TO: Unicode Technical Committee
FROM: Steve Tinney
RE: Comments on L2/23-190 Revised proposal to encode Proto-Cuneiform in Unicode
DATE: 2024-04-14

This document includes comments on L2/23-190 based on my review of the proposed encoding and its relationship to existing practice beyond the CDLI list of Proto-Cuneiform signs on which it is based. I am a Sumerologist with experience encoding Sumero-Akkadian Cuneiform in Unicode and have based the review on both online and published sources and on collation of Proto-Cuneiform documents where photos are available. I was also a long-time collaborator with Bob Englund, the expert whose work on the PC corpus is in one way encapsulated in the CDLI-github listing of archaic signs on which L2/23-190 is based. The comments are written in strong support of L2/23-190 and future iterations of the proposal.

Table of Contents

1. Introduction

L2/23-190, Anshuman Pandey's "Revised proposal to encode Proto-Cuneiform in Unicode" (AP23) is based on the list of Proto-Cuneiform signs at https://cdli-gh.github.io/proto-cuneiform_signs/ (CDLI-gh) which consists of a list of glyphs and sign-names. CDLI-gh is not an exhaustive list of PC and so as part of reviewing AP23 I prepared an Oracc sign list of procotocuneiform at https://build-oracc.museum.upenn.edu/pcsl. PCSL compiles additional elements of existing practice including the CDLI PC text corpus and data from works which are not systematically included in CDLI-gh, primarily several volumes in the CUSAS series.

2. Sources, Abbreviations and Conventions

2.1 Source and Abbreviations

The following sources and resources are referenced in these comments:

ATFU C. Lecompte and L. Verderame (ed.) *Archaic Tablets and Fragments from Ur.* (Nisaba 25). Messina, 2013. Pp. 113-126, Section VII, "Index of Signs", lists the signs occurring in the tablets published in Nisaba 25. The signs are not numbered and are referenced by name.

ATU A. Falkenstein, *Archaische Texte aus Uruk* (ATU 1), Berlin 1936. The second part of this work, "Zeichenliste" gives a signlist of the texts edited in ATU 1 with references to PI. It is utilised for these comments indirectly via the references to ATU in ZATU. The signs are numbered and referred to as, e.g., ATU001.

BAU E. Burrows, *Archaic Texts* (Ur Excavations Texts 2), London 1935. Plates 1-37 contain a signlist of the Early Dynastic I-II text from Ur with occasional stray additions relating to the later texts which are included in the "Supplement" on plates XLV-L. This list has been aligned with the proposal. The signs are numbered and referred to as, e.g., BAU001.

AP23 A. Pandey, "Revised proposal to encode Proto-Cuneiform in Unicode" (UTC document L2/23-190). The proposal to which these comments apply. The signs are numbered and also provided with Unicode codepoints and names. References of the form AP23 1590 are to the listing on pages 7-127. References of the form AP23 U+12580 are to the character data on pages 161-209.

CDLI-gh The CDLI GitHub list on which AP23 is based, https://cdli-gh.github.io/proto-cuneiform_signs/. CDLI-gh is unnumbered and signs are referenced by name.

CDLI-tc The CDLI text corpus; collected with some adjustment of conventions in PCTC. Images and CDLI versions of the text transliterations are linked from PCTC to the source data at https://cdli.mpiwg-berlin.mpg.de/.

CUSAS Cornell University Studies in Assyriology and Sumerology.

CUSAS01 S.F. Monaco, *The Cornell University Archaic Tablets* (CUSAS 1), Bethesda, MD, 2007. Additional signs on pages 15, "New Signs and Sign Variants" and 281, "New Signs and Variants".

CUSAS21 S.F. Monaco, *Archaic Bullae and Tablets in the Cornell University Collections* (CUSAS 21) Additional signs on page 166, "New Signs and Variants".

CUSAS31 S.F. Monaco, *Archaic Cuneiform Tablets from Private Collection* (CUSAS 31), Bethesda, MD, 2016. Additional signs on page 203, "New Signs and Variants".

ED Early Dynastic

LAK A. Deimel, Liste der archaischen Keilschriftzeichen, Berlin, 1922.

LLATU R.K. Englund and H.J. *Lexicalischen Listen der Archaischen Texte aus Uruk* (ATU 3), Berlin 1993. The definitive edition of PC lexical lists from Uruk, pages 177-327, "Zeichenglossar der lexicalischen Listen aus Uruk" gives a signlist of the Uruk lexical texts, with many revisions to the names used in ZATU to differentiate sign variants, e.g., ZATU270, IŠ, is LLATU IŠ$_a$ and Iš$_b$. The signs are unnumbered and are referenced by name.

OSL The Oracc Sign List, http://oracc.org/osl. This is the authority list for SAC signs and values used by Oracc, the Open Richly Annotated Cuneiform Corpus (http://oracc.org). OSL is unnumbered and signs are referenced by name.

PC Proto-Cuneiform, see PCSL.

PCSL Proto-Cuneiform Sign List, http://oracc.org/pcsl/signlist. A signlist created by Steve Tinney in the format of OSL . Derived from AP23 with revisions and additions based on detailed review of ATFU, BAU, CDLI-gh, CDLI-tc, LLATU, and ZATU. PCSL is unnumbered and signs are referenced by name. The signlist project also contains a version of the CDLI Proto-Cuneiform corpus.

PI	S. Langdon, *Pictographic Inscriptions from Jemdet Nasr* (Oxford Editions of Cuneiform Texts 7), London, 1928. Pp. 1-71 include a signlist of the Jemdet Nasr texts which was utilized by Falkenstein in ATU and by Green in ZATU. PI is utilized as subsumed by ATU, ZATU and other later lists and is not referenced directly.
RKEZ	R.K.Englund, "Liste der zusätzlichen Zeichen der Text der 33. und 34. Kampagne" Pp. 347-351 in ZATU.
SAC	Sumero-Akkadian Cuneiform, see OGSL.
ZATU	M.W. Green and H.J. Nissen, *Zeichenliste der Archaischen Texte aus Uruk* (ATU 2), Berlin 1987. Intended to be the definitive signlist for the ATU project, Green's work was criticised even in the same volume (RKEZ 347) for ignoring the internal working procedures of the Berlin team and underdifferentiating the PC signlist by gathering similar-looking but possibly unrelated signs together under the same number, ignoring letter-variants. The signs are numbered and referred to as, e.g., ZATU001.

2.2 Conventions

Transliteration conventions differ between the various resources. The CDLI/ORACC transliteration is called ATF, and differs in the use of Unicode in ORACC versus ASCII conventions in CDLI. Thus, CDLI SZ corresponds to Oracc Š; CDLI x (times) corresponds to Oracc ×, and so on. In ATF, letters used to differentiate sign forms are indicated with a tilde followed by a lowercase letter (IŠ~a); in publications this is usually rendered as a simple subscript ($IŠ_a$). Similarly, variant numbers are concatenated in text (IŠ~a1) but subscripted in print ($IŠ_{a1}$). Note that without a preceding lowercase letter, a subscripted number is a sign index, differentiating distinct signs that are in contemporary transliteration homophonous (e.g., DU_6 vs DU_8). The ATF notation "@t", in print usually "-t", is an abbreviation for the Akkadian term *tenû*, "leaning", used in PC to mean any kind of variance in the orientation of a sign—sometimes inverted, sometimes rotated -45, 45 or 90 degrees clockwise. Compound signs are normally placed between vertical bars in ATF, e.g., |AMAR×TAR| rather than AMAR×TAR. Further conventions are documented in the ORACC GDL page at https://build-oracc.museum.upenn.edu/ns/gdl/1.0/.

2.2 PCSL

The signlist developed as part of the review of this proposal, PCSL, departs from the proposal in some important ways.

- PCSL uses Unicode transliteration conventions, e.g., $ŠEG_9$ for SZEG9
- CDLI names for characters may apply to more than one proposed codepoint, e.g., SZE3 is the CDLI form of 970 and 970.1, for which AP23 disambiguates in the Unicode name as SHE3 and SHE3 VARIANT 1. PCSL defines unique transliterations for each variant, adding ~v1, ~v2, etc., to match the VARIANT in the name. The PCSL transliteration of SZE3=SHE3 VARIANT 1 is $ŠE_3$~v1.
- PCSL mostly aligns derived signs with their base signs both with derivations like @g (GUNU, addition of wedges) and where signs are components of compound signs.

3. General Observations

3.1 The PC Encoding

3.1.1 Chronological Scope

L2/23-190 does not specify the chronological boundaries of the PC encoding but subsequent discussions in the SAH and elsewhere have narrowed the scope to Uruk IV and III signs.

3.1.2 Separation and Overlap of PC and SAC

It is important that PC be encoded separately from SAC. While there are observable continuities in the script use, it is an essential tenet of Englund's labelling of the PC signs is that the labels are purely formal conventions and do not imply that there is any semantic continuity between, say, the PC sign U_2 and the SAC sign U_2. This means that signs with names

that also occur in SAC should be assigned a separate PC codepoint.

The CDLI-gh sign-names used in AP23, e.g., NINLIL, are sometimes controversial but this is not a reason to discontinue their use in the PC encoding. It is important to stress again in this context, though, that the naming conventions are about labelling not about identification of PC signs with later SAC interpretations.

Scholars working in PC through Early Dynastic studies are going to use both PC and SAC signs even in working in the same texts. The most important case for this is in the curviform numbers which continue from PC into later third millennium SAC and which are not encoded in SAC. Studies of the history of the script and lexicon will also mix PC and SAC signs freely.

3.1.3 Identification of PC Signs with later SAC Signs

While there is a place for maintaining a list of correspondences of PC to SAC signs, the Unicode encodings of PC and SAC are not appropriate places for that task. The identification of PC antecedents to Early Dynastic signs is a complex matter and while some cases are relatively clear, where there are Early Dynastic lexical lists which duplicate PC lexical lists, for example, there are also significant areas of disagreement.

3.1.4 Separate Encoding of Variants is Necessary

AP23 raises the question (p.2) of whether the proposal's separation of subvariants—cases where CDLI-gh combines multiple sign-forms under a single sign-name—is desirable or not. This is a reasonable question because it is highly likely that some of the minor sign variants are graphic rather than semantic—the question is which ones?

There is evidence to support separate encoding of subvariants as presently done in AP23. For example, Monaco states in CUSAS 1 p.15 n.105 "the two sub-variants of ŠEN$_b$ have been distinguished as ŠEN$_{b1}$ (CHAR-IMAGE) and ŠEN$_{b2}$ (CHAR-IMAGE), since they occur together in the same text, CUSAS 1, 163, clearly denoting two different cereal products." As mentioned in the Specific Observations below, another case which is not reflected in CDLI-gh is that there are two signs DUG@t: DUG~a2@t () and DUG~c2@t (), only the latter of which is consistently followed by a normally oriented

DUG~c sign, suggesting that the contexts and interpretations are distinct.

In some cases subvariants are different stacking patterns of a number; in this case, too, they should be assigned separate codepoints as was also done with SAC numbers.

3.1.5 Encoding of Damaged Signs

CDLI-gh contains a number of signs which are partially damaged. While the full identity of these signs is not certain, it is valuable to assign them codepoints as AP23 does, given that one of the purposes of encoding PC is to facilitate scholarship on the PC corpus. The damaged signs in administrative texts may never be able to be fully deciphered, but scholarly discussion will reference them in discussions of contexts and possible interpretation.

3.2 CDLI-gh as a Signlist

The nature of CDLI-gh as a signlist informs some decisions about the encoding of PC. CDLI-gh is a practical collection of Bob Englund's digital renderings of PC signs which was assembled over a long period of time and as a result exhibits some inevitable inconsistencies. There are a few signs in ZATU which are not in CDLI-gh, mostly because they are read differently by Englund than by the original editors of the text; there are some signs in CDLI-tc/LLATU that are not in CDLI-gh, e.g., UZ~a. These are detailed under Specific Observations below.

3.2.1 Corrections and Normalizations

While L2/13-190 does well to follow the naming conventions used in CDLI-gh as far as possible it also acknowledges the need for some corrections; in some cases these corrections would be better described as normalizations of the conventional names.

As described under Specific Observations some further normalizations would be advisable, especially concerning 1(N57@t)| and 1(N58@t)| compounds.

3.2.2 Codepoints versus Sequences

It is not necessarily the case that every distinctly listed sign in CDLI-gh should be assigned its own codepoint. In SAC Unicode some signs "A BESIDE B" are assigned codepoints but most are not. In most cases the choice to assign codepoint was made because the sequence is a later reanalysis of an earlier sign; in others the practical value of having a codepoint for a common sign was considered.

Since CDLI-gh represents Bob Englund's considered approach to the PC script it makes practical sense to accept the CDLI-gh entries as signs.

3.2.3 Underdifferentiation of Sign Variants in Compounds

CDLI-gh does not always specify a sign variant in compounds even when CDLI-gh has no corresponding unmarked form of the sign, for example it lists |AMARxTAR|, but gives only TAR~a and TAR~d. These are appropriately noted in AP23. In PCSL these components have been reviewed and labeled according to their variants and the resultant renamings are included here as suggested new Unicode names for the characters in question.

3.2.4 Multiple meanings of X

CDLI-gh generally uses X to mean that a sign is damaged; X is also used by cuneiformists to indicate a sign that is legible but unidentifiable, as appears to be the case in CDLI-gh |GESZTIN~cxX|. In cases where X should have this latter meaning the signlist and encoding should differentiate the X signs with numeric indices, $X1/X_1$, $X2/X_2$, etc.

3.3 The CDLI-tc Corpus

The CDLI-tc corpus consists of transliterations made over a period of several decades and often uses conventions that are no longer used in CDLI-gh and related works. In addition, CDLI-tc often underspecifies both letter-variants and sub-variants making it important to treat it with a certain degree of critical care. As a result aligning the CDLI-tc with CDLI-gh/AP23 is not a straightforward process. This alignment has not been done in PCSL because it would require collation of the entire corpus and there is nobody who has both the expertise and the capacity to do this work.

3.4 Sort Sequence

The proposal (p.2) raises the question of whether to merge compound signs in with the non-compounds or to keep them separate as in AP23. The preferred approach would be to merge them because this is standard practice in cuneiform signlists of all kinds.

An infelicity in the sort sequence is that SZ sorts as SH—the standard practice is for SZ/š to sort after S.

In both CDLI-gh and LLATU numbers are sorted so that all N49 group together, all N50 group together, etc.; in AP23 numbers are sorted so that are grouped by 1(X), 1(Y), 1(Z); 2(X), 2(Y), 2(Z) etc.

