrahend placed under a sometimes considerably enlarged , similar to the layout of the radical in modern mathematical notation, see, e.g., [P020092, rev. 3 1, 2]. The font used in this document ligates or kerns subtrahends, but does not enlarge the .

<sup>8</sup>Also transliterated *la<sub>2</sub>*, as in [CDLI]. In the transliterated Ur III corpus on [CDLI], out of 3304 occurrences of (*disz@t*), 1971 are in *la<sub>2</sub> n(disz@t)*.

<sup>9</sup>1583 out of 3304 occurrences are *n(disz@t)-kam*, including 647 after .

b) GE BRAUCH VON  $\Gamma$ .

$$\begin{array}{rcl} \text{177. IV. } 7164^{\text{a}}: & \cancel{\text{177}} & = 20 \text{ minus } 3 = 17. \\ \text{CT. 10, } 24964: & \cancel{\text{249}} & = 40 \text{ minus } 4 = 36. \\ \text{Gen. TEO. } 5670: & \cancel{\text{567}} & = 240 \text{ minus } 2 = 238 \end{array}$$

**Nota:** Pgl. im römischen Zahlen-  
system: IX = X minus 1; XIX =  
XX minus 1; ferner die la-  
teinischen Ausdrücke:  
undeviginti = 20 minus 1; duodektri-  
ginta = 30 minus 2.

Figure 2: [Sch35, p. 132]

ages of animals in years<sup>10</sup>.

The rarity of the higher  $\wedge$  numerals in the Ur III corpus likely explains the absence of 7 $\wedge$ –9 $\wedge$  from the répertoire of Unicode Version 5.0, which was aiming to encode a répertoire appropriate for the Ur III period and later.

### 3.3 Early Dynastic usage

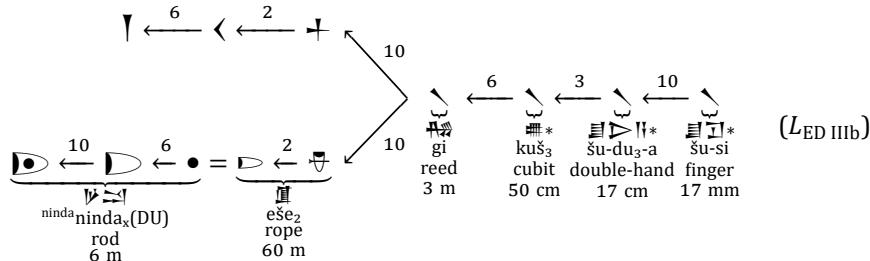
The situation is different in the Early Dynastic corpus. As described in [L2/24-210R], \ numerals are used in many Early Dynastic metrological systems, and in particular in the Early Dynastic IIIb length system [Pow87, p. 466; Lec16; Lec20, pp. 289 sq.;

<sup>10</sup>203 occurrences of gu4, ab2, ansze, or dur3 n(disz@t)

<sup>11</sup>Of the 1971 Ur III occurrences of *lal n(disz@t)*, 1930 are with  $n \leq 2$ , of which 1823 with  $n = 1$ .

<sup>12</sup>430 occurrences of  $n(\text{disz@t})$ -kam are on lines starting with mu, of which 308 are in KR.

Rob22; L2/24-210R, pp. 23 sq.]



where, as in [L2/24-210R], \* indicates prefix units.

While this system has a unit 1  $\text{V} \triangleleft$  = 2  $\text{H} \triangleleft$ , lengths above 1  $\text{H} \triangleleft$  are only expressed in  $\text{H} \triangleleft$ , or equivalently in tens of  $\text{V} \triangleleft$ , and in half- $\text{H} \triangleleft$  equal to 10  $\text{H} \triangleleft$ . We can therefore expect 7–9  $\text{H} \triangleleft$  to occur, expressed using  $\nwarrow$  numerals. Indeed, 37 texts in the transliterated ED IIIb corpus on [CDLI] contain undamaged attestations of either  $\text{H} \triangleleft$  or  $\text{H} \triangleleft \text{H} \triangleleft$ <sup>13</sup>; some of these attestations are shown in Figures 3–6. However,  $\text{H} \triangleleft \text{H} \triangleleft$  is not attested, since instead subtractive notation is used, as in  $\text{D}\text{D}\text{D} \text{H} \triangleleft \text{H} \triangleleft$  in [P020129, obv. 3 3],  $\text{D} \text{H} \triangleleft \text{H} \triangleleft \text{H} \triangleleft \text{H} \triangleleft$  in [P221272, rev. 2 2], or  $\text{H} \triangleleft \text{H} \triangleleft$  in [P020304, obv. 3 8].

