L2/06-259

ISO/IEC JTC 1/SC 2/WG 2
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646[1]
Please fill all the sections A, B and C below.
Please read Principles and Procedures Document (P & P) from http://www.dkuug.dk/JTC1/SC2/WG2/docs/principles.html **for guidelines and details before filling this form.**
Please ensure you are using the latest Form from http://www.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html**.**
See also http://www.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html **for latest *Roadmaps*.**

A. Administrative

1. **Title:** Proposal to Encode Additional Orthographic and Modifier Characters
2. Requester's name: Peter G. Constable, Lorna A. Priest
3. Requester type (Member body/Liaison/Individual contribution): Individual contribution
4. Submission date: 31 July 2006
5. Requester's reference (if applicable): L2/06-259
6. Choose one of the following:
   This is a complete proposal: Yes
   or, More information will be provided later: No

B. Technical – General

1. Choose one of the following:
   a. This proposal is for a new script (set of characters): No
      Proposed name of script:
   b. The proposal is for addition of character(s) to an existing block: Yes
      Name of the existing block: Latin Extended-C, Modifier letters
2. Number of characters in proposal: 4
3. Proposed category (select one from below - see section 2.2 of P&P document):

A-Contemporary	x	B.1-Specialized (small collection)		B.2-Specialized (large collection)	
C-Major extinct		D-Attested extinct		E-Minor extinct	
F-Archaic Hieroglyphic or Ideographic		G-Obscure or questionable usage symbols			

4. Proposed Level of Implementation (1, 2 or 3) (see Annex K in P&P document): 1
   Is a rationale provided for the choice? No
   If Yes, reference:
5. Is a repertoire including character names provided? Yes
   a. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document? Yes
   b. Are the character shapes attached in a legible form suitable for review? Yes
6. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard? SIL International
   If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:
7. References:
   a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided? Yes
   b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached? Yes
8. Special encoding issues:
   Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?
   Yes, suggested character properties are included (see section D)
9. Additional Information:

Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at http://www.unicode.org for such information on other scripts. Also

[1] Form number: N2652-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11)

see http://www.unicode.org/Public/UNIDATA/UCD.html and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before? Yes

   If YES explain 3 of them were submitted in L2/04-372 (MODIFIER LETTER STRAIGHT APOSTROPHE) and L2/05-097 (MODIFIER LETTER COLON and MODIFIER LETTER SHORT EQUAL). We were requested to revise the proposals and return with better description of the distinction between these and characters already existing in TUS

2. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)? Yes

   If YES, with whom? linguists, also 2 letters of support from Mexico should be forthcoming

   If YES, available relevant documents: Email correspondence. See also References.

3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included? Yes

   Reference: See comments in Section E

4. The context of use for the proposed characters (type of use; common or rare) Common

   Reference: They are used in literacy materials, liturgical books and general literature.

5. Are the proposed characters in current use by the user community? Yes

   If YES, where? Reference: See comments in Section E

6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP? Preferably

   If YES, is a rationale provided?

   If YES, reference: If possible, should be kept with other related blocks in the BMP.

7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)? Preferably together with other related blocks

8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence? Possibly

   If YES, is a rationale for its inclusion provided?

   If YES, reference:

9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters? No

   If YES, is a rationale for its inclusion provided?

   If YES, reference:

10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character? Yes

    If YES, is a rationale for its inclusion provided?

    If YES, reference: see E.2 and E.3

11. Does the proposal include use of combining characters and/or use of composite sequences? No

    If YES, is a rationale for such use provided?

    If YES, reference:

    Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?

    If YES, reference:

12. Does the proposal contain characters with any special properties such as control function or similar semantics? No

    If YES, describe in detail (include attachment if necessary)

13. Does the proposal contain any Ideographic compatibility character(s)? No

    If YES, is the equivalent corresponding unified ideographic character(s) identified?

    If YES, reference:

D. Proposed Characters

A code chart and list of character names are shown on a new page.