I would suggest considering the possibility of using the PCSL sort sequence for the encoding; integer sort codes used in PCSL are included as a column in the tabbed data file which accompanies this document.

3.5 Miscellaneous General Notes on L2/23-190

The word šeššig is spelled in the Unicode sign names as SHESSHIG; in SAC it is spelled SHESHIG (e.g., U+12215 CUNEIFORM SIGN LU2 SHESHIG). Another spelling in use is sheshshig. It would be preferable to align with prior Unicode practice and rename all SHESSHIG signs as SHESHIG signs.

The proposal (p.2) raises the question of whether to encode signs letter-variants that occur only in compounds, arguing that this would be useful for scholarly discourse about the PC sign list. Against an earlier draft of this document, it is simplest not to encode compound-only variants of signs as codepoints, the same approach as was adopted for SAC.

4. Suggested Revisions

This section provides an overview of the suggested revisions to L23/190; these revisions are given in the data table accompanying this report in the column 'action'.

4.1 Unmarked

Unmarked items require no action.

4.2 Ignore

In view of the decision to proceed separately with the numbers PROTO-CUNEIFORM NUMBER characters are ignored.

4.3 Remove

In line with the decision to restrict the scope of L23/190 to signs from the Uruk IV and Uruk III writing phases, the following characters should be removed:

REMOVE CHARACTERS TABLE

#	CDLI	NAME
352	A@g	A GUNU
376	ALAN~f	ALAN-F
389	ANZU2	ANZU2
396	ASAL2	ASAL2
449	DAG	DAG
509	E~e	E-E
529	ENSI	ENSI
530	ENSI2	ENSI2
569	GAN~d	GAN-D
580	GESZTIN~c	GESHTIN-C
593	GIG	GIG
594	GIL	GIL
607	GIR4	GIR4
611	GISZ~x	GISH-X
654	HUB2	HUB2
662	IGI	IGI
667	IM~a@g	IM-A GUNU
684	KA2~d	KA2-D
711	KESZ2	KESH2
742	KU~a@t	KU-A TENU
751	KUN	KUN
767	LA~e	LA-E
777	LAK025	LAK025
778	LAK050	LAK050
779	LAK172	LAK172
780	LAK251	LAK251
781	LAK350	LAK350
782	LAK777	LAK777
787	LAL3~c	LAL3-C

REMOVE CHARACTERS TABLE

#	CDLI	NAME
793	LAM~c	LAM-C
797	LU2@t	LU2 TENU
872.1	NESAG2~a	NESAG2-A VARIANT 1
910	PA3	PA3
927	RI	RI
996	SZITA~c	SHITA-C
1001	SZU@s	SHU SHESSHIG
1010	SZURUPPAK~c	SHURUPPAK-C
1033	SIKIL	SIKIL
1070	TA~f	TA-F
1083	TAR~d	TAR-D
1132	UET2_405	UET2_405
1165	URI2	URI2
1185	USZUR3~a	USHUR3-A
1199	ZADIM	ZADIM
1459	|1(N57).1(N57)|	ONE-N57 BESIDE ONE-N57
1490	|AxAN|	A TIMES AN
1527	|DIM~axGU|	DIM-A TIMES GU
1528	|DIM~axX|	DIM-A TIMES X
1538	|DUG~axHI|	DUG-A TIMES HI
1544	|DUG~axX|	DUG-A TIMES X
1616	|EZEN~axLA~e|	EZEN-A TIMES LA-E
1625.1	|EZEN~bx6(N57)|	EZEN-B TIMES SIX–N57 VARIANT 1
1626	|GA~axX|	GA-A TIMES X
1640	|GA2~a1xGU4|	GA2-A1 TIMES GU4
1651	|GA2~a1xNUN~a|	GA2-A1 TIMES NUN-A
1689	|GAN~dxHI|	GAN-D TIMES HI
1690	|GESZTIN~cxX|	GESHTIN-C TIMES X
1691	|GESZTU~axSZE~a@t|	GESHTU-A TIMES SHE-A TENU
1720	|GISZ@t.E2~a|	GISH TENU BESIDE E2-A
1731	|HIx1(N01@f)|	HI TIMES ONE-N1 FLAT
1737	|HIxSZE3@t|	HI TIMES SHE3 TENU
1776	|LAGAB~bx1(N01)|	LAGAB-B TIMES ONE-N1
1783	|LAGAB~bxSZITA~c|	LAGAB-B TIMES SHITA-C
1784	|LAGAB~bxSI|	LAGAB-B TIMES SI
1787	|LAGAB~bxX|	LAGAB-B TIMES X
1792	|MAx2(N57)|	MA TIMES TWO-N57
1795	|MAxX|	MA TIMES X

REMOVE CHARACTERS TABLE

#	CDLI	NAME
1816	|MUD3~a@gxGU|	MUD3-A GUNU TIMES GU
1830	|NINDA2x1(N06)|	NINDA2 TIMES ONE-N6
1842	|NINDA2x(GISZ.DAR~a)|	NINDA2 TIMES GISH BESIDE DAR-A
1852	|NINDA2xNE~a|	NINDA2 TIMES NE-A
1853	|NINDA2xSZIM~a|	NINDA2 TIMES SHIM-A
1859	|NINDA2x(X.MASZ)|	NINDA2 TIMES X BESIDE MASH
1874	|SAGxLAM~c|	SAG TIMES LAM-C
1876	|SAGxSAR~a|	SAG TIMES SAR-A
1900	|SZU2.2(N57)|	SHU2 BESIDE TWO-N57
1919	|SILA3~axDUG~b|	SILA3-A TIMES DUG-B
1950	|SILA3~bxDUG~a|	SILA3-B TIMES DUG-A
1961	|(SUKUD+SUKUD)~c|	SUKUD JOINING SUKUD FORM C
1965	|TURxX|	TUR TIMES X
1966	|TUR3~bxTAK4~a|	TUR3-B TIMES TAK4-A
1969	|U4x1(N01@f)|	U4 TIMES ONE-N1 FLAT
2027	|UKKIN~bxDUG~a|	UKKIN-B TIMES DUG-A
2036	|URI3~a+IB~a|	URI3-A JOINING IB-A
2039	|URU~a1xA|	URU-A1 TIMES A
2050	|USZ~bxTAR~d|	USH-B TIMES TAR-D
2083	|ZATU737xSZITA@g~a|	ZATU737 TIMES SHITA GUNU-A
2095	|(ZU&ZU).SAR~a|	ZU OVER ZU BESIDE SAR-A

4.4 Delete

Some characters are duplicates—in most cases it is likely that they were copied digitally over different exemplars of the same sign, so they exhibit very slight differences but these differences are not sufficient to warrant separate encoding. Two characters should be deleted because the glyphs in CDLI-gh are incorrect, probably because they were placeholders used by Bob Englund as he was working on the Umma texts, a work he did not complete. Encoding of these characters and some additional characters that occur only in the still unedited Umma proto-cuneiform tablets should be done after the tablets have been fully edited.

DELETE CHARACTERS TABLE

#	CDLI	CHAR	NAME	NOTES
384.1	AN	✳	AN VARIANT 1	Duplicates 384 AN ✳
500	DUG~d	♤	DUG-D	Duplicates 499 DUG~c@t ♤
541	EZEN~c	⌾	EZEN-C	Duplicates 540 EZEN~b@t ⌾
928	RI~x	�	RI-X	Duplicates 930 RI$_8$~b �
1516	|(BU~a&BU~a).NA2~b|	✸	BU-A OVER BU-A BESIDE NA2-B	Duplicates 1515 |(BU~a&BU~a).NA2~a@n|
1723	|GUG2xSZITA~a1|	⊛	GUG2 TIMES SHITA-A1	Incorrect glyph in unedited Umma text
1820	|MUSZENxPAP~a|	⟜	MUSHEN TIMES PAP-A	Incorrect glyph in unedited Umma text
1844.2	|NINDA2xGUDU4|	⟜⊞	NINDA2 TIMES GUDU4 VARIANT 2	Duplicates 1846 |NINDA$_2$×(HI.AN.ME~a)|⟜⊞
1844.3	|NINDA2xGUDU4|	⟜⊞	NINDA2 TIMES GUDU4 VARIANT 3	Duplicates 1835 |NINDA$_2$×(AN.ME~a)| ⟜⊞

4.5 Newglyph

The following glyph replacements are suggested. Some characters have incorrect glyphs and others have glyphs that are based on suboptimal instances of the signs in question. For IŠ I suggest swapping ISH-B and ISH-B VARIANT 1. See the notes on individual characters in Section 5 of this document for rationales for the new glyphs.

NEWGLYPH CHARACTERS TABLE

#	CODE	CHAR	PCSL	NAME
678	12876	⊞	IŠ~b	ISH-B
678.1	12875	⊟	IŠ~b~v1	ISH-B VARIANT 1
923	FFFFD	⊦	RAD~a	RAD-A
1515	12C63	✸	|(BU~a~v1%BU~a~v1).NA$_2$~a@n|	BU-A OVER BU-A BESIDE NA2-A NUTILLU
1625	12CE0	⊞	|EZEN~b×6(N57)|~v1	EZEN-B TIMES SIX-N57gi
1738	12D54	⟜⊰	|HI.SUHUR|	HI BESIDE SUHUR
1738.2	12D52	⟜⊰	|HI.SUHUR~v2|	HI BESIDE SUHUR VARIANT 2
1743	FFFF9	▦⫽	|KA$_2$~d×LAM~b~v2|	KA2 TIMES LAM

4.6 Add

A minimal number of characters is suggested for addition at this phase of PC encoding. A further phase of PC encoding would be necessary to encode characters and variants attested in publications that post-date the time when Bob Englund was making digital copies and collecting the set of images that is now CDLI-gh. An indicative list of possible future additions may be found at https://build-oracc.museum.upenn.edu/pcsl/signlist/addsources/. Note, however, that this list contains some Uruk V and Early Dynastic signs, as well as some duplicates of signs that exist in this proposal under different names.

#	PCSL	CODE	CHAR	NAME
3000	|DUG~b×U$_2$~b|	FFFFC		DUG-B TIMES U2-B
3001	DUG~a@t	FFFF8		DUG-A TENU
3002	DUG~c2@t	FFFFB		DUG-C2 TENU
3003	UZ~a	FFFFA		UZ-A

4.7 Rename

Renaming is suggested for characters for one or more of several reasons:

- The usage in CDLI-tc is different from that of CDLI-gh and it is preferable to align with CDLI-tc

- In CDLI-gh the components of compound characters are often not described as specifically as the individual characters, both for variants assigned in CDLI-gh and for variants assigned in AP23 to disambiguate cases where a CDLI-gh sign entry has multiple glyphs. In PCSL the components are fully labeled using variation codes and the base signs and their appearances in compounds are aligned so that the same glyph will have the same variation code both when occurring independently and when occurring as a component of a compound.

- In AP23 the Unicode name component BESIDE is used for all dotted relationships in compounds. In SAC Unicode, the beside relationship is expressed as PLUS when it occurs within parentheses in a compound. This ensures that \|A×BA.DA\|--where BA is contained within the A but DA is not—has a distinct name from \|A×(BA.DA)\|--where both BA and DA are contained within the A. PCSL's Unicode name generator uses PLUS for '.' in the latter case and this is reflected in the renames.

RENAME CHARACTERS TABLE

#	CHAR	CDLI/PCSL	AP23 NAME/NEW NAME
621		GIZZAL~x GIZZAL~v	GIZZAL-X GIZZAL-V
678		ISZ~b IŠ~b~v1	ISH-B ISH-B VARIANT 1
678.1		ISZ~b IŠ~b	ISH-B VARIANT 1 ISH-B
871		NERGAL~x NERGAL~v	NERGAL-X NERGAL-V
997		SZITA@g~a ŠITA~b3@g	SHITA GUNU-A SHITA-B3 GUNU
997.1		SZITA@g~a ŠITA~b1@g	SHITA GUNU-A VARIANT 1 SHITA-B1 GUNU
998		SZITA@g~b ŠITA~a1@g	SHITA GUNU-B SHITA-A1 GUNU
1196		ZA~x ZA~v	ZA-X ZA-V
1462.1		|1(N57).SZUBUR| |1(N57).ŠUBUR~v1|	ONE-N57 VARIANT 1 BESIDE SHUBUR VARIANT 1 ONE-N57 BESIDE SHUBUR VARIANT 1

#	CHAR	CDLI/PCSL	AP23 NAME/NEW NAME
1491		|AxEN~a| |A×EN~a~v2|	A TIMES EN-A A TIMES EN-A VARIANT 2
1505.1		|AB2x2(N14)| |AB$_2$~v2×2(N14)|	AB2 TIMES TWO-N14 VARIANT 1 AB2 VARIANT 2 TIMES TWO-N14
1509		|AMARxTAR| |AMAR~v2×TAR~c|	AMAR TIMES TAR AMAR VARIANT 2 TIMES TAR-C
1513		|BU~axA| |BU~a~v1×A|	BU-A TIMES A BU-A VARIANT 1 TIMES A
1515		|(BU~a&BU~a).NA2~a@n| |(BU~a~v1%BU~a~v1).NA$_2$~a@n|	BU-A OVER BU-A BESIDE NA2-A NUTILLU BU-A VARIANT 1 CROSSING BU-A VARIANT 1 BESIDE NA2-A NUTILLU
1520		|BU~b.NA2~a| |BU~b.NA$_2$~a~v1|	BU-B BESIDE NA2-A BU-B BESIDE NA2-A VARIANT 1
1530		|DU6~axDISZ| |DU$_6$~a~v1×1(N58)|	DU6-A TIMES DISH DU6-A VARIANT 1 TIMES ONE-N58
1545.1		|DUG~bx1(N57)| |DUG~b~v1×1(N57)|	DUG-B VARIANT 1 TIMES AB2 DUG-B VARIANT 1 TIMES ONE-N57
1546		|DUG~bx(1(N57).KU3~a)| |DUG~b×(1(N57).KU$_3$~a)|	DUG-B TIMES ONE-N57 BESIDE KU3-A DUG-B TIMES ONE-N57 PLUS KU3-A
1548		|DUG~bxAB2| |DUG~b~v1×AB$_2$|	DUG-B TIMES AB2 DUG-B VARIANT 1 TIMES AB2
1553.1		|DUG~bxDIN| |DUG~b~v1×DIN|	DUG-B TIMES DIN VARIANT 1 DUG-B VARIANT 1 TIMES DIN
1555		|(DUG~b&DUG~b)x1(N58)| |(DUG~b~v1&DUG~b~v1)×1(N58)|	DUG-B OVER DUG-B TIMES ONE-N58 DUG-B VARIANT 1 OVER DUG-B VARIANT 1 TIMES ONE-N58
1557		|DUG~bxGA~a| |DUG~b×GA~a~v4|	DUG-B TIMES GA-A DUG-B TIMES GA-A VARIANT 4
1559		|DUG~bxGESZTU~a| |DUG~b×GEŠTU~a~v2|	DUG-B TIMES GESHTU-A DUG-B TIMES GESHTU-A VARIANT 2
1559.1		|DUG~bxGESZTU~a| |DUG~b~v1×GEŠTU~a~v2|	DUG-B TIMES GESHTU-A VARIANT 1 DUG-B VARIANT 1 TIMES GESHTU-A VARIANT 2
1563.1		|DUG~bxHI| |DUG~b~v1×HI|	DUG-B TIMES HI VARIANT 1 DUG-B VARIANT 1 TIMES HI
1564		|DUG~bxHI@g~a| |DUG~b~v1×HI@g~a|	DUG-B TIMES HI GUNU-A DUG-B VARIANT 1 TIMES HI GUNU-A
1568		|DUG~bx(KUR~a.X)| |DUG~b×(KUR~a.X)|	DUG-B TIMES KUR-A BESIDE X DUG-B TIMES KUR-A PLUS X
1572.1		|DUG~bxMASZ| |DUG~b~v1×MAŠ|	DUG-B TIMES MASH VARIANT 1 DUG-B VARIANT 1 TIMES MASH
1575		|DUG~bx(NI~a@g.ZATU779)| |DUG~b×(NI~a@g.ZATU779)|	DUG-B TIMES NI-A GUNU BESIDE ZATU779 DUG-B TIMES NI-A GUNU PLUS ZATU779
1578.1		|DUG~bxSZE~a| |DUG~b~v1×ŠE~a|	DUG-B VARIANT 1 TIMES SHE-A FORM 1 DUG-B VARIANT 1 TIMES SHE-A
1578.2		|DUG~bxSZE~a| |DUG~b~v1×ŠE~a@t|	DUG-B VARIANT 1 TIMES SHE-A FORM 2 DUG-B VARIANT 1 TIMES SHE-A TENU