A similar situation occurs in some systems of capacity with  $\nwarrow$  numerals counting  $\text{X} \text{sila}_3$ , so that  $\text{H} \triangleleft \text{X}$  and  $\text{H} \triangleleft \text{X}$  are attested, see Figures 7 and 8.

The use of  $\nwarrow$  numerals for ordinals, especially for days, is more prevalent in the Early Dynastic period than in the Ur III period, and the use of subtractive notation is less frequent<sup>14</sup>. In these numbers. We therefore find attestations of  $\text{H} \triangleleft - \text{H} \triangleleft$  in “nth day”, some of which are shown in Figures 9–13.

In Ebla, the  $\nwarrow$  numerals are primarily used in subtractive notation, see [Gor24, p. 88 n. 298, p. 120 n. 465, p. 167 n. 739, p. 180 n. 801]. However, contrary to Ur III,  $\nwarrow$  numerals remain used for large subtrahends, thus [Gor24, p. 101 n. 355] cites occurrences of  $\text{H} \triangleleft \text{H} \triangleleft$  for 36 and  $\text{D} \text{H} \triangleleft \text{H} \triangleleft \text{H} \triangleleft \text{H} \triangleleft$ <sup>15</sup> for 94. In particular, [Gor24, pp. 129 sq.] cites occurrences of  $\text{H} \triangleleft 9 \nwarrow$  in Ebla, shown in Figure 14.



Figure 3:  $\text{I} \ll 16 \text{ H} \triangleleft \text{H} \triangleleft$  “501 m (first) width” (of a field) in [P221254, obv. 3 7] from Nirsu, dated to the reign of  $\text{D} \text{H} \triangleleft \text{H} \triangleleft$ . Left: Copy from [AllottededelaFuye1920]. Right: [CDLI] photograph.

<sup>13</sup>Of those, 34 have  $\text{H} \triangleleft$  and 9 have  $\text{H} \triangleleft \text{H} \triangleleft$ .

<sup>14</sup>Although also attested, see, e.g., [P221346, rev. 3 6]  $\text{D} \text{H} \triangleleft \text{H} \triangleleft$ , [P221006, rev. 2 1]  $\text{D} \text{H} \triangleleft \text{H} \triangleleft$ .

<sup>15</sup>Recall that  $\text{H} \triangleleft \text{H} \triangleleft$  mi-at is Eblaite for “hundred”, see [Arc15, p. 33; L2/24-210R, p. 27].

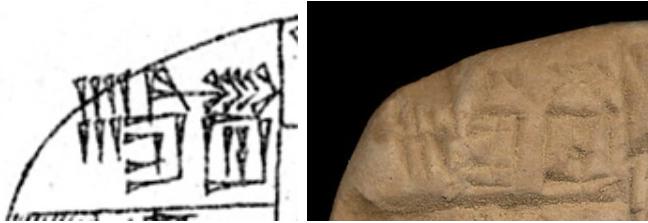


Figure 4: 𒌩 𒄑 𒂗 𒄑 “21 m of reed-bed dyke” (attributed to 𒉢 𒈾 𒉣 the farmer) in [P221266, obv. 1 1] from Nirsu, dated to the reign of 𒀭 𒈾 𒉣 𒀭 𒄑. Left: Copy from [AllottededaFuye1920]. Right: [LouvreCollections] photograph.



Figure 5: 𒁷 “1344 m, its height 2 m” (dimensions of a dyke on the river 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑) in [P020303, obv. 2 2] from Nirsu, dated to the reign of 𒀭 𒈾 𒉣 𒀭 𒄑. Left: Copy from [Marzahn1991]. Right: [CDLI] photograph.



Figure 6: 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 𒄑 “444 m equal widths” (of a field) in [P221254, obv. 1 2]. Left: Copy from [AllottededaFuye1920]. Right: [CDLI] photograph.

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<sup>16</sup>TODO something about rhomboidal numerals, cite [Gor24].