D.1. Proposed Characters

	xx00
0	ˈ
1	ˈ
2	ː
3	˭
4	
5	
6	
7	
8	
9	
A	
B	
C	
D	
E	
F	

D.2. Character Names

xx00	LATIN CAPITAL LETTER SALTILLO
xx01	LATIN SMALL LETTER SALTILLO
xx02	MODIFIER LETTER COLON ≈ 003A :
xx03	MODIFIER LETTER SHORT EQUAL ≈ 003D =

D.3. Unicode Character Properties

```
xx00;LATIN CAPITAL LETTER SALTILLO;Lu;0;L;;;;;N;;;;xx01;
xx01;LATIN SMALL LETTER SALTILLO;Ll;0;L;;;;;N;;;xx00;;xx00
xx02;MODIFIER LETTER COLON;Lm;0;L;<compat> 003A;;;;N;;;;;
xx03;MODIFIER LETTER SHORT EQUAL;Lm;0;L;<compat> 003D;;;;N;;;;;
```

As discussed below, the saltillo is historically derived from the typewriter apostrophe. We also recognize the benefit of not having multiple apostrophe-like characters available for use in identifiers. Thus, we were anticipating the proposal would include a compatibility decomposition to U+0027. When we discovered the existence of a casing pair, however, it became unclear whether a compatibility decomposition for only one member of a casing pair was appropriate. We leave the issue of whether LATIN SMALL LETTER SALTILLO should have such a decomposition mapping up to UTC to consider.

Other character properties for LATIN SMALL LETTER SALTILLO and LATIN CAPITAL LETTER SALTILLO should be the same as for other comparable Latin alphabetic letters. Similarly, other character properties for the two modifier letters should be the same as for other comparable modifier letters such as U+02BC.

E. Other Information

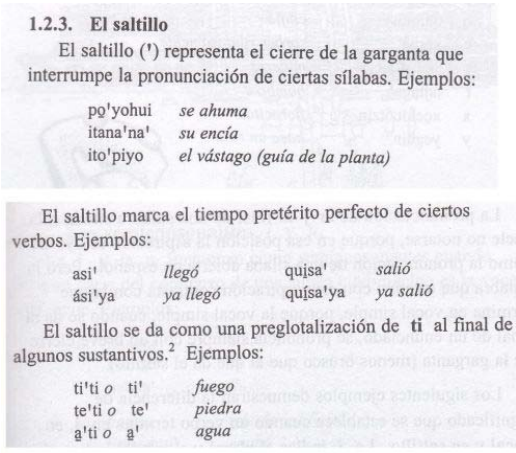
E.2 Extended-Latin Characters

In L2/04-372 we initially proposed MODIFIER LETTER STRAIGHT APOSTROPHE. We have since discovered the need for this character in upper and lower case in the Mè'phàà language of Mexico. The recent addition of LATIN SMALL LETTER GLOTTAL STOP could be said to set a precedent for adding case to this character.

This character is used in the orthographies of at least 89 languages in Mexico. It has been adopted by *la Academia de la Lengua Mixteca* as the preferred character for representing glottal stop in Mixtec languages.

We have also documented use of this character for at least 134 languages in at least twenty-five other countries around the world. These include countries in sub-Saharan Africa; Southeast Asia; North, Central and South America; and the Pacific. For ten randomly-chosen languages from among these, population figures ranged from 1,300 to over 1,000,000. Four of the ten languages had populations of over half a million (bib: Bissa, dyu: Jula, mdj: Mangbetu, daf: Dan). At least 8 of the languages even use the saltillo in the language name (apb: Sa'a, kwf: Kwara'ae).

We have chosen to use the name “saltillo” primarily because it is used in so many languages of Mexico and is the typical name for that character used in Mexico. Figure 1 illustrates the use of the term “saltillo” in a discussion of the Náhuatl alphabet.



1.2.3. El saltillo

El saltillo (ˈ) representa el cierre de la garganta que interrumpe la pronunciación de ciertas sílabas. Ejemplos:

poˈyohui	*se ahuma*
itanaˈna	*su encía*
itoˈpiyo	*el vástago (guía de la planta)*

El saltillo marca el tiempo pretérito perfecto de ciertos verbos. Ejemplos:

asiˈ	*llegó*	quisaˈ	*salió*
ásiˈya	*ya llegó*	quísaˈya	*ya salió*

El saltillo se da como una preglotalización de **ti** al final de algunos sustantivos.[2] Ejemplos:

tiˈti *o* tiˈ	*fuego*
teˈti *o* teˈ	*piedra*
ɨˈti *o* ɨˈ	*agua*

Figure 1. Description of the saltillo (Wolgemuth, 2002, p. 4,5) [Náhuatl (NHX)]