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1579		|DUG~bx(SZE~a.NAM2)| |DUG~b×(ŠE~a.NAM$_2$)|	DUG-B TIMES SHE-A BESIDE NAM2 DUG-B TIMES SHE-A PLUS NAM2
1581		|DUG~bx(SI4~a.X)| |DUG~b×(SI$_4$~a.X)|	DUG-B TIMES SI4-A BESIDE X DUG-B TIMES SI4-A PLUS X
1587		|DUG~bx(TAK4~a.SA~a)| |DUG~b×(TAK$_4$~a.SA~a)|	DUG-B TIMES TAK4-A BESIDE SA-A DUG-B TIMES TAK4-A PLUS SA-A
1588		|DUG~bx(TAK4~a.SAL)| |DUG~b×(TAK$_4$~a.SAL)|	DUG-B TIMES TAK4-A BESIDE SAL DUG-B TIMES TAK4-A PLUS SAL
1594.1		|DUG~bxX| |DUG~b~v1×X|	DUG-B TIMES X VARIANT 1 DUG-B VARIANT 1 TIMES X
1600		|DUG~bx(ZATU789.SA~a)| |DUG~b×(ZATU789.SA~a)|	DUG-B TIMES ZATU789 BESIDE SA-A DUG-B TIMES ZATU789 PLUS SA-A
1601		|DUG~cx1(N57)| |DUG~c~v2×1(N57)|	DUG-C TIMES ONE-N57 DUG-C VARIANT 2 TIMES ONE-N57
1601.2		|DUG~cx1(N57)| |DUG~c~v3×1(N57)|	DUG-C VARIANT 2 TIMES ONE-N57 DUG-C VARIANT 3 TIMES ONE-N57
1605		|E2~bx1(N57)@t| |E$_2$~b×1(N58@t)|	E2-B TIMES ONE-N57 TENU E2-B TIMES ONE-N58 TENU
1610		|ESZDAxTAR| |EŠDA×TAR~a|	ESHDA TIMES TAR ESHDA TIMES TAR-A
1611		|EZEN~axEN~a| |EZEN~a~v1×EN~a|	EZEN-A TIMES EN-A EZEN-A VARIANT 1 TIMES EN-A
1612		|EZEN~axEN~b| |EZEN~a×EN~b~v1|	EZEN-A TIMES EN-B EZEN-A TIMES EN-B VARIANT 1
1613		|EZEN~ax(HI.1(N57).AN)| |EZEN~a×(HI×1(N57).AN)|	EZEN-A TIMES HI BESIDE ONE-N57 BESIDE AN EZEN-A TIMES HI TIMES ONE-N57 PLUS AN
1620		|EZEN~axSAG| |EZEN~a×SAG~v1|	EZEN-A TIMES SAG EZEN-A TIMES SAG VARIANT 1
1622		|EZEN~ax(U2~b.A)| |EZEN~a×(U$_2$~b.A)|	EZEN-A TIMES U2-B BESIDE A EZEN-A TIMES U2-B PLUS A
1627		|GA~a.ZATU753| |GA~a~v1.ZATU753|	GA-A BESIDE ZATU753 GA-A VARIANT 1 BESIDE ZATU753
1627.1		|GA~a.ZATU753| |GA~a~v4.ZATU753|~v1	GA-A BESIDE ZATU753 VARIANT 1 GA-A VARIANT 4 BESIDE ZATU753 VARIANT 1
1634		|GA2~a1xEN~b| |GA$_2$~a1×EN~b~v1|	GA2-A1 TIMES EN-B GA2-A1 TIMES EN-B VARIANT 1
1638		|GA2~a1x(GIR~a.KU6~a)| |GA$_2$~a1×(GIR~a.KU$_6$~a)|	GA2-A1 TIMES GIR-A BESIDE KU6-A GA2-A1 TIMES GIR-A PLUS KU6-A
1643		|GA2~a1x(HI.SUHUR)| |GA$_2$~a1×(HI.SUHUR~v1)|	GA2-A1 TIMES HI BESIDE SUHUR GA2-A1 TIMES HI PLUS SUHUR VARIANT 1
1646		|GA2~a1x(KU6~a.KU6~a)| |GA$_2$~a1×(KU$_6$~a.KU$_6$~a)|	GA2-A1 TIMES KU6-A BESIDE KU6-A GA2-A1 TIMES KU6-A PLUS KU6-A
1665		|GA2~a2x(GU4.SZE3)| |GA$_2$~a2×(ŠE$_3$~v1.GU$_4$)|	GA2-A2 TIMES GU4 BESIDE SHE3 GA2-A2 TIMES SHE3 VARIANT 1 PLUS GU4

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1668		|GA2~a2xSZE3| |GA₂~a2×ŠE₃~v1|	GA2-A2 TIMES SHE3 GA2-A2 TIMES SHE3 VARIANT 1
1673		|GA2~bxDUB~b| |GA₂~b×DUB~b~v2|	GA2-B TIMES DUB-B GA2-B TIMES DUB-B VARIANT 2
1678		|GAN~cx(HI.DIN)| |GAN~c×(HI.DIN)|	GAN-C TIMES HI BESIDE DIN GAN-C TIMES HI PLUS DIN
1679		|GAN~cxKASZ~c| |GAN~c~v1×KAŠ~c|	GAN-C TIMES KASH-C GAN-C VARIANT 1 TIMES KASH-C
1680		|GAN~cx(KUR~a.A)| |GAN~c~v1×(KUR~a.A)|	GAN-C TIMES KUR-A BESIDE A GAN-C VARIANT 1 TIMES KUR-A PLUS A
1683		|GAN~cxSZE~a| |GAN~c~v2×ŠE~a|	GAN-C TIMES SHE-A GAN-C VARIANT 2 TIMES SHE-A
1684		|GAN~cxSZE3@t| |GAN~c~v2×ŠE₃@t~v1|	GAN-C TIMES SHE3 TENU GAN-C VARIANT 2 TIMES SHE3 TENU VARIANT 1
1687		|GAN~cxZATU777| |GAN~c~v1×ZATU777~v1|	GAN-C TIMES ZATU777 GAN-C VARIANT 1 TIMES ZATU777 VARIANT 1
1688		|GAN~dxGESZTU~a| |GAN~d×GEŠTU~a~v2|	GAN-D TIMES GESHTU-A GAN-D TIMES GESHTU-A VARIANT 2
1692		|GIx1(N14)| |GI~v1×1(N14)|	GI TIMES ONE-N14 GI VARIANT 1 TIMES ONE-N14
1695		|GI&GI&GI| |GI~v1&GI~v1&GI~v1|	GI OVER GI OVER GI GI VARIANT 1 OVER GI VARIANT 1 OVER GI VARIANT 1
1697		|(GI+&GI)xSZE3| |(GI&GI)×ŠE₃~v1|	GI OVER GI TIMES SHE3 GI OVER GI TIMES SHE3 VARIANT 1
1699		|GIxGISZ@t| |GI~v1×GIŠ@t|	GI TIMES GISH TENU GI VARIANT 1 TIMES GISH TENU
1701		|GIxLAGAB~a| |GI~v1×LAGAB~a|	GI TIMES LAGAB-A GI VARIANT 1 TIMES LAGAB-A
1703		|GIxSZE3| |GI×ŠE₃~v1|	GI TIMES SHE3 GI TIMES SHE3 VARIANT 1
1710		|GIR~b.GIR~b| |GIR~b~v1.GIR~b~v1|	GIR-B BESIDE GIR-B GIR-B VARIANT 1 BESIDE GIR-B VARIANT 1
1712		|GIR3~cxKAR2| |GIR₃~c×KAR₂~b|	GIR3-C TIMES KAR2 GIR3-C TIMES KAR2-B
1713		|GIR3~cxSZE3| |GIR₃~c×ŠE₃~v1|	GIR3-C TIMES SHE3 GIR3-C TIMES SHE3 VARIANT 1
1714		|(GISZx(DIN.DIN))~a| |(GIŠ×(DIN.DIN))~a|	GISH TIMES DIN BESIDE DIN FORM A GISH TIMES DIN PLUS DIN FORM A
1715		|(GISZx(DIN.DIN))~b| |(GIŠ×(DIN.DIN))~b|	GISH TIMES DIN BESIDE DIN FORM B GISH TIMES DIN PLUS DIN FORM B
1716		|(GISZx(DIN.DIN))~c| |(GIŠ×(DIN.DIN))~c|	GISH TIMES DIN BESIDE DIN FORM C GISH TIMES DIN PLUS DIN FORM C
1722		|GU4.ZATU755~a| |GU₄.ZATU755~b|	GU4 BESIDE ZATU755-A GU4 BESIDE ZATU755-B

13

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1724		|GUG2xSILA3~a| |GUG$_2$~v1×SILA$_3$~a|	GUG2 TIMES SILA3-A GUG2 VARIANT 1 TIMES SILA3-A
1725		|GUG2xTUR| |GUG$_2$~v1×TUR~v1|	GUG2 TIMES TUR GUG2 VARIANT 1 TIMES TUR VARIANT 1
1742		|KA~a.SZE~a| |KA~a~v2.ŠE~a@t|	KA-A BESIDE SHE-A KA-A VARIANT 2 BESIDE SHE-A TENU
1742.1		|KA~a.SZE~a| |KA~a~v1.ŠE~a|	KA-A BESIDE SHE-A VARIANT 1 KA-A VARIANT 1 BESIDE SHE-A
1743		|KA2xLAM| |KA$_2$~d×LAM~b~v2|	KA2 TIMES LAM KA2-D TIMES LAM-B VARIANT 2
1746		|KASZ~bxSZE~a| |KAŠ~b~v1×ŠE~a@t~v1|	KASH-B TIMES SHE-A KASH-B VARIANT 1 TIMES SHE-A TENU VARIANT 1
1757		|LAGAB~axDU6~b| |LAGAB~a×DU$_6$~a~v1|	LAGAB-A TIMES DU6-B LAGAB-A TIMES DU6-A VARIANT 1
1761		|LAGAB~axKUSZU2~b| |LAGAB~a×KUŠU$_2$~a@t|	LAGAB-A TIMES KUSHU2-B LAGAB-A TIMES KUSHU2-A TENU
1768		|LAGAB~axSI| |LAGAB~a×SI~v1|	LAGAB-A TIMES SI LAGAB-A TIMES SI VARIANT 1
1769		|LAGAB~axSIG7| |LAGAB~a×SIG$_7$~v1|	LAGAB-A TIMES SIG7 LAGAB-A TIMES SIG7 VARIANT 1
1788		|LAL2~axEZEN~a| |LAL$_2$~a×EZEN~a~v1|	LAL2-A TIMES EZEN-A LAL2-A TIMES EZEN-A VARIANT 1
1793		|MAxA| |MA~v1×A|	MA TIMES A MA VARIANT 1 TIMES A
1803		|MAH~axUD5~a| |MAH~a×UD$_5$~a~v1|	MAH-A TIMES UD5-A MAH-A TIMES UD5-A VARIANT 1
1813		|MAR~bx(LAGAB~b.SZE3)| |MAR~b×(LAGAB~b.ŠE$_3$~v1)|	MAR-B TIMES LAGAB-B BESIDE SHE3 MAR-B TIMES LAGAB-B PLUS SHE3 VARIANT 1
1826		|NI~a.RU| |NI~a.RU~v1|	NI-A BESIDE RU NI-A BESIDE RU VARIANT 1
1834		|NINDA2x(AN.HI)| |NINDA$_2$×(AN.HI)|	NINDA2 TIMES AN BESIDE HI NINDA2 TIMES AN PLUS HI
1835		|NINDA2x(AN.ME~a)| |NINDA$_2$×(AN.ME~a)|	NINDA2 TIMES AN BESIDE ME-A NINDA2 TIMES AN PLUS ME-A
1836		|NINDA2x(AN.X)| |NINDA$_2$×(AN.X)|	NINDA2 TIMES AN BESIDE X NINDA2 TIMES AN PLUS X
1844		|NINDA2xGUDU4| |NINDA$_2$×(HI~a1.ME~a)|	NINDA2 TIMES GUDU4 NINDA2 TIMES HI-A1 PLUS ME-A
1844.1		|NINDA2xGUDU4| |NINDA$_2$×(HI~a1.AN.ME~a)|	NINDA2 TIMES GUDU4 VARIANT 1 NINDA2 TIMES HI-A1 PLUS AN PLUS ME-A
1846		|NINDA2x(HI.AN.ME~a)| |NINDA$_2$×(HI.AN.ME~a)|	NINDA2 TIMES HI BESIDE AN BESIDE ME-A NINDA2 TIMES HI PLUS AN PLUS ME-A
1847		|NINDA2x(HI.ME~a)| |NINDA$_2$×(HI.ME~a)|	NINDA2 TIMES HI BESIDE ME-A NINDA2 TIMES HI PLUS ME-A