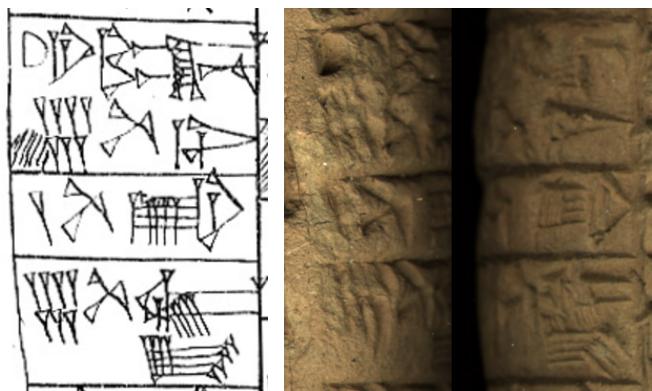


Figure 7: / / “1 ninjbanda 7 sila of butter, 1 sila of cream, 7 sila of dates” in [P020182, rev. 3 5–7] from Nirsu, dated to the reign of . Left: Copy from [För16]. Right: [CDLI] photograph.



Figure 8: / “8 sila of butter, 8 sila of dates” in [P221730, rev. 2 5–6] from Nirsu, dated to the reign of . Left: Copy from [Никольский1908]. Right: [CDLI] photograph.



Figure 9: “seventh day” in [P220703, rev. 2 7] from Nirsu, dated to the 3rd year of the reign of . Left: Copy from [AllottededaFuÿe1918]. Right: [LouvreCollections] photograph.



Figure 10: “seventh day passed” in [P221590, obv. 2 3] from Nippur. Left: Copy from [Westenholz1975]. Right: [CDLI] photograph.



Figure 11: “eighth day” in [P220703, rev. 3 1]. Left: Copy from [AllottededelaFuye1918]. Right: [LouvreCollections] photograph.



Figure 12: “ninth day passed” in [P452986, obv. 1 1], dated to the ED IIIa period. [CDLI] photograph.

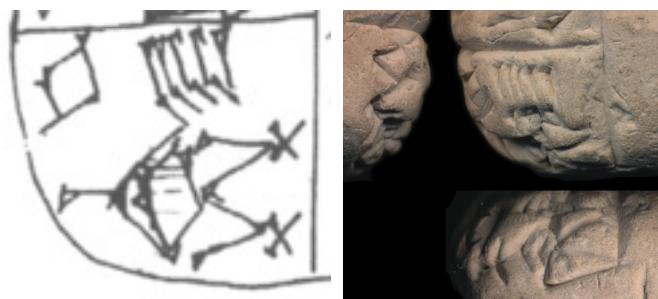


Figure 13: “ninth day” in [P222129, obv. 1 2] from Šuruppag, dated to the ED IIIa period. Left: Copy from [Martin2001]. Right: [CDLI] photograph.

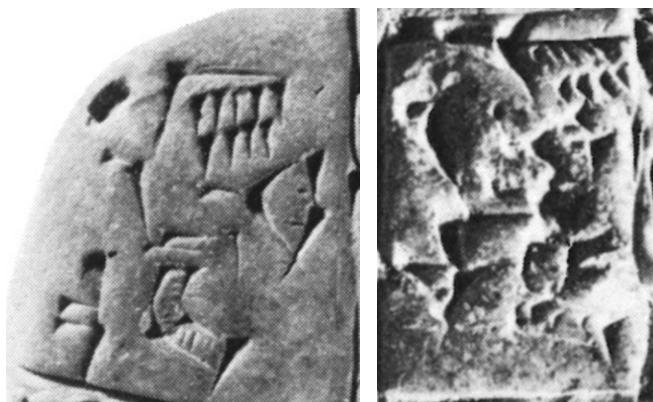


Figure 14: Left: “9 minas and 51 shekels of silver” in [P241283, *recto 1 1*]; right: “1 mina and 51 shekels of silver” in [P241325, *verso 3 2*], both from Ebla. Photographs from [EbDA].

### 3.4 Glyphs

As illustrated in the above figures, the angle of the varies, and is not always faithfully reproduced in copies. The representative glyphs retain the same angle used for the already-encoded numerals.

The stacking patterns for the proposed characters do not vary among the attestations cited above. Note that stacking patterns are known to vary for other numerals in this series; for instance, and sometimes appear with all wedges in a row in ED IIIa tablets, as in [P010787; P010896; P010928]. As discussed in [L2/24-210R, pp. 45 sqq.], the disunification of variant stacking patterns poses problems when producing cuneiform text from transliterated corpora, as the stacking patterns are not normally indicated in transliteration, and the default stacking pattern varies over time: in Ur III, in Neo-Assyrian. While and numerals needed to have their stacking patterns disunified for compatibility with [Bor10], this practice should not be extended to numerals.