The LATIN CAPITAL LETTER SALTILLO and LATIN SMALL LETTER SALTILLO are typically used to represent the phoneme glottal stop.[2] The intent is to have a character for glottal stop (other than the glottal stop phonetic symbol) that is unambiguous and will not be confused with apostrophe or quotation marks. There are already several different characters used to represent glottal stop: U+0027 APOSTROPHE, U+0294 LATIN LETTER GLOTTAL STOP, U+02BC MODIFIER LETTER APOSTROPHE, U+02BE MODIFIER LETTER RIGHT HALF RING, U+2019 RIGHT SINGLE QUOTATION MARK. However, all of these existing representations involve a character that can be represented with a glyph either that is curved or that is straight but slanted. The distinction with LATIN SMALL LETTER SALTILLO is that the user communities that developed this character (independently!) have explicitly intended this to be tapered, straight, vertical, and in many cases long, precisely to distinguish it from apostrophes, quotation marks, accents and stress bars. Thus, it should not be unified with U+0027, U+02b9, U+02bc, U+02c8, U+02ca or U+2019. The curved shaped of U+0294 and U+02be would be considered by users to be a completely distinct character identity; thus, unification with either of these characters is not considered an option. Moreover, the saltillo is encoded as a distinct character from these in various legacy encodings that have been in use for the several languages that use the saltillo. Thus, a contrastive encoding in Unicode is necessary to migrate documents and to support round-trip conversions. Details on a few cases showing contrastive usage and encodings follow.

Speakers of the Mè'phàà languages (a cluster of 8 dialects/languages - Ethnologue codes for four of them are: tpx: Acatepec, tpl:Tlacoapa, tcf: Malinaltepec, tpc: Azoyú,) have made an upper-/lower-case distinction on the saltillo.This is because there is a common typographic practice in Mexico to put important information in all caps. When this is done with Mè'phàà, the saltillo needs to be positioned higher when surrounded by all caps than it is when surrounded by lower case (x'x X'X — note the visual contrast (set in a frame of lowercase x): x''x). In existing Mè'phàà electronic documents using a legacy encoding, the uppercase and lowercase saltillo are encoded as separate characters (to see the encoding, see the section for the "TimesNRomMè'phàà" font in Appendix A). This contrastive use of lowercase and uppercase SALTILLO along with the distinct code points in the legacy encoding are demonstrated in Figure 2:

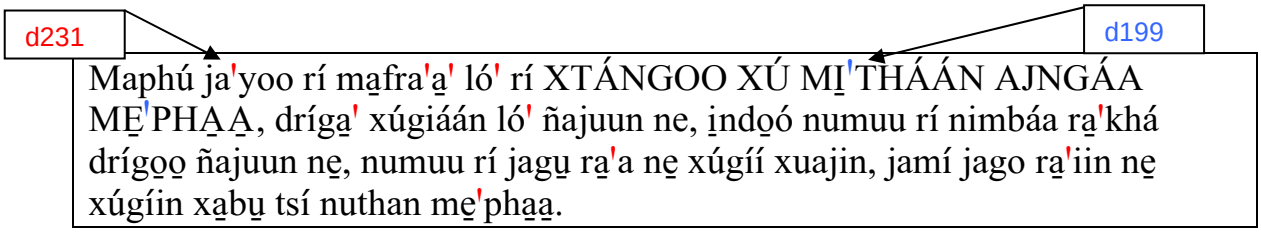


Figure 2. Contrastive use of LATIN CAPITAL LETTER SALTILLO and LATIN SMALL LETTER SALTILLO (Carrasco Zúñiga, 2006, p. 3) [Malinaltepec language (TCF)]

For the Huasteco language, SALTILLO is used for glottal stop and is contrastive with MODIFIER LETTER APOSTROPHE (U+02BC), which is used to write glottalized consonants. In existing documents using a legacy encoding, the two are encoded as separate characters (to see the encoding, see the section for the "Mexhus SILCharis" font in Appendix A). This contrastive use of SMALL SALTILLO and MODIFIER LETTER APOSTROPHE along with the distinct code points in the legacy encoding are demonstrated in Figure 3:

[2] In some languages, the sound it represents is a glottal fricative, /h/.