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1848		|NINDA2x(HI.X)| |NINDA$_2$×(HI.X)|	NINDA2 TIMES HI BESIDE X NINDA2 TIMES HI PLUS X
1849		|NINDA2x(HI@g~a.1(N06))| |NINDA$_2$×(1(N06).HI@g~a)|	NINDA2 TIMES HI GUNU-A BESIDE ONE-N6 NINDA2 TIMES ONE-N6 PLUS HI GUNU-A
1855		|NINDA2x(U4.X)| |NINDA$_2$×(U$_4$.X)|	NINDA2 TIMES U4 BESIDE X NINDA2 TIMES U4 PLUS X
1856		|NINDA2x((UDU~axTAR)~a)| |NINDA$_2$×(UDU~a×TAR~a)|	NINDA2 TIMES UDU-A TIMES TAR FORM A NINDA2 TIMES UDU-A TIMES TAR-A
1857		|NINDA2x((UDU~axTAR)~b)| |NINDA$_2$×(UDU~a×TAR~b)|	NINDA2 TIMES UDU-A TIMES TAR FORM B NINDA2 TIMES UDU-A TIMES TAR-B
1864		|NUN~a+EN~a| |NUN~a+EN~a~v2|	NUN-A JOINING EN-A NUN-A JOINING EN-A VARIANT 2
1865		|NUN~a+EN~b| |NUN~a+EN~b~v1|	NUN-A JOINING EN-B NUN-A JOINING EN-B VARIANT 1
1870		|SAGx1(N14)| |SAG~v1×1(N14)|	SAG TIMES ONE-N14 SAG VARIANT 1 TIMES ONE-N14
1872		|SAGxGESZTU~b| |SAG@n×GEŠTU~b|	SAG VARIANT 1 TIMES GESHTU-B SAG NUTILLU TIMES GESHTU-B
1872.1		|SAGxGESZTU~b| |SAG~v2×GEŠTU~b|	SAG TIMES GESHTU-B VARIANT 1 SAG VARIANT 2 TIMES GESHTU-B
1873		|SAGxGESZTU~c| |SAG~v1×GEŠTU~c|	SAG TIMES GESHTU-C SAG VARIANT 1 TIMES GESHTU-C
1875		|SAGxMA| |SAG~v1×MA~v1|	SAG TIMES MA SAG VARIANT 1 TIMES MA VARIANT 1
1880		|SAL.SZU2| |SAL.ŠU$_2$~b|	SAL BESIDE SHU2 SAL BESIDE SHU2-B
1891		|SZITA~a1xSZU2| |ŠITA~a1×ŠU$_2$~b|	SHITA-A1 TIMES SHU2 SHITA-A1 TIMES SHU2-B
1893		|SZITA~b1xHI@g~a| |ŠITA~b2@g×HI@g~a|	SHITA-B1 TIMES HI GUNU-A SHITA-B2 GUNU TIMES HI GUNU-A
1895		|SZITA@g~ax1(N04)| |ŠITA~b3@g×1(N04)|	SHITA GUNU-A TIMES ONE-N4 SHITA-B3 GUNU TIMES ONE-N4
1896		|SZITA@g~ax1(N06)| |ŠITA~b3@g×1(N06)|	SHITA GUNU-A TIMES ONE-N6 SHITA-B3 GUNU TIMES ONE-N6
1893		|SZITA~b1xHI@g~a| |ŠITA~b1@g×HI@g~a|	SHITA-B1 TIMES HI GUNU-A SHITA-B1 GUNU TIMES HI GUNU-A
1899		|SZU2.1(N02)| |ŠU$_2$~b.1(N02)|	SHU2 BESIDE ONE-N2 SHU2-B BESIDE ONE-N2
1901		|SZU2.AN| |ŠU$_2$~a.AN|	SHU2 BESIDE AN SHU2-A BESIDE AN
1902		|SZU2.E2~a| |ŠU$_2$~b.E$_2$~a|	SHU2 BESIDE E2-A SHU2-B BESIDE E2-A
1903		|SZU2.E2~b| |ŠU$_2$~b.E$_2$~b|	SHU2 BESIDE E2-B SHU2-B BESIDE E2-B

15

#	CHAR	CDLI/PCSL	AP23 NAME/NEW NAME
1904		|SZU2.EN~a| |ŠU₂~a.EN~a~v1|	SHU2 BESIDE EN-A SHU2-A BESIDE EN-A VARIANT 1
1904.1		|SZU2.EN~a| |ŠU₂~a.EN~a~v2|	SHU2 BESIDE EN-A VARIANT 1 SHU2-A BESIDE EN-A VARIANT 2
1905		|SZU2.EN~b| |ŠU₂~a.EN~b~v1|	SHU2 BESIDE EN-B SHU2-A BESIDE EN-B VARIANT 1
1906		|SZU2.GISZ| |ŠU₂~b.GIŠ|	SHU2 BESIDE GISH SHU2-B BESIDE GISH
1907		|SZU2.((HIx1(N57))&(HIx1(N57)))| |ŠU₂~a.(HI×1(N57))&(HI×1(N57))|	SHU2 BESIDE HI TIMES ONE-N57 OVER HI TIMES ONE-N57 SHU2-A BESIDE HI TIMES ONE-N57 OVER HI TIMES ONE-N57
1908		|SZU2.URI3~a| |ŠU₂~a.URI₃~a~v1|	SHU2 BESIDE URI3-A SHU2-A BESIDE URI3-A VARIANT 1
1910		|SIxSZE3| |SI×ŠE₃~v1|	SI TIMES SHE3 SI TIMES SHE3 VARIANT 1
1918		|SILA3~axDUG~a| |SILA₃~a~v1×DUG~a|	SILA3-A TIMES DUG-A SILA3-A VARIANT 1 TIMES DUG-A
1920		|SILA3~axGA~a| |SILA₃~a×GA~a~v3|	SILA3-A TIMES GA-A SILA3-A TIMES GA-A VARIANT 3
1922		|SILA3~axGESZTU~a| |SILA₃~a×GEŠTU~a~v2|	SILA3-A TIMES GESHTU-A SILA3-A TIMES GESHTU-A VARIANT 2
1934		|SILA3~axMA| |SILA₃~a×MA~v1|	SILA3-A TIMES MA SILA3-A TIMES MA VARIANT 1
1942		|SILA3~axSZU2| |SILA₃~a×ŠU₂~b|	SILA3-A TIMES SHU2 SILA3-A TIMES SHU2-B
1944		|SILA3~axSUM~a| |SILA₃~a×SUM~a~v1|	SILA3-A TIMES SUM-A SILA3-A TIMES SUM-A VARIANT 1
1947		|SILA3~axZATU629| |SILA₃~a×ZATU629~v1|	SILA3-A TIMES ZATU629 SILA3-A TIMES ZATU629 VARIANT 1
1949		|SILA3~ax(ZATU659.TU~c)| |SILA₃~a×(ZATU659.TU~c~v1)|	SILA3-A TIMES ZATU659 BESIDE TU-C SILA3-A TIMES ZATU659 PLUS TU-C VARIANT 1
1953		|SILA3~bxNI~a| |SILA₃~c×NI~a|	SILA3-B TIMES NI-A SILA3-C TIMES NI-A
1992		|U4x3(N01).3(N08)| |U₄×3(N01).3(N08)~v1|	U4 TIMES THREE-N1 BESIDE THREE-N8 U4 TIMES THREE-N1 BESIDE THREE-N8 VARIANT 1
1999		|U4.4(N08)| |U₄.4(N08)~v1|	U4 BESIDE FOUR-N8 U4 BESIDE FOUR-N8 VARIANT 1
2015		|U4x(X(N01))| |U₄×N(N01)|	U4 TIMES X-N1 U4 TIMES N-N1
2016		|U4.SZU2| |U₄.ŠU₂~b|	U4 BESIDE SHU2 U4 BESIDE SHU2-B
2019		|(U8xTAR)~b| |U₈×TAR~b|	U8 TIMES TAR FORM B U8 TIMES TAR-B
2020		|(UDU~axTAR)~a| |UDU~a×TAR~a|	UDU-A TIMES TAR FORM A UDU-A TIMES TAR-A

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2021		|(UDU~axTAR)~b| |UDU~a×TAR~b|	UDU-A TIMES TAR FORM B UDU-A TIMES TAR-B
2026		|UKKIN~bx(DIN.1(N01))| |UKKIN~b×(DIN.1(N01))|	UKKIN-B TIMES DIN BESIDE ONE-N1 UKKIN-B TIMES DIN PLUS ONE-N1
2031		|UNUG~axA@t| |UNUG~a-v1×A@t|	UNUG-A TIMES A TENU UNUG-A VARIANT 1 TIMES A TENU
2032		|UR~axKAR2| |UR~a×KAR$_2$~b|	UR-A TIMES KAR2 UR-A TIMES KAR2-B
2034		|UR2xTAR| |UR$_2$×TAR~c|	UR2 TIMES TAR UR2 TIMES TAR-C
2040		|URU~a1xAMAR| |URU~a1×AMAR~v2|	URU-A1 TIMES AMAR URU-A1 TIMES AMAR VARIANT 2
2049		|USZ~bxTAR~c| |UŠ~b~v2×TAR~c|	USH-B TIMES TAR-C USH-B VARIANT 2 TIMES TAR-C
2049.1		|USZ~bxTAR~c| |UŠ~b×TAR~c|	USH-B TIMES TAR-C VARIANT 1 USH-B TIMES TAR-C
2054		|ZATU651xEN~a| |ZATU651×EN~a~v2|	ZATU651 TIMES EN-A ZATU651 TIMES EN-A VARIANT 2
2058		|ZATU651xSZE~a| |ZATU651~v2×ŠE~a|	ZATU651 TIMES SHE-A ZATU651 VARIANT 2 TIMES SHE-A
2064.1		|ZATU662x1(N14)| |ZATU662~v1×1(N14)|	ZATU662 TIMES ONE-N14 VARIANT 1 ZATU662 VARIANT 1 TIMES ONE-N14
2064.2		|ZATU662x1(N14)| |ZATU662~v2×1(N14)|	ZATU662 TIMES ONE-N14 VARIANT 2 ZATU662 VARIANT 2 TIMES ONE-N14
2065		|ZATU711xHI@g~a| |ZATU711~v1×HI@g~a|	ZATU711 TIMES HI GUNU-A ZATU711 VARIANT 1 TIMES HI GUNU-A
2066		|ZATU711xX| |ZATU711~v1×X|	ZATU711 TIMES X ZATU711 VARIANT 1 TIMES X
2075		|ZATU737xEN~a| |ZATU737×EN~a~v2|	ZATU737 TIMES EN-A ZATU737 TIMES EN-A VARIANT 2
2076		|ZATU737xEN~b| |ZATU737~v1×EN~b~v1|	ZATU737 TIMES EN-B ZATU737 VARIANT 1 TIMES EN-B VARIANT 1
2077.1		|ZATU737xGAR| |ZATU737~v1×GAR|	ZATU737 TIMES GAR VARIANT 1 ZATU737 VARIANT 1 TIMES GAR
2080		|ZATU737xSAL| |ZATU737~v3×SAL|	ZATU737 TIMES SAL ZATU737 VARIANT 3 TIMES SAL
2085		|ZATU737xU4| |ZATU737~v3×U$_4$|	ZATU737 TIMES U4 ZATU737 VARIANT 3 TIMES U4
2086		|ZATU737xUNUG~a| |ZATU737×UNUG~a~v1|	ZATU737 TIMES UNUG-A ZATU737 TIMES UNUG-A VARIANT 1
2087		|ZATU737xX| |ZATU737~v2×X|	ZATU737 TIMES X ZATU737 VARIANT 2 TIMES X

4.8 Compound-only

The list of signs or sign-forms that occurs only in compounds—and should therefore not be encoded separately has changed significantly as a result of the renaming of compound-components. A list of compounds and their components is given in Appendix 1. The remaining list of compound-only elements and the signs that have them are given in the following pair of tables.

COMPOUND-ONLY COMPONENTS AND THEIR SIGNS

Component	#	PCSL	CHAR
AB_2~v2	1505.1	|AB_2~v2×2(N14)|	
ANŠE~d	1550	|DUG~b×ANŠE~d|	
BAD~a	1464	|1(N58)~a.BAD~a|	
|BU~a~v1%BU~a~v1|	1515	|(BU~a~v1%BU~a~v1).NA_2~a@n|	
$DARA_3$~d1	1525	|$DARA_3$~d1×KAR_2~b|	
$DARA_3$~d2	1525.2	|$DARA_3$~d2×KAR_2~a1|	
	1526	|$DARA_3$~d2×(KAR_2~a1.ŠE~a)|	
DUB@n~a	1534	|(DUB@n~a×1(N58))~a|	
	1536	|(DUB@n~a×1(N58))~b|	
DUB@n~b	1535	|DUB@n~b×1(N58)~a|	
|DUG~b~v1&DUG~b~v1|	1555	|(DUG~b~v1&DUG~b~v1)×1(N58)|	
DUG~b~v2	1591.1	|DUG~b~v2×U_2~b|	
DUG~c~v2	1601	|DUG~c~v2×1(N57)|	
EN~d	1866	|NUN~a+EN~d|	
GAN~c~v2	1683	|GAN~c~v2×ŠE~a|	
	1684	|GAN~c~v2×$ŠE_3$@t~v1|	
GEŠTU~c	1873	|SAG~v1×GEŠTU~c|	
GURUŠ~c	1729	|GURUŠ~c×2(N14)|	
HI~a1	1844	|$NINDA_2$×(HI~a1.ME~a)|	
	1844.1	|$NINDA_2$×(HI~a1.AN.ME~a)|	
KA~a~v1	1742.1	|KA~a~v1.ŠE~a|	
KA~a~v2	1742	|KA~a~v2.ŠE~a@t|	