## 4 AŠ×(DIŠ *tenû*) numerals

This section discusses the following proposed characters:

- U+12477 ✕ CUNEIFORM NUMERIC SIGN ASH TIMES ONE DISH TENU
- U+12478 ✖ CUNEIFORM NUMERIC SIGN ASH TIMES TWO DISH TENU
- U+12479 ✗ CUNEIFORM NUMERIC SIGN ASH TIMES THREE DISH TENU
- U+1247A ✘ CUNEIFORM NUMERIC SIGN ASH TIMES FOUR DISH TENU
- U+1247B ✙ CUNEIFORM NUMERIC SIGN ASH TIMES FIVE DISH TENU
- U+1247C ✚ CUNEIFORM NUMERIC SIGN ASH TIMES SIX DISH TENU
- U+1247D ✛ CUNEIFORM NUMERIC SIGN ASH TIMES SEVEN DISH TENU
- U+1247E ✜ CUNEIFORM NUMERIC SIGN ASH TIMES EIGHT DISH TENU
- U+1247F ✝ CUNEIFORM NUMERIC SIGN ASH TIMES NINE DISH TENU

### 4.1 Name

As indicated by their name, these signs consist of a horizontal wedge (AŠ) with an overlaid ✱ numeral. Their ATF name is *n(|ASZxDISZ@t|)*, as ATF numerals are of the form *n(<name>)*. Since we have no such restriction in Unicode character names, we move the number before the DISH TENU to better describe their structure. These numerals are not described in terms of AŠ *tenû*, so we follow [CDLI] and [OSL] terminology instead of attempting consistency with the names of the ✱ series.

### 4.2 Usage

These numerals are used in the Early Dynastic IIIb period to indicate regnal years. They are extremely well attested, with 1482 artefacts containing (*|ASZxDISZ@t|*) in the current transliterated [CDLI] corpus. Almost all attestations are from Nirsu, and most of them are in regnal years of 𒃩 𒃪 𒃪 𒃪 𒃪 and his predecessor 𒃩 ِ ِ ِ ِ ِ, but their use is also attested in regnal years of earlier rulers in the first dynasty of Lagas: 72 tablets dated to the reign of ِ ِ ِ ِ ِ ِ, [P247594] possibly<sup>17</sup> dated to the reign of ِ ِ ِ ِ ِ ِ the second, [P222224] to the reign of ِ ِ ِ ِ ِ ِ, and [P221783] from Lagas to the reign of ِ ِ ِ ِ ِ ِ the first.

Where attested<sup>18</sup>, regnal years beyond the ninth are written differently: ِ for the 10th year of ِ ِ ِ ِ ِ ِ in [P222640], and with subtractive subtraction for the 17th<sup>19</sup> written ِ ِ ِ ِ ِ ِ in [P221483, rev. 4 12] and the 19th year of ِ ِ ِ ِ ِ ِ written ِ ِ ِ ِ ِ ِ in [P221413, rev. 3 3; P222223, rev. 3 3]. The numeral series therefore stops at ✑×9✱. Figures 15–21 show these numerals used in ancient and modern text.

<sup>17</sup>Dated instead to the reign of ِ ِ ِ ِ ِ ِ by [SallabergerSchrakamp2015].

<sup>18</sup>The length of the reign of ِ ِ ِ ِ ِ ِ (6 years and 1 month) and the dearth of documents dated to the reign of ِ ِ ِ ِ ِ ِ after his defeat by ِ ِ ِ ِ ِ ِ mean that these are quite rare; see [SallabergerSchrakamp2015].

<sup>19</sup>This text mentions ِ ِ ِ ِ ِ ِ as temple administrator. See [SallabergerSchrakamp2015] for its attribution to the reign of ِ ِ ِ ِ ِ ِ.