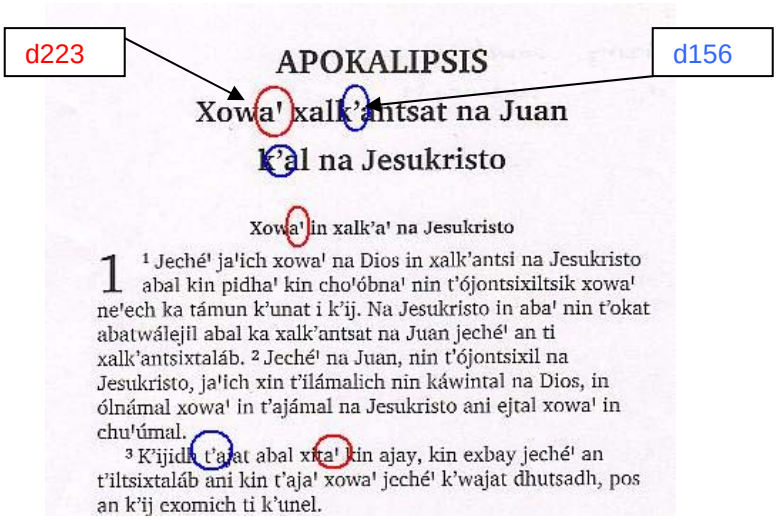


Figure 3. LATIN SMALL LETTER SALTILLO in contrast to MODIFIER LETTER APOSTROPHE (U+02BC) (La Liga Bíblica, in press, p. 653) [Huasteco de Veracruz (HUS)]

The Izere language of Nigeria also uses the saltillo in contrast with a curly apostrophe. The saltillo is again used to represent a glottal stop, and the curly apostrophe (U+0027) or right single quotation mark (U+2019) is used as word-internal punctuation to indicate the ellipsis in contractions. In existing Izere documents the two are encoded as separate characters (to see the legacy encoding, see the section for the "IZ Er2 SILCharis" font in Appendix A). The contrastive use along with the distinct code points in the legacy encoding are demonstrated in Figure 4:

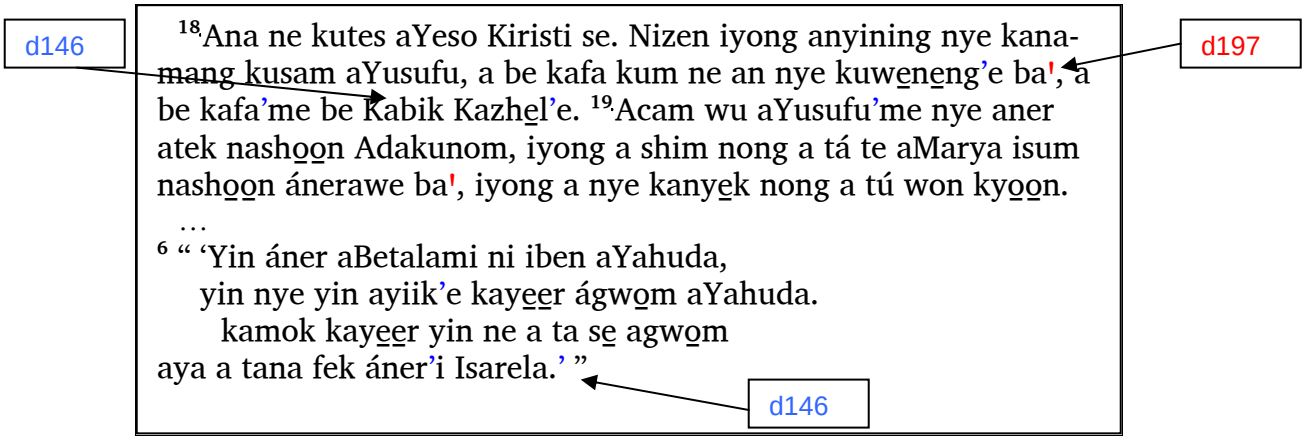


Figure 4. LATIN SMALL LETTER SALTILLO in contrast to RIGHT SINGLE QUOTATION MARK (U+2019) (TBL, 2006) [Izere (FIZ)]

E.3 Modifier Letters

The two modifier letters, MODIFIER LETTER COLON and MODIFIER LETTER SHORT EQUAL, were proposed previously (L2/04-097) but not accepted because of questions on whether they really contrast with COLON (U+003A) and EQUAL (U+003D). Both are