COMPOUND-ONLY COMPONENTS AND THEIR SIGNS

Component	#	PCSL	CHAR
KAR$_2$~a1	1525.2	|DARA$_3$~d2×KAR$_2$~a1|	
	1526	|DARA$_3$~d2×(KAR$_2$~a1.ŠE~a)|	
KAR$_2$~c	1524	|DARA$_3$~c×(KAR$_2$~c.ŠE~a)|	
KUR~e	1780	|LAGAB~b×KUR~e|	
KUŠU$_2$~a@t	1761	|LAGAB~a×KUŠU$_2$~a@t|	
X(N57)	1487	|X(N57).GAR|	
N(N01)	2015	|U$_4$×N(N01)|	
1(N57@t)	1734	|HI×1(N57@t)|	
NA$_2$~a@n	1515	|(BU~a~v1%BU~a~v1).NA$_2$~a@n|	
SILA$_3$~a~v1	1918	|SILA$_3$~a~v1×DUG~a|	
SILA$_3$~d	1957	|SILA$_3$~d×NI~a|	
SUHUR~v1	1643	|GA$_2$~a1×(HI.SUHUR~v1)|	
	1738.1	|HI.SUHUR~v1|	
SUHUR~v2	1738.2	|HI.SUHUR~v2|	
ŠE~a@t~v1	1746	|KAŠ~b~v1×ŠE~a@t~v1|	
ŠITA~b2@g	1893	|ŠITA~b2@g×HI@g~a|	
ŠUBUR~v1	1462.1	|1(N57).ŠUBUR~v1|	
TAR~b	1857	|NINDA$_2$×(UDU~a×TAR~b)|	
	2019	|U$_8$×TAR~b|	
	2021	|UDU~a×TAR~b|	
TAR~c	1509	|AMAR~v2×TAR~c|	
	2034	|UR$_2$×TAR~c|	
	2049	|UŠ~b~v2×TAR~c|	
	2049.1	|UŠ~b×TAR~c|	
TU~c~v1	1949	|SILA$_3$~a×(ZATU659.TU~c~v1)|	

COMPOUND-ONLY COMPONENTS AND THEIR SIGNS

Component	#	PCSL	CHAR
URU~a3	2047	|URU~a3×KALAM~a|	
UŠ~b~v2	2049	|UŠ~b~v2×TAR~c|	
X	1500	|AB~a×X|	
	1517	|(BU~a&BU~a).X|	
	1533	|DU$_8$~c×X|	
	1568	|DUG~b×(KUR~a.X)|	
	1581	|DUG~b×(SI$_4$~a.X)|	
	1594	|DUG~b×X|	
	1594.1	|DUG~b~v1×X|	
	1624	|EZEN~a×X|	
	1663	|GA$_2$~a1×X|	
	1670	|GA$_2$~a2×X|	
	1671	|GA$_2$~a3×X|	
	1686	|GAN~c×X|	
	1698	|(GI&GI)×X|	
	1705	|GI×X|	
	1774	|LAGAB~a×X|	
	1807	|MAH~a×X|	
	1815	|MAR~b×X|	
	1822	|MUŠEN×X|	
	1828	|NI~b×X|	
	1836	|NINDA$_2$×(AN.X)|	
	1848	|NINDA$_2$×(HI.X)|	
	1855	|NINDA$_2$×(U$_4$.X)|	
	1858	|NINDA$_2$×X|	

COMPOUND-ONLY COMPONENTS AND THEIR SIGNS

Component	#	PCSL	CHAR
	1946	$|SILA_3{\sim}a{\times}X|$	
	1985	$|U_4{\times}2(N01).X|$	
	2011	$|U_4{\times}8(N01).X|$	
	2017	$|U_4{\times}X|$	
	2030	$|UKKIN{\sim}b{\times}X|$	
	2045	$|URU{\sim}a1{\times}X|$	
	2059	$|ZATU651{\times}X|$	
	2066	$|ZATU711{\sim}v1{\times}X|$	
	2069	$|ZATU714{\times}X|$	
	2087	$|ZATU737{\sim}v2{\times}X|$	
	2091	$|ZATU759{\times}X|$	
	2092	$|ZATU759@t{\times}X|$	
ZATU737~v3	2080	$|ZATU737{\sim}v3{\times}SAL|$	
	2085	$|ZATU737{\sim}v3{\times}U_4|$	
ZATU759@t	2092	$|ZATU759@t{\times}X|$	

#	COMPOUND-ONLY COMPONENTS	#	COMPOUND-ONLY COMPONENTS	#	COMPOUND-ONLY COMPONENTS
1462.1	ŠUBUR~v1	1671	X	1873	GEŠTU~c
1464	BAD~a	1683	GAN~c~v2	1893	ŠITA~b2@g
1487	X(N57)	1684	GAN~c~v2	1918	SILA$_3$~a~v1
1500	X	1686	X	1946	X
1505.1	AB$_2$~v2	1698	X	1949	TU~c~v1
1509	TAR~c	1705	X	1957	SILA$_3$~d
1515	|BU~a~v1%BU~a~v1| NA$_2$~a@n	1729	GURUŠ~c	1985	X
1517	X	1734	1(N57@t)	2011	X
1524	KAR$_2$~c	1738.1	SUHUR~v1	2015	N(N01)
1525	DARA$_3$~d1	1738.2	SUHUR~v2	2017	X
1525.2	DARA$_3$~d2 KAR$_2$~a1	1742	KA~a~v2	2019	TAR~b
1526	DARA$_3$~d2 KAR$_2$~a1	1742.1	KA~a~v1	2021	TAR~b
1533	X	1746	ŠE~a@t~v1	2030	X
1534	DUB@n~a	1761	KUŠU$_2$~a@t	2034	TAR~c
1535	DUB@n~b	1774	X	2045	X
1536	DUB@n~a	1780	KUR~e	2047	URU~a3
1550	ANŠE~d	1807	X	2049	UŠ~b~v2 TAR~c
1555	|DUG~b~v1&DUG~b~v1|	1815	X	2049.1	TAR~c
1568	X	1822	X	2059	X
1581	X	1828	X	2066	X
1591.1	DUG~b~v2	1836	X	2069	X
1594	X	1844	HI~a1	2080	ZATU737~v3
1594.1	X	1844.1	HI~a1	2085	ZATU737~v3
1601	DUG~c~v2	1848	X	2087	X
1624	X	1855	X	2091	X
1643	SUHUR~v1	1857	TAR~b	2092	ZATU759@t X
1663	X	1858	X		
1670	X	1866	EN~d		

4.9 Signs with mismatched number stacks

Some non-NUMBER signs in the proposal are compounds with NUMBER components. In a few cases the stacking pattern in the compound does not match the glyph for that number in the number section of the proposal. In SAC the decision was made to encode distinct stacking patterns and that would be desirable for PC also: if that happens, the some of the signs in the table below should be aligned with the NUMBER proposal's names.

22

#	PCSL	Compound	Components
1993	$\|U_4.3(N08)\|$		
1999	$\|U_4.4(N08){\sim}v1\|$		
1977	$\|U_4.(1(N14).5(N08))\|$		
1968	$\|U_4{\times}1(N01).5(N08)\|$		
1992	$\|U_4{\times}3(N01).3(N08){\sim}v1\|$		
2001	$\|U_4{\times}5(N01)\|$		
2005	$\|U_4{\times}6(N01)\|$		
2010	$\|U_4{\times}8(N01)\|$		
1995	$\|U_4{\times}(3(N14).7(N01))\|$		
2024	$\|UKKIN{\sim}b{\times}5(N01)\|$		

5. Notes on Individual Characters

5.1 Signs with N57, N58, and DIŠ

The signs N57 (—) and N58 (|) are known in SAC as AŠ and DIŠ respectively. In CDLI-gh N57, N58 and DIŠ are used in sign-names and DIŠ is a sign which appears only in compounds.

5.1.1 DIŠ versus N58

Five signs have DISH as a contained sign and would be better renamed with 1(N58) which would remove DISZ from the proposal entirely and unify the naming with other signs named with 1(N57)/1(N58).

	1529	|DUxDISZ|	|DU×1(N58@t)|
	1530	|DU6~axDISZ|	|DU$_6$~a~v1×1(N58)|
	1534	|(DUBxDISZ)~a|	|(DUB@n~a×1(N58))~a|
	1535	|(DUBxDISZ)~a|	|DUB@n~b×1(N58)~a|
	1536	|(DUBxDISZ)~a|	|(DUB@n~a×1(N58))~b|

5.1.2 N57@t/N58@t

The diagonal wedge is called both N57@t and N58@t in CDLI-gh and in AP23. The notation of 1(N57@t) is normalized from 1(N57)@t in several cases and this normalization should also be carried through in additional cases.

CDLI-gh is not entirely consistent in labelling the N57/N58 in a tenu orientation; PCSL revises the names so that in this pair of cases, tenu means "rotated 45 degrees counterclockwise" in both cases. This aligns with the standalone 1(N58@t), U+125DC.

	125DC	1(N58@t)	(unchanged)	(unchanged)	(unchanged)
	12CC7	|E2~ax1(N58@t)|	(unchanged)	(unchanged)	(unchanged)
	12CCA	|E2~bx1(N57)@t|	|E2~bx1(N58@t)|	E2-B TIMES ONE-N57 TENU	E2-B TIMES ONE-N58 TENU
	12D25	|GIx1(N58)@t|	|GIx1(N58@t)|	(unchanged)	(unchanged)
	12D4E	|HIx1(N57@t)|	(unchanged)	(unchanged)	(unchanged)
	12E4F	|U4x1(N58)@t|	|U4x1(N58@t)|	(unchanged)	(unchanged)
	12EA2	|ZATU659x1(N58)@t|	|ZATU659x1(N58@t)|	(unchanged)	(unchanged)

5.2 DUG Signs

5.2.1 DUG~cx1(N57)

CDLI-gh/AP23 list two DUG~c as well as three versions of DUG TIMES ONE-N57:

	1279D	DUG~C			
	1279E	DUG~C VARIANT 1			
	12CC4	DUG~C TIMES ONE-N57			

	12CC5	DUG~C VARIANT 1 TIMES ONE-N57			
	12CC6	DUG~C VARIANT 2 TIMES ONE-N57			

In DUG~C VARIANT 1 TIMES ONE-N57, the glyph for DUG~C VARIANT 1 does not match the base DUG~C VARIANT 1 glyph—it is DUG~C VARIANT 2 TIMES ONE-N57 that has the match for DUG~C VARIANT 1; The unmarked glyph form of U+12CC4 DUG~C TIMES ONE-N57 is not listed as a form of DUG~C; the glyph form of DUG~C VARIANT 1 TIMES ONE N-57 matches the unmarked form of DUG~C. This is an example where it would be helpful to create an additional DUG~C variant to allow alignment of the DUG~C base forms and DUG~C containers.

The following combination of addition and renaming would rectify this situation:

	1279D	DUG~c	DUG~c1	DUG~C	DUG~C VARIANT 1
NEW	ADD	ADD	DUG~c2	ADD	DUG~C VARIANT 2
	1279E	DUG~c1	DUG~c3	DUG~C VARIANT 1	DUG~C VARIANT 3
	12CC4	DUG~cx1(N57)	DUG~c2x1(N57)	DUG~C TIMES ONE-N57	DUG~C VARIANT 2 TIMES ONE-N57
	12CC5	DUG~c1x1(N57)	DUG~c1x1(N57)	DUG~C VARIANT 1 TIMES ONE-N57	DUG~C VARIANT 1 TIMES ONE-N57
	12CC6	DUG~c2x1(N57)	DUG~c3x1(N57)	DUG~C VARIANT 3 TIMES ONE-N57	DUG~C VARIANT 3 TIMES ONE-N57

5.2.3 DUG~c@t and DUG~d

CDLI-gh/AP23 list two identical glyphs as DUG~c@t and DUG~d; upon collation of DUG~c@t and DUG~d in CDLI-tc it emerges that there are actually three sign forms underlying the two transliterations:

DUG~a@t (P001077 o ii 4)	DUG~c@t (P003985 i 1); AP23 Glyph	DUG~c2@t (P003508 o ii 2 and r 1)

The sign labelled above DUG~d occurs three times, always with DUG~c3 ( ) immediately following. The sign labelled DUG~a@t occurs once, in clear context, and with no following DUG~c3.

In view of this information the following changes to the proposal are required:

- Add sign DUG~a@t as in table above
- Add sign DUG~c2@t as in table above
- Delete DUG~d.

5.2.3 DUG~b×U$_2$~b

P000015 o ii 9 has a clear collated glyph form DUG~b×U$_2$~b where base DUG~b is the unmarked form of DUG~b which means that neither encoded DUG~b×U$_2$~b matches the collated glyph. This requires adding DUG~b×U$_2$~b.

5.3 *Notes on Individual Signs*

DUB versus [DUB@n](#)

The compounds with DUB×X in CDLI-gh and AP23 have forms of DUB that do not have internal hatching; these should be renamed to forms of [DUB@n](#), i.e., DUB NUTILLU (unfinished), which occur only in compounds.

|GI+&GI|

The '+' is a typo.

GIZZAL~x

CDLI-tc uses GIZZAL~v which is followed by PCSL.

IŠ

The basis for choosing the primary forms of IŠ~a and IŠ~b is not clear:

- IŠ~a is the second in the sequence of IŠ~a on CDLI-gh and is the Uruk III form in ZATU
- IŠ~b is the first in the sequence of IŠ~b on CDLI-gh and is an Uruk IV form in ZATU
- In LLATU the reference glyph for IŠ~a corresponds reasonably well to IŠ~a in the proposal
- In LLATU the reference glyph for IŠ~b is IŠ~b VARIANT 1 in the proposal
- PCSL switches IŠ~b and IŠ~b VARIANT 1 so that the IŠ~a and IŠ~b both align with LLATU notation and the Uruk III forms
- The data table includes a newglyph entries for IŠ~b and IŠ~b VARIANT 1 to make this realignment

KA$_2$×LAM

The reference glyph for KA$_2$×LAM in CDLI-gh/AP23 is not a good reflection of either KA$_2$ or LAM; The current glyph from CDLI-gh is used in LLATU 242_03 but the reference there, P000034 = ATU 3, pl. 76, W 20266,74 o i 7, is broken and the remaining traces do not conform to the LLATU form of the sign. A new reference glyph is provided based on |KA$_2$~d×LAM~b~v2| in P002179 = ATU 6, pl. 056, W 14777,c.

|MUŠEN.UR$_3$~b2|

Reference glyph is from a less fully written version of the sign than the occurrence in P003441.