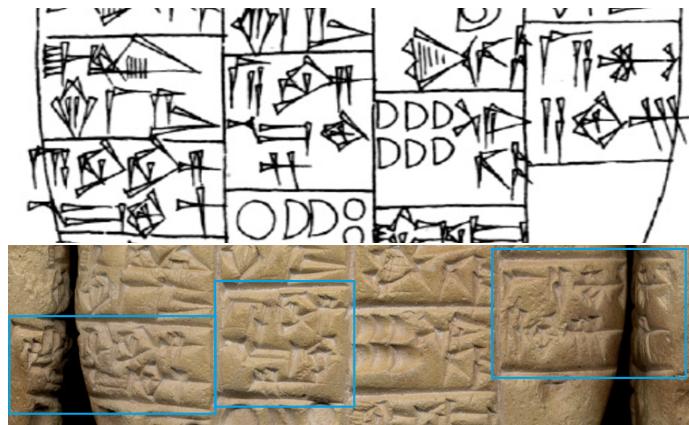


Figure 15: Obverse of [P220930], showing 𒂗 𒈚 𒀭 𒉢 𒀭 “arrears of the year before last 1 (of the reign of 𒀭 𒈚 𒀭 𒉢 𒀭)”, 𒂗 𒈚 𒀭 𒉢 𒀭 “arrears of last year 2”, 𒂗 𒈚 𒂘 𒈚 𒀭 “arrears of this year 3”. The arrears in question consist of fish and turtles. Top: Copy from [AllottededelaFuye1918]. Bottom: [CDLI] photograph.

A connection of im with the later usage of im(.ma) (presargonic Lagash and later; Akkadian šaddaqdi/a(m) with lexical equivalent MU.IM.MA [MSL 5, 65:195]), meaning “previous (year)” is not apparent. For the latter usage cf. particularly DP 280 (= 281), a presargonic temple document which “loads onto the backs” (gu<sub>2</sub>.ne.ne.a e.ne.gar) of the fisheries foremen Ne.sag and Lugal.ša<sub>3</sub>.la<sub>2</sub>.tuku the quota arrears of im.im.ma.kam 𒂗, im.ma.kam 𒂘 and mu.a.kam 𒂗, that is of the year before last = year one (of the king Urugagina [second regnal year]), of last year = year 2 and of this year = year 3. Also DP 243 goats of various colors / maš im.ma.kam / ditto / maš mu.a.kam and DP 94. maš im.ma as delivery arrears noted after grown nannies (ud<sub>5</sub>) and before maš ša<sub>3</sub>.hi (//mu.a.kam, “of the current year”), further maš im.ma = maš.gal.gal in the summation rev i2 (see footnote 17 to the notations of the type 𒂘). A parallel usage is found in the Old Akkadian text ITT 2/1, 3078 obv 1-4. 3 1/2 ma.na.siki / [i]m.ma.kam / 1 gu<sub>2</sub> la<sub>2</sub>.4 ma.na.siki / mu.a.kam. It would seem difficult to reconcile this clear usage im = “previous year” with the often translated im = “account tablet” (im = clay)

Figure 16: Discussion of 𒀭 notation for year names in [Eng88, p. 166 n. 37], referring to [P220930]. See Figure 15.

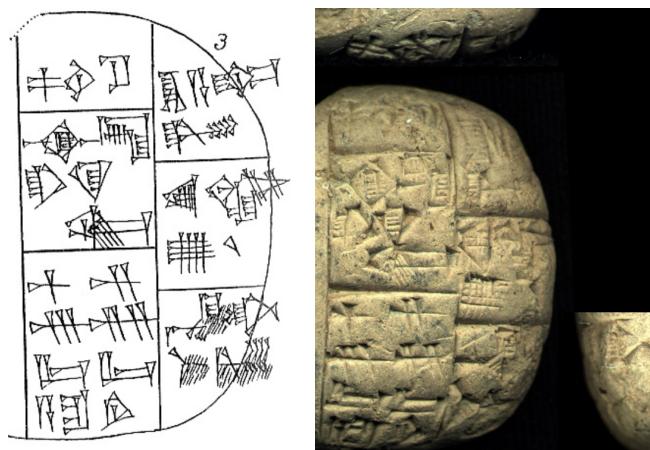


Figure 17: / / / “Enentarzi was ensik of Lagaš. 1st 2nd 3rd 4th (years) consolidated” in [P020133, rev. 13 sqq.]. Left: Copy from [AllottededelaFuye1918]. Right: [CDLI] photograph.