NINDA×GUDU$_4$ and friends

The sign "GUDU$_4$" is written with several different combinations of AN, HI, and ME. Some variations of NINDA$_2$×GUDU$_4$ also occur in CDLI-gh/AP23 in there decomposed form. Forms with ×GUDU$_4$ should be deleted or renamed to use the componential naming:

1844	NINDA2 TIMES GUDU4		rename	PROTO-CUNEIFORM SIGN NINDA2 TIMES HI-A1 PLUS ME-A	
1844.1	NINDA2 TIMES GUDU4 VARIANT 1		rename	PROTO-CUNEIFORM SIGN NINDA2 TIMES HI-A1 PLUS AN PLUS ME-A	
1844.2	NINDA2 TIMES GUDU4 VARIANT 2		delete	Duplicates 1846 |NINDA$_2$×(HI.AN.ME~a)|	

1844.3	NINDA2 TIMES GUDU4 VARIANT 3		delete	Duplicates 1835 |NINDA$_2$×(AN.ME~a)|	

NERGAL~x

CDLI-tc uses NERGAL~v which is followed by PCSL.

NIR~a

Sub 889 sign description should be NUN~a&NUN~a

NUNUZ~a1

Sub 902 sign description should be NUNUZ~a0&NUNUZ~a0

NUNUZ~a2

Sub 904 sign description should be NUNUZ~a0&NUNUZ~a0&NUNUZ~a0

RAD~a

The reference glyph is incorrect and needs rotating 90 degrees to align with RAD~b; RAD~a@t is the horizontal version and is correct. The correct orientiation of RAD~a is already used in CDLI-gh/AP23 \|EZEN~a×RAD~a\|.

\|SIG×1(N57)\|

Add to list of corrections: \|1(N57).SIG\| is better

ŠE$_3$@t~v1

Should be ŠE$_3$~v1@t.

ŠELU

Sub 973 stray \| in = \|SZE.GUG2.

ŠU$_2$

CDLI-gh does not label the independent forms of ŠU$_2$ separately, but it does follow the LLATU labelling of the curved ŠU$_2$ as ŠU$_2$~a and the cuneiform ŠU$_2$ as ŠU$_2$~b in the context of GIŠ×ŠU$_2$~a/GIŠ×ŠU$_2$~b. PCSL adopts this approach and renames CDLI-gh/AP23 ŠU$_2$ as ŠU$_2$~a and CDLI-gh/AP23 ŠU$_2$ VARIANT 1 as ŠU$_2$~b. The compounds have also been aligned with this renaming.

SUHUR

The following signs involve SUHUR:

1050	12A43		SUHUR	SUHUR
1051	12A44		SUHUR@g	SUHUR GUNU
1052	12A45		SUHUR@n	SUHUR NUTILLU
1585	12CB2		|DUG~b×SUHUR|	DUG-B TIMES SUHUR

1643	12CF3		|GA₂~a1×(HI.SUHUR)|	GA2-A1 TIMES HI BESIDE SUHUR
1656	12D00		|GA₂~a1×SUHUR|	GA2-A1 TIMES SUHUR
1669	12D0D		|GA₂~a2×SUHUR|	GA2-A2 TIMES SUHUR
1738	12D52		|HI.SUHUR|	HI BESIDE SUHUR
1738.1	12D53		|HI.SUHUR~v1|	HI BESIDE SUHUR VARIANT 1
1738.2	12D54		|HI.SUHUR~v2|	HI BESIDE SUHUR VARIANT 2
1943	1.20E4		|SILA₃~a×SUHUR|	SILA3-A TIMES SUHUR

As can be seen, most of the elements in compounds conform to ⬛=SUHUR but the treatment of |HI.SUHUR| can benefit from some revision. Taking the base version of ⬛=SUHUR it is more natural to assign the glyph ◇⬛ to |HI.SUHUR| rather than |HI.SUHUR~v2|, and to assign the glyph ◇⬛ to |HI.SUHUR~v2| rather than simple |HI.SUHUR|. These are given as newglyph entries in the revisions data table.

ŠITA and ŠITA@g/ŠITA@g compounds

The ŠITA@g signs are misaligned with the base ŠITA signs in CDLI-gh/AP23; in PCSL they are aligned so GUNU forms correspond with the variant notations of base signs. This alignment is done by renaming the CDLI-gh/AP23 signs as follows:

<div align="center">ŠITA and ŠITA@g</div>

#	CHAR	CDLI-gh/AP23	AP23 NAME	PCSL	PCSL NAME		Corresponding ŠITA	
997		SZITA@g~a	SHITA GUNU-A	ŠITA~b3@g	SHITA-B3 GUNU	995	ŠITA~b3	
997.1		SZITA@g~a	SHITA GUNU-A VARIANT 1	ŠITA~b1@g	SHITA-B1 GUNU	993	ŠITA~b1	
998		SZITA@g~b	SHITA GUNU-B	ŠITA~a1@g	SHITA-A1 GUNU	990	ŠITA~a3	

Compounds involving ŠITA@g are also aligned with the new ŠITA@g notations.

UZ~a

CDLI-tc reserves UZ for an Uruk IV sign that occurs in two tablets in the Schøyen Collection, P252171 = MS 3160 and P252177 = MS 3166. LLATU and CDLI-tc use UZ~a for the sign in Uruk III texts. UZ is not proposed for encoding here because it in the group of texts from Umma and possibly other sites that has not yet been edited.

ZA~x

CDLI-tc uses ZA~v which is followed by PCSL.

Appendix 1: Compounds and Components

COMPOUNDS AND THEIR COMPONENTS

#	PCSL	COMPOUND	COMPONENTS		COMPOUND-ONLY
1489	|A×AB$_2$|				
1491	|A×EN~a~v2|				
1488	|A×1(N14)|				
1492	|A×ŠUBUR|				
1493	|A×ZATU672|				
1495	|AB~a×A@t|				
1502	|AB~b×A|				
1496	|AB~a×AŠ$_2$|				
1497	|AB~a×KU$_6$~a|				
1503	|AB~b×KU$_6$~a|				
1494	|AB~a×1(N01)|				
1499	|AB~a×SUKKAL|				
1504	|AB~b×ŠA$_3$~a1|				
1498	|AB~a×(ŠE~a&ŠE~a)|				
1500	|AB~a×X|				X
1501	|AB~a×ZATU659|				
1505	|AB$_2$×2(N14)|				
1505.1	|AB$_2$~v2×2(N14)|				AB$_2$~v2
1506	|AMA~a×E$_2$~a|				
1509	|AMAR~v2×TAR~c|				TAR~c

COMPOUNDS AND THEIR COMPONENTS

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1507	$|AMAR.1(N02)|$			
1508	$|AMAR\&AMAR|$			
1510	$|APIN{\sim}a.APIN{\sim}a|$			
1511	$|BAD\&BAD|$			
1520	$|BU{\sim}b.NA_2{\sim}a{\sim}v1|$			
1513	$|BU{\sim}a{\sim}v1{\times}A|$			
1519	$|BU{\sim}a{\times}GI\check{S}@t|$			
1512	$|BU{\sim}a{\times}1(N58)|$			
1514.1	$|(BU{\sim}a\&BU{\sim}a).NA_2{\sim}a{\sim}v1|$			
1514	$|(BU{\sim}a\&BU{\sim}a).NA_2{\sim}a|$			
1515	$|(BU{\sim}a{\sim}v1\%BU{\sim}a{\sim}v1).NA_2{\sim}a@n|$			$|BU{\sim}a{\sim}v1\%BU{\sim}a{\sim}v1|$ $NA_2{\sim}a@n$
1517	$|(BU{\sim}a\&BU{\sim}a).X|$			X
1518.1	$|BU{\sim}a{+}DU_6{\sim}a{\sim}v1|$			
1518	$|BU{\sim}a{+}DU_6{\sim}a|$			
1521	$|DA{\sim}a.LI\check{S}|$			
1522	$|DAR{\sim}a{\times}A|$			
1523	$|DARA_3{\sim}c{\times}KAR_2{\sim}b|$			
1525.1	$|DARA_3{\sim}d{\times}KAR_2{\sim}b|$			
1525	$|DARA_3{\sim}d1{\times}KAR_2{\sim}b|$			$DARA_3{\sim}d1$
1525.2	$|DARA_3{\sim}d2{\times}KAR_2{\sim}a1|$			$DARA_3{\sim}d2\ KAR_2{\sim}a1$
1524	$|DARA_3{\sim}c{\times}(KAR_2{\sim}c.\check{S}E{\sim}a)|$			$KAR_2{\sim}c$
1526	$|DARA_3{\sim}d2{\times}(KAR_2{\sim}a1.\check{S}E{\sim}a)|$			$DARA_3{\sim}d2\ KAR_2{\sim}a1$

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1529	|DU×1(N58@t)|			
1530	|DU$_6$~a~v1×1(N58)|			
1531	|DU$_8$~c×HI|			
1532	|DU$_8$~c×UDU~a|			
1533	|DU$_8$~c×X|			X
1534	|(DUB@n~a×1(N58))~a|			DUB@n~a
1536	|(DUB@n~a×1(N58))~b|			DUB@n~a
1535	|DUB@n~b×1(N58)~a|			DUB@n~b
1548	|DUG~b~v1×AB$_2$|			
1549	|DUG~b×ANŠE~b|			
1550	|DUG~b×ANŠE~d|			ANŠE~d
1551	|DUG~b×BALA~a|			
1552	|DUG~b×BIR$_3$~c|			
1553.1	|DUG~b~v1×DIN|			
1553	|DUG~b×DIN|			
1554	|(DUG~b×DIN)@r|			
1556	|DUG~b×E~a|			
1557	|DUG~b×GA~a~v4|			
1558	|DUG~b×GA~b|			
1559.1	|DUG~b~v1×GEŠTU~a~v2|			
1559	|DUG~b×GEŠTU~a~v2|			
1560	|DUG~b×GEŠTU~b|			

#	PCSL	COMPOUND	COMPONENTS		COMPOUND-ONLY
1561	|DUG~b×GI$_6$|				
1562	|DUG~b×GIŠ|				
1564	|DUG~b~v1×HI@g~a|				
1563.1	|DUG~b~v1×HI|				
1563	|DUG~b×HI|				
1539	|DUG~a×KASKAL|				
1565	|DUG~b×KASKAL|				
1566	|DUG~b×KU$_6$~a|				
1570	|DUG~b×KUR@g~a|				
1567	|DUG~b×KUR~a|				
1569	|DUG~b×KUR~b|				
1568	|DUG~b×(KUR~a.X)|				X
1540	|DUG~a×LAM~b|				
1571	|DUG~b×LAM~a|				
1572.1	|DUG~b~v1×MAŠ|				
1572	|DUG~b×MAŠ|				
1537	|DUG~a×1(N57)|				
1545.1	|DUG~b~v1×1(N57)|				
1545	|DUG~b×1(N57)|				
1601.1	|DUG~c~v1×1(N57)|				
1601	|DUG~c~v2×1(N57)|				DUG~c~v2
1601.2	|DUG~c~v3×1(N57)|				

33

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1546	|DUG~b×(1(N57).KU$_3$~a)|			
1547	|DUG~b×3(N57)|			
1541	|DUG~a×NAGA~a|			
1573	|DUG~b×NAGA~a|			
1574	|DUG~b×NAM$_2$|			
1575	|DUG~b×(NI~a@g.ZATU779)|			
1576	|DUG~b×SA~a|			
1580	|DUG~b×SI$_4$~a|			
1581	|DUG~b×(SI$_4$~a.X)|			X
1582	|DUG~b×SIG$_2$~a1|			
1583	|DUG~b×SIG$_2$~a2|			
1584	|DUG~b×SIG$_7$|			
1585	|DUG~b×SUHUR|			
1577	|DUG~b×ŠAH$_2$~a|			
1578.2	|DUG~b~v1×ŠE~a@t|			
1578.1	|DUG~b~v1×ŠE~a|			
1578	|DUG~b×ŠE~a|			
1579	|DUG~b×(ŠE~a.NAM$_2$)|			
1586	|DUG~b×TAK$_4$~a|			
1587	|DUG~b×(TAK$_4$~a.SA~a)|			
1588	|DUG~b×(TAK$_4$~a.SAL)|			
1589	|DUG~b×TI|			

COMPOUNDS AND THEIR COMPONENTS

#	PCSL	COMPOUND	COMPONENTS		COMPOUND-ONLY
1542	|DUG~a×U$_2$~a|				
1543	|DUG~a×U$_2$~b|				
1591	|DUG~b~v1×U$_2$~b|				
1591.1	|DUG~b~v2×U$_2$~b|				DUG~b~v2
1590	|DUG~b×U$_2$~a|				
3000	|DUG~b×U$_2$~b|				
1592	|DUG~b×UH$_3$~a|				
1593	|DUG~b×UH$_3$~a@t|				
1594.1	|DUG~b~v1×X|				X
1594	|DUG~b×X|				X
1595	|DUG~b×ZATU707~a|				
1596	|DUG~b×ZATU764|				
1597	|DUG~b×ZATU779|				
1598	|DUG~b×ZATU780|				
1599	|DUG~b×ZATU781|				
1600	|DUG~b×(ZATU789.SA~a)|				
1555	|(DUG~b~v1&DUG~b~v1)×1(N58)|				|DUG~b~v1&DUG~b~v1|
1604	|E$_2$~a.LIŠ|				
1606	|E$_2$~b.LIŠ|				
1602	|E$_2$~a×1(N58@t)|				
1605	|E$_2$~b×1(N58@t)|				
1603	|E$_2$~a×3(N58)|				

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1607	|EN~c&EN~c|			
1608	|EN$_2$.E$_2$~a|			
1609	|EN$_2$.E$_2$~b|			
1610	|EŠDA×TAR~a|			
1611	|EZEN~a~v1×EN~a|			
1612	|EZEN~a×EN~b~v1|			
1613	|EZEN~a×(HI×1(N57).AN)|			
1614	|EZEN~a×KAB|			
1615	|EZEN~a×KI|			
1616.1	|EZEN~a×LA~e|~v1			
1625.1	|EZEN~b×6(N57)|			
1617	|EZEN~a×NIM~b2|			
1618	|EZEN~a×NIMGIR|			
1619	|EZEN~a×RAD~a|			
1620	|EZEN~a×SAG~v1|			
1621	|EZEN~a×SU~a|			
1622	|EZEN~a×(U$_2$~b.A)|			
1623	|EZEN~a×U$_4$|			
1624	|EZEN~a×X|			X
1627	|GA~a~v1.ZATU753|			
1627.1	|GA~a~v4.ZATU753|~v1			
1629	|GA~c×KASKAL|			

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1628	|GA~c×1(N14)|			
1626	|GA~a~v4×X|			X
1633	|GA$_2$~a1×A|			
1672	|GA$_2$~b×DUB~a|			
1673	|GA$_2$~b×DUB~b~v2|			
1634	|GA$_2$~a1×EN~b~v1|			
1635	|GA$_2$~a1×GEŠTU~c3|			
1636	|GA$_2$~a1×GEŠTU~c5|			
1637	|GA$_2$~a1×GIR~a|			
1638	|GA$_2$~a1×(GIR~a.KU$_6$~a)|			
1639	|GA$_2$~a1×GIŠ@t|			
1664	|GA$_2$~a2×GU$_4$|			
1665	|GA$_2$~a2×(ŠE$_3$~v1.GU$_4$)|			
1641	|GA$_2$~a1×HAL|			
1642	|GA$_2$~a1×HI|			
1643	|GA$_2$~a1×(HI.SUHUR~v1)|			SUHUR~v1
1644	|GA$_2$~a1×KU$_3$~a|			
1674	|GA$_2$~b×KU$_3$~a|			
1645	|GA$_2$~a1×KU$_6$~a|			
1646	|GA$_2$~a1×(KU$_6$~a.KU$_6$~a)|			
1647	|GA$_2$~a1×LAGAB~b|			
1648	|GA$_2$~a1×MAŠ|			

#	PCSL	COMPOUND	COMPONENTS		COMPOUND-ONLY
1630	|GA₂~a1×1(N14)|			●	
1631	|GA₂~a1×1(N57)|			—	
1632	|GA₂~a1×3(N57)|			≡	
1649	|GA₂~a1×NAGA~a|				
1666	|GA₂~a2×NI~a|				
1667	|GA₂~a2×NI~b|				
1650	|GA₂~a1×NIM~b1|				
1652	|GA₂~a1×PAD~b|				
1653	|GA₂~a1×PAP~a|				
1655	|GA₂~a1×SU~a|				
1656	|GA₂~a1×SUHUR|				
1669	|GA₂~a2×SUHUR|				
1657	|GA₂~a1×SUKUD|				
1658	|GA₂~a1×((SUKUD+SUKUD)~a)|				
1659	|GA₂~a1×((SUKUD+SUKUD)~b)|				
1660	|GA₂~a1×SUMAŠ|				
1654	|GA₂~a1×ŠA|				
1668	|GA₂~a2×ŠE₃~v1|				
1661	|GA₂~a1×TI|				
1662	|GA₂~a1×U₄|				
1663	|GA₂~a1×X|				X
1670	|GA₂~a2×X|				X

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1671	|GA₂~a3×X|			X
1675	|GA₂~b×ZATU659|			
1676	|GAN~c×DIN|			
1688	|GAN~d×GEŠTU~a~v2|			
1677	|GAN~c×HI|			
1678	|GAN~c×(HI.DIN)|			
1679	|GAN~c~v1×KAŠ~c|			
1680	|GAN~c~v1×(KUR~a.A)|			
1681	|GAN~c×LAGAB~b|			
1682	|GAN~c×NE~a|			
1685	|GAN~c×SIG₇|			
1683	|GAN~c~v2×ŠE~a|			GAN~c~v2
1684	|GAN~c~v2×ŠE₃@t~v1|			GAN~c~v2
1686	|GAN~c×X|			X
1687	|GAN~c~v1×ZATU777~v1|			
1691	|GEŠTU~a×ŠE~a@t~v1|			ŠE~a@t~v1
1699	|GI~v1×GIŠ@t|			
1692	|GI~v1×1(N14)|			
1695	|GI~v1&GI~v1&GI~v1|			
1700	|GI×KU~b1|			
1701	|GI~v1×LAGAB~a|			
1693	|GI×1(N58@t)|			

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1702	|GI×NAM$_2$|			
1704	|GI×SIG$_2$~d1|			
1703	|GI×ŠE$_3$~v1|			
1705	|GI×X|			X
1694	|GI&GI|			
1696	|(GI&GI)×GIŠ@t|			
1697	|(GI&GI)×ŠE$_3$~v1|			
1698	|(GI&GI)×X|			X
1706	|GI$_4$~a×A|			
1707	|GI$_4$~a&GI$_4$~a|			
1708	|GI$_4$~b&GI$_4$~b|			
1710	|GIR~b~v1.GIR~b~v1|			
1709	|GIR~a.KU$_6$~a|			
1712	|GIR$_3$~c×KAR$_2$~b|			
1711	|GIR$_3$~a×ŠE~b|			
1713	|GIR$_3$~c×ŠE$_3$~v1|			
1719	|GIŠ.TE|			
1714	|(GIŠ×(DIN.DIN))~a|			
1715	|(GIŠ×(DIN.DIN))~b|			
1716	|(GIŠ×(DIN.DIN))~c|			
1717	|GIŠ×ŠU$_2$~a|			
1718	|GIŠ×ŠU$_2$~b|			

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1721	|GIŠ₃~a&GIŠ₃~a|			
1722	|GU₄.ZATU755~b|			
1724	|GUG₂~v1×SILA₃~a|			
1725	|GUG₂~v1×TUR~v1|			
1726	|GUKKAL~a.HI@g~a|			
1727	|GURUŠ~a×2(N14)|			
1728	|GURUŠ~b×2(N14)|			
1729	|GURUŠ~c×2(N14)|			GURUŠ~c
1730	|HAŠHUR×MA|			
1738	|HI.SUHUR|			
1738.1	|HI.SUHUR~v1|			SUHUR~v1
1738.2	|HI.SUHUR~v2|			SUHUR~v2
1736	|HI×LAGAB~a|			
1732	|HI×1(N57)|			
1733	|(HI×1(N57)).(HI×1(N57))|			
1734	|HI×1(N57@t)|			1(N57@t)
1735	|HI×1(N58)|			
1737	|HI×ŠE₃@t~v1|			
1739	|HI×ZATU707~a|			
1740	|IR~a.GA₂~a1|			
1742.1	|KA~a~v1.ŠE~a|			KA~a~v1
1742	|KA~a~v2.ŠE~a@t|			KA~a~v2

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1741	|KA~a×SAR~a|			
1743	|KA$_2$~d×LAM~b~v2|			
1744	|KAB×1(N58)|			
1745	|KAK~a.GA$_2$~a1|			
1746	|KAŠ~b~v1×ŠE~a@t~v1|			ŠE~a@t~v1
1747	|KI@n×DUB~a|			
1748	|KU$_6$~a.1(N02)|			
1749	|KU$_6$~a+GIŠ|			
1750	|KU$_6$~a+KU$_6$~a|			
1751	|KUR~a.E$_2$~a|			
1753	|KUR~b.E$_2$~a|			
1752	|KUR~a.NUNUZ~a1|			
1755	|LAGAB~a×BA|			
1777	|LAGAB~b×BANŠUR~a|			
1756	|LAGAB~a×BIR$_3$~b|			
1757	|LAGAB~a×DU$_6$~a~v1|			
1778	|LAGAB~b×GA'AR~a1|			
1779	|LAGAB~b×HI|			
1758	|LAGAB~a×KAK~a|			
1759	|LAGAB~a×KU$_6$~a|			
1760	|LAGAB~a×(KU$_6$~a+KU$_6$~a)|			
1780	|LAGAB~b×KUR~e|			KUR~e

#	PCSL	COMPOUND	COMPONENTS		COMPOUND-ONLY
1761	|LAGAB~a×KUŠU₂~a@t|				KUŠU₂~a@t
1762	|LAGAB~a×LAGAB~a|				
1763	|LAGAB~a×ME~a|				
1754	|LAGAB~a×2(N14)|				
1764	|LAGAB~a×NUN~b|				
1765	|LAGAB~a×PA~a|				
1782	|LAGAB~b×PA~a|				
1768	|LAGAB~a×SI~v1|				
1769	|LAGAB~a×SIG₇~v1|				
1770	|LAGAB~a×SU~a|				
1785	|LAGAB~b×SUH₃|				
1766	|LAGAB~a×ŠA|				
1767	|LAGAB~a×ŠITA~a1|				
1771	|LAGAB~a×TI|				
1772	|LAGAB~a×U₄|				
1786	|LAGAB~b×U₄|				
1773	|LAGAB~a×UB|				
1774	|LAGAB~a×X|				X
1775	|LAGAB~a×ZATU753|				
1781	|LAGAB~b&LAGAB~b|				
1788	|LAL₂~a×EZEN~a~v1|				
1789	|LAL₂~a×NIM~b2|				

43

#	PCSL	COMPOUND	COMPONENTS		COMPOUND-ONLY
1790	|LU$_2$×GEŠTU~c3|				
1793	|MA~v1×A|				
1792	|MA~v1×2(N57)|				
1795	|MA~v1×X|				X
1794	|MA×MA|				
1791	|MA×1(N58)|				
1796	|MAH~a×AB$_2$|				
1797	|MAH~a×GUKKAL~a|				
1798	|MAH~a×KU$_6$~a|				
1809	|MAH~b×KU$_6$~a|				
1799	|MAH~a×MAŠ|				
1810	|MAH~b×MAŠ|				
1800	|MAH~a×NA~a|				
1811	|MAH~b×NA~a|				
1812	|MAH~b×SAL|				
1801	|MAH~a×(SILA$_3$~a×UMBIN~a)|				
1802	|MAH~a×TUG$_2$~a|				
1803	|MAH~a×UD$_5$~a~v1|				
1804	|MAH~a×UDU~a|				
1805	|MAH~a×UR~a|				
1806	|MAH~a×UTUA~a|				
1807	|MAH~a×X|				X

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1808	|MAH~a×ZATU659|			
1813	|MAR~b×(LAGAB~b.ŠE$_3$~v1)|			
1814	|MAR~b×ŠE~a|			
1815	|MAR~b×X|			X
1821	|MUŠEN.UR$_3$~b2|			
1817	|MUŠEN×1(N57)|			
1818	|MUŠEN×2(N57)|			
1819	|MUŠEN×3(N57)|			
1822	|MUŠEN×X|			X
1823	|NAGA~a×TAK$_4$~a|			
1824	|NAM$_2$×1(N01)|			
1826	|NI~a.RU~v1|			
1825	|NI~a×1(N57)|			
1827	|NI~b×4(N57)|			
1828	|NI~b×X|			X
1833	|NINDA$_2$×AN|			
1834	|NINDA$_2$×(AN.HI)|			
1836	|NINDA$_2$×(AN.X)|			X
1837	|NINDA$_2$×BA|			
1838	|NINDA$_2$×EZEN~b|			
1839	|NINDA$_2$×GA'AR~a1|			
1840	|NINDA$_2$×GAR|			

#	PCSL	COMPOUND	COMPONENTS		COMPOUND-ONLY
1841	|NINDA$_2$×GIŠ|				
1843	|NINDA$_2$×GU$_4$|				
1835	|NINDA$_2$×(AN.ME~a)|				
1844.1	|NINDA$_2$×(HI~a1.AN.ME~a)|				HI~a1
1844	|NINDA$_2$×(HI~a1.ME~a)|				HI~a1
1846	|NINDA$_2$×(HI.AN.ME~a)|				
1847	|NINDA$_2$×(HI.ME~a)|				
1849	|NINDA$_2$×(1(N06).HI@g~a)|				
1845	|NINDA$_2$×HI|				
1848	|NINDA$_2$×(HI.X)|				X
1850	|NINDA$_2$×KAŠ~b|				
1851	|NINDA$_2$×MAR~b|				
1829	|NINDA$_2$×1(N01)|				
1832	|NINDA$_2$×2(N01)|				
1831	|NINDA$_2$×1(N08)|				
1852	|NINDA$_2$×NE~a~v1|				
1853	|NINDA$_2$×ŠIM~a~v2|				
1854	|NINDA$_2$×U$_4$|				
1855	|NINDA$_2$×(U$_4$.X)|				X
1856	|NINDA$_2$×(UDU~a×TAR~a)|				
1857	|NINDA$_2$×(UDU~a×TAR~b)|				TAR~b
1858	|NINDA$_2$×X|				X

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1860	|NINDA$_2$×(ZATU659×1(N01))|			
1861	|NIR~a×AN|			
1862	|NU$_{11}$&NU$_{11}$|			
1863	|NUN~a+A|			
1864	|NUN~a+EN~a~v2|			
1865	|NUN~a+EN~b~v1|			
1866	|NUN~a+EN~d|			EN~d
1868	|NUN~b+EN~a|			
1867	|NUN~a+NAM$_2$|			
1869	|PIRIG~b1×UR$_2$|			
1875	|SAG~v1×MA~v1|			
1870	|SAG~v1×1(N14)|			
1873	|SAG~v1×GEŠTU~c|			GEŠTU~c
1872.1	|SAG~v2×GEŠTU~b|			
1872	|SAG@n×GEŠTU~b|			
1871	|SAG×GEŠTU~a|			
1874	|SAG~v1×LAM~c|			
1878	|SAL.KUR~a|			
1879	|SAL.LAM~b|			
1880	|SAL.ŠU$_2$~b|			
1877	|SAL×1(N58)|			
1881	|SAR~a×ŠE~a|			

#	PCSL	COMPOUND	COMPONENTS		COMPOUND-ONLY
1909	$|SI×GU_4|$				
1910	$|SI×ŠE_3~v1|$				
1911	$|SIG×1(N57)|$				
1912	$|SIG_2~b×1(N14)|$				
1913	$|SIG_2~b\&SIG_2~b|$				
1916	$|SILA_3~a×A|$				
1917	$|SILA_3~a×AMAR|$				
1918	$|SILA_3~a~v1×DUG~a|$				$SILA_3~a~v1$
1918.1	$|SILA_3~a×DUG~a|~v1$				
1920	$|SILA_3~a×GA~a~v3|$				
1921	$|SILA_3~a×GARA_2~a|$				
1922	$|SILA_3~a×GEŠTU~a~v2|$				
1923	$|SILA_3~a×GEŠTU~c3|$				
1924	$|SILA_3~a×GEŠTU~c5|$				
1951	$|SILA_3~b×GUG_2|$				
1925	$|SILA_3~a×HAŠHUR|$				
1927	$|SILA_3~a×HI@g~a|$				
1926	$|SILA_3~a×HI|$				
1928	$|SILA_3~a×IB~a|$				
1929	$|SILA_3~a×KAŠ~a|$				
1930	$|SILA_3~a×KAŠ~c|$				
1931	$|SILA_3~a×KAŠ~d|$				