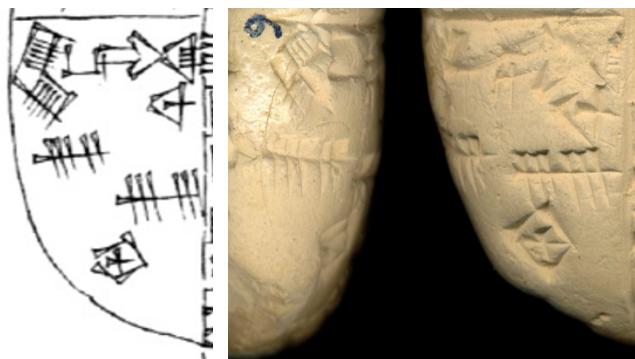


Figure 18: “Silver payment 5th and 6th (years of Lugaland)” in [P221169, rev. 3 2], dated to the 1st year of . Left: Copy from [AllottededelaFuye1918]. Right: [CDLI] photograph.

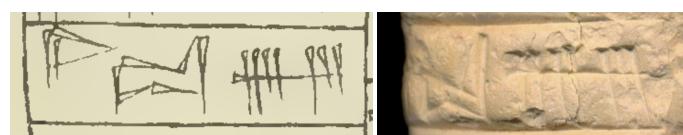


Figure 19: “delivered, 7th (year of Lugaland)” in [P221034, rev. 2 5], dated to the 1st year of . Left: Copy from [AllottededelaFuye1918]. Right: [CDLI] photograph.

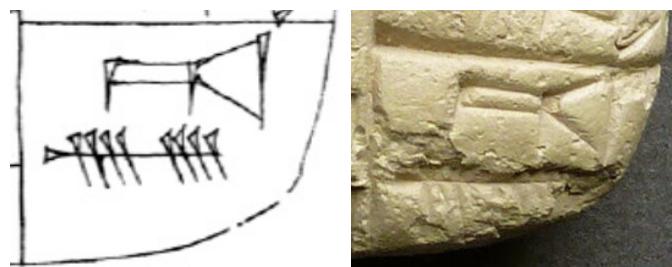


Figure 20: (referencing the 8th year of ) in [P222224, rev. 24]. Left: Copy from [CrosThureau-Dangin1910]. Right: [LouvreCollections] photograph.



Figure 21: (of ) in [P221906, rev. 2]. Left: Copy from [Никольский1908]. Right: [CDLI] photograph.

### 4.3 Glyphs

The  $\nwarrow$  wedges in these numerals are consistently grouped for numbers above : 2-2, 3-2, 3-3, 4-3, 4-4, and 3-3-3. The representative glyphs follow this grouping. is sometimes grouped more finely 2-2-3, as in [P221075, obv. 3 6; P221034, rev. 2 5]. Grouping distinctions are not marked in transliteration (and often even lost in copy), are not contrastive, and should not be represented in encoding. The  $\nwarrow$  wedges are not stacked until the reign of , the notation for whose regnal years is discussed in §4.4.

#### 4.4 Later usage



Having raided Lagaš, the leader of Umma surely committed a sin against Ninnirsu! [...] May Nisaba, the personal god of Lugalzagesi, the ruler of Umma, take the responsibility for the punishment!

[P222618, rev. 2 10 sqq.], translation [ETCSRI]

A different notation of regnal years is used during the reign of 𒆠𒀭𒊩𒌆 𒈗, sometimes involving numerals of the form 𒉢×𒉣. These numerals are less comprehensively attested, and their interpretation is sometimes still unclear, see Figure 22. The co-occurrence and likely contrast of 𒉢×𒉣 and 𒉢×𒉣 in [P221534] may preclude treating the former as a stylistic variant of the latter. These numerals are not being proposed at this time.

The subsequent mu-itî system, which saw limited use at the end of the presargonic and the beginning of the Old Akkadian periods, seems, on its surface, to be a rational development from the system it replaced; the basis of a 30-day month carries on (cf. for instance the texts B. Foster, Umma in the Sargonic Period [Hamden 1982] pl. 18, Nr. 37, discussed by J. Friberg, Scientific American 250/2 [Feb. 1984] 114 and Foster, ASJ 4 [1982] 43 obv iii9-11) and, for a period at least, a graphically comparable method of representing year dates, with now vertical strokes impressed on either side of the long horizontal, was used (the date of the text BIN 8, 117, 𒉢<+> 7, which both Powell, HUCA 49, 9 and B. Foster, Or.NS 48 (1979) 156 and USP p. 7 read 7 (mu) 1 (iti) 7 (ud), should be registered with some scepticism). Only here is the refinement of day added, so that documents

Figure 22: Discussion of late presargonic dates in [Eng88, p. 144 n. 11]. Note that the reference to [P221534] should read BIN 8, 116, rather than 117.

## Acknowledgements

The *CuneiformComposite* font by Steve Tinney is used when referring to the reference glyphs for already-encoded cuneiform. *Noto Sans Cuneiform*, by Monotype Imaging, is used to for most of the cuneiform text in this document, with modifications (cuneiform glyph for ◇ ŠAR<sub>2</sub>, corrected glyphs for 𒉢 𒉣 UN and 𒉢 𒉣 KALAM per [Uni16], alternate glyph ܶ for ܵ, ligatures and kerning of ܶ). Arabic text is set in *Scheherazade New* by SIL International; Traditional Chinese text is set in *Noto Serif TC* by Ken Lunde et al.; monospace text is set in *Consolas* by Luc(as) de Groot; the remainder of the text is set in *Cambria* and *Cambria Math* by Monotype Imaging and Tiro Typeworks.

## References

### Artefacts

- [P010787] Ist Š 0251.  
CDLI: [P010787](#).  
ORACC: [dccmt/P010787](#).
- [P010896] Ist Š 0752.  
CDLI: [P010896](#).  
ORACC: [epsd2/P010896](#).
- [P010928] Ist Š 0878.  
CDLI: [P010928](#).  
ORACC: [epsd2/P010928](#).
- [P020092] VAT 04428. Berlin, Germany: Vorderasiatisches Museum.  
CDLI: [P020092](#).  
ORACC: [epsd2/P020092](#).
- [P020129] VAT 04713. Berlin, Germany: Vorderasiatisches Museum.  
CDLI: [P020129](#).  
ORACC: [epsd2/P020129](#).
- [P020133] VAT 04884.  
CDLI: [P020133](#).  
ORACC: [epsd2/P020133](#).
- [P020182] VAT 04405. Berlin, Germany: Vorderasiatisches Museum.  
CDLI: [P020182](#).  
ORACC: [epsd2/P020182](#).
- [P020303] VAT 04852.  
CDLI: [P020303](#).  
ORACC: [epsd2/P020303](#).
- [P020304] VAT 04855.  
CDLI: [P020304](#).  
ORACC: [epsd2/P020304](#).
- [P109346] FLP 0558.  
CDLI: [P109346](#).  
ORACC: [epsd2/P109346](#).
- [P131747] AO 05676. Paris, France: Musée du Louvre.  
CDLI: [P131747](#).  
ORACC: [epsd2/P131747](#).
- [P220703] AO 13261. Paris, France: Musée du Louvre.  
CDLI: [P220703](#).  
ORACC: [epsd2/P220703](#).
- [P220930] AO 13488. Paris, France: Musée du Louvre.  
CDLI: [P220930](#).  
ORACC: [epsd2/P220930](#).
- [P221006] AO 13562. Paris, France: Musée du Louvre.  
CDLI: [P221006](#).  
ORACC: [epsd2/P221006](#).

- [P221034] AO 13590. Paris, France: Musée du Louvre.  
CDLI: [P221034](#).  
ORACC: [epsd2/P221034](#).
- [P221075] AO 13631. Paris, France: Musée du Louvre.  
CDLI: [P221075](#).  
ORACC: [epsd2/P221075](#).
- [P221169] AO 13726. Paris, France: Musée du Louvre.  
CDLI: [P221169](#).  
ORACC: [epsd2/P221169](#).
- [P221254] AO 13812. Paris, France: Musée du Louvre.  
CDLI: [P221254](#).  
ORACC: [epsd2/P221254](#).
- [P221266] AO 13825. Paris, France: Musée du Louvre.  
CDLI: [P221266](#).  
ORACC: [epsd2/P221266](#).  
Louvre Collections: [ark:/53355/cl010138527](#).
- [P221272] AO 13831. Paris, France: Musée du Louvre.  
CDLI: [P221272](#).  
ORACC: [epsd2/P221272](#).
- [P221346] SM 1904.07.004.  
CDLI: [P221346](#).  
ORACC: [epsd2/P221346](#).
- [P221413] AO 04037. Paris, France: Musée du Louvre.  
CDLI: [P221413](#).  
ORACC: [epsd2/P221413](#).
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CDLI: [P221483](#).  
ORACC: [epsd2/P221483](#).
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CDLI: [P221730](#).  
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