COMPOUNDS AND THEIR COMPONENTS

#	PCSL	COMPOUND	COMPONENTS		COMPOUND-ONLY
1932	|SILA$_3$~a×KU$_6$~a|				
1933	|SILA$_3$~a×KUR~a|				
1934	|SILA$_3$~a×MA~v1|				
1935	|SILA$_3$~a×MAŠ|				
1914	|SILA$_3$~a×1(N57)|				
1915	|SILA$_3$~a×1(N58)|				
1936	|SILA$_3$~a×NAGA~a|				
1952	|SILA$_3$~b×NAGA~b|				
1937	|SILA$_3$~a×NI~a|				
1954	|SILA$_3$~b×NI~b|				
1953	|SILA$_3$~c×NI~a|				
1957	|SILA$_3$~d×NI~a|				SILA$_3$~d
1938	|SILA$_3$~a×NUN~b|				
1943	|SILA$_3$~a×SUHUR|				
1944	|SILA$_3$~a×SUM~a~v1|				
1945	|SILA$_3$~a×SUM~b|				
1940	|SILA$_3$~a×ŠE~a@t|				
1939	|SILA$_3$~a×ŠE~a|				
1941	|SILA$_3$~a×ŠU|				
1955	|SILA$_3$~c×ŠU|				
1942	|SILA$_3$~a×ŠU$_2$~b|				
1946	|SILA$_3$~a×X|				X

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1947	|SILA₃~a×ZATU629~v1|			
1948	|SILA₃~a×ZATU646|			
1949	|SILA₃~a×(ZATU659.TU~c~v1)|			TU~c~v1
1956	|SILA₃~c×ZATU687|			
1958	|SU~a×1(N58)|			
1959	|(SUKUD+SUKUD)~a|			
1960	|(SUKUD+SUKUD)~b|			
1962	|(SUKUD+SUKUD)~d|			
1882	|(ŠA×HI@g~a)~a|			
1883	|(ŠA×HI@g~a)~b|			
1884	|ŠE~a.KIN₂~c|			
1885	|ŠE~a.NAM₂|			
1885.1	|ŠE~a.NAM₂|~v1			
1886	|ŠE~a&ŠE~a|			
1887	|ŠEN~d×A|			
1895	|ŠITA@g~b3×1(N04)|			
1896	|ŠITA@g~b3×1(N06)|			
1893	|ŠITA~b1@g×HI@g~a|			ŠITA~b2@g
1889	|ŠITA~a1×KAK~a|			
1888	|ŠITA~a1×1(N06)|			
1894	|ŠITA~b3×NAM₂|			
1890	|ŠITA~a1×ŠU|			

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1891	|ŠITA~a1×ŠU$_2$~b|			
1892	|ŠITA~a1×UDU~a|			
1897	|ŠU×1(N58)|			
1898	|ŠU&ŠU|			
1902	|ŠU$_2$~b.E$_2$~a|			
1903	|ŠU$_2$~b.E$_2$~b|			
1904	|ŠU$_2$~a.EN~a~v1|			
1904.1	|ŠU$_2$~a.EN~a~v2|			
1905	|ŠU$_2$~a.EN~b~v1|			
1908	|ŠU$_2$~a.URI$_3$~a~v1|			
1901	|ŠU$_2$~a.AN|			
1907	|ŠU$_2$~a.(HI×1(N57))&(HI×1(N57))|			
1906	|ŠU$_2$~b.GIŠ|			
1899	|ŠU$_2$~b.1(N02)|			
1900	|ŠU$_2$~b.2(N57)|			
1963	|TA~d×MAŠ|			
1964	|TUG$_2$~a.(BAD&BAD)|			
1965	|TUR~v1×X|			X
1970	|U$_4$.1(N08)|			
1986	|U$_4$.2(N08)|			
1993	|U$_4$.3(N08)|			
1999	|U$_4$.4(N08)~v1|			

#	PCSL	COMPOUND	COMPONENTS			COMPOUND-ONLY
2003	|U$_4$.5(N08)|					
2006	|U$_4$.6(N08)|					
2008	|U$_4$.7(N08)|					
2012	|U$_4$.8(N08)|					
1971	|U$_4$.1(N14)|					
1974	|U$_4$.(1(N14).3(N08))|					
1976	|U$_4$.(1(N14).4(N08))|					
1977	|U$_4$.(1(N14).5(N08))|					
1979	|U$_4$.(1(N14).8(N08))|					
1987	|U$_4$.2(N14)|					
2016	|U$_4$.ŠU$_2$~b|					
1967	|U$_4$×1(N01)|					
1968	|U$_4$×1(N01).5(N08)|					
1982	|U$_4$×2(N01)|					
1983	|U$_4$×2(N01).2(N14)|					
1984	|U$_4$×2(N01).(2(N14).1(N08))|					
1985	|U$_4$×2(N01).X|					X
1991	|U$_4$×3(N01)|					
1992	|U$_4$×3(N01).3(N08)~v1|					
1997	|U$_4$×4(N01)|					
1998	|U$_4$×4(N01).2(N14)|					
2001	|U$_4$×5(N01)|					

COMPOUNDS AND THEIR COMPONENTS

#	PCSL	COMPOUND	COMPONENTS			COMPOUND-ONLY
2002	|U$_4$×5(N01).1(N14)|		⟩	𝕭𝕭	•	
2005	|U$_4$×6(N01)|		⟩	𝕭𝕭		
2010	|U$_4$×8(N01)|		⟩	𝕭𝕭		
2011	|U$_4$×8(N01).X|		⟩	𝕭𝕭		X
2015	|U$_4$×N(N01)|		⟩			N(N01)
1972	|U$_4$×1(N14)|		⟩	•		
1973	|U$_4$×(1(N14).2(N01))|		⟩	•	𝕭	
1975	|U$_4$×(1(N14).4(N01))|		⟩	•	𝕭𝕭	
1978	|U$_4$×(1(N14).8(N01))|		⟩	•	𝕭𝕭	
1988	|U$_4$×2(N14)|		⟩	⦂		
1989	|U$_4$×(2(N14).4(N01))|		⟩	⦂	𝕭𝕭	
1994	|U$_4$×(3(N14).2(N01))|		⟩	⦁•	𝕭	
1995	|U$_4$×(3(N14).7(N01))|		⟩	•⦁	𝕭𝕭	
1980	|U$_4$×1(N57)|		⟩	—		
1990	|U$_4$×2(N57)|		⟩	=		
1996	|U$_4$×3(N57)|		⟩	≡		
2000	|U$_4$×4(N57)|		⟩	≡		
2004	|U$_4$×5(N57)|		⟩	≣		
2007	|U$_4$×6(N57)|		⟩	≡≡		
2009	|U$_4$×7(N57)|		⟩	≡≡		
2013	|U$_4$×8(N57)|		⟩	====		
2014	|U$_4$×10(N57)|		⟩	=====		

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1981	|U$_4$×1(N58@t)|			
2017	|U$_4$×X|			X
2018	|U$_4$×(X+2(N01))|			
2019	|U$_8$×TAR~b|			TAR~b
2020	|UDU~a×TAR~a|			
2021	|UDU~a×TAR~b|			TAR~b
2025	|UKKIN~b×DIN|			
2026	|UKKIN~b×(DIN.1(N01))|			
2028	|UKKIN~b×HI@g~a|			
2022	|UKKIN~b×2(N01)|			
2023	|UKKIN~b×3(N01)|			
2024	|UKKIN~b×5(N01)|			
2029	|UKKIN~b×NI~a|			
2030	|UKKIN~b×X|			X
2031	|UNUG~a~v1×A@t|			
2032	|UR~a×KAR$_2$~b|			
2033	|UR$_2$×1(N57)|			
2034	|UR$_2$×TAR~c|			TAR~c
2035	|UR$_3$~b1×MAŠ|			
2040	|URU~a1×AMAR~v2|			
2041	|URU~a1×GU$_4$|			
2042	|URU~a1×HI@g~a|			

COMPOUNDS AND THEIR COMPONENTS

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
2047	|URU~a3×KALAM~a|			URU~a3
2037	|URU~a1×1(N57)|			
2038	|URU~a1×2(N57)|			
2046	|URU~a2×1(N58)|			
2043	|URU~a1×NIMGIR|			
2044	|URU~a1×U$_4$|			
2045	|URU~a1×X|			X
2049	|UŠ~b~v2×TAR~c|			UŠ~b~v2 TAR~c
2049.1	|UŠ~b×TAR~c|			TAR~c
2048	|UŠ~a&UŠ~a|			
2051	|UŠ~b&UŠ~b|			
1487	|X(N57).GAR|			X(N57)
2052	|ZATU644~a×1(N14)|			
2053	|ZATU651×AN|			
2054	|ZATU651×EN~a~v2|			
2055	|ZATU651×GAR|			
2056	|ZATU651×MA|			
2057	|ZATU651×NUN~a|			
2058	|ZATU651~v2×ŠE~a|			
2059	|ZATU651×X|			X
2060	|ZATU651×ZAR~c|			
2061	|ZATU659×1(N01)|			

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
2062	|ZATU659×1(N14)|	◁•	◁ •	
2063	|ZATU659×1(N58@t)|	◁\	◁ \	
2064	|ZATU662×1(N14)|	◁≣	◁≣ •	
2064.1	|ZATU662~v1×1(N14)|	◁≣	◁≣ •	
2064.2	|ZATU662~v2×1(N14)|	◁≣	◁≣ •	
2066	|ZATU711~v1×X|	▷	▷	X
2065	|ZATU711~v1×HI@g~a|	▷	▷ ◈	
2068	|ZATU714.RU|	▷⟩	▷ ⟩	
2067	|ZATU714×HI@g~a|	▷◈	▷ ◈	
2069	|ZATU714×X|	▷	▷	X
2087	|ZATU737~v2×X|	▱⊫	☐⊫	X
2080	|ZATU737~v3×SAL|	▷⊫	▷	ZATU737~v3
2085	|ZATU737~v3×U$_4$|	◇⊫	◇	ZATU737~v3
2070	|ZATU737×AB~a|	☐⊫	☐⊫ ◁	
2071	|ZATU737×BU~a|	☐⊫	☐⊫ ⋉—	
2072	|ZATU737×BUR~a|	☐⊫	☐⊫ ▷	
2073	|ZATU737×DI|	☐⊫	☐⊫ ⬡	
2073.1	|ZATU737~v2×DI|	☐⊫	☐⊫ ⬡	
2074	|ZATU737×E~a|	☐⊫	☐⊫ ⊒	
2076	|ZATU737~v1×EN~b~v1|	☐⊫	☐⊫ ⧛	
2075	|ZATU737×EN~a~v2|	☐⊫	☐⊫ ⊿	
2077	|ZATU737×GAR|	☐⊫	☐⊫ ◗	

COMPOUNDS AND THEIR COMPONENTS

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
2077.1	|ZATU737~v1×GAR|			
2078	|ZATU737×NI~a@g|			
2079	|ZATU737×NIMGIR|			
2084	|ZATU737×SU~a|			
2081	|ZATU737×ŠE~a|			
2082	|ZATU737×ŠITA~a1|			
2086	|ZATU737×UNUG~a~v1|			
2092	|ZATU759@t×X|			ZATU759@t X
2088	|ZATU759×KU$_6$~a|			
2090	|ZATU759×KU$_6$~d|			
2089	|ZATU759×(KU$_6$~a+KU$_6$~a)|			
2091	|ZATU759×X|			X
2094	|ZATU762~b×AB~a|			
2093	|ZATU762~a×NIM~a|			
1456	|1(N02).RU|			
1457	|1(N08@f)×1(N57)|			
1458	|1(N34)×1(N58)|			
1460	|1(N57).AB$_2$|			
1461	|1(N57).ŠAH$_2$~a|			
1462	|1(N57).ŠUBUR|			
1462.1	|1(N57).ŠUBUR~v1|			ŠUBUR~v1
1465	|2(N57).AB$_2$|			

COMPOUNDS AND THEIR COMPONENTS

#	PCSL	COMPOUND	COMPONENTS	COMPOUND-ONLY
1466	$|2(N57).KU_6{\sim}a|$		=	
1468	$|2(N57).SU{\sim}a|$		=	
1467	$|2(N57).ŠUBUR|$		=	
1469	$|3(N57).AMAR|$		≡	
1470	$|3(N57).BARA_3|$		≡	
1471	$|3(N57).E_2{\sim}b|$		≡	
1472	$|3(N57).GAR|$		≡	
1473	$|3(N57).NUNUZ{\sim}a1|$		≡	
1474	$|3(N57).NUNUZ{\sim}c|$		≡	
1475	$|3(N57).PIRIG{\sim}b1|$		≡	
1476	$|3(N57).ŠUBUR|$		≡	
1478	$|4(N57).AMAR|$		≡	
1479	$|4(N57).GAR|$		≡	
1480	$|4(N57).KU_3{\sim}a|$		≡	
1481	$|4(N57).NI{\sim}b|$		≡	
1482	$|5(N57).GAR|$		≡	
1483	$|5(N57).KU_3{\sim}a|$		≡	
1484	$|6(N57).GAR|$		≡≡	
1485	$|6(N57).KU_3{\sim}a|$		≡≡	
1486	$|8(N57).NI{\sim}b|$		≡≡≡≡	
1463	$|1(N58).BAD|$				
1464	$|1(N58){\sim}a.BAD{\sim}a|$				BAD~a

#	PCSL	COMPOUND	COMPONENTS		COMPOUND-ONLY
1464.1	|1(N58)~a.BAD|				
1477	|3(N58).UR$_3$~b1|				

Appendix 2: Notes on the Data Table

The Data accompanying this submission, ad-L23-190.tab, is a tab-separated table with the following columns:

- serial—the AP23 serial number
- char—the Unicode character
- cdli—the CDLI transliteration from AP23
- ap23-name—the Unicode name from AP23
- action—the action to take for this item, see Section 4 above.
- comment—some action types have a justifying or explanatory comment; otherwise the rationale is in the body of the report
- pcsl—the PCSL transliteration
- new-name—the PCSL Unicode name, if it is different from the AP23 Unicode name
- new-code—the new Unicode code, for newglyph and add types
- sort—the PCSL sort code
- components—the components for compound entries; compound-only items are prefixed with a double hyphen, '--' so this column can also be used to create compound-only references

A sample entry for each action type is given in the following table:

serial	char	cdli	ap23-name	action	comment	pcsl	new-name	new-code	sort	components
352		A@g	A GUNU	remove		A@g			11	
384.1		AN	AN VARIANT 1	delete	Duplicates 384 AN	AN~v1			103	
621		GIZZAL~x	GIZZAL-X	rename		GIZZAL~v	PROTO-CUNEIFORM SIGN GIZZAL-V		1555	
678		ISZ~b	ISH-B	newglyph	NEW GLYPH=	IŠ~b		12876	1696	
3000		|DUG~b×U$_2$~b|	DUG-B TIMES U2-B	add	Add from VAT 17858+ = P000015 o ii 9 (Uruk)	|DUG~b×U$_2$~b|		FFFFC	981	DUG~b U$_2$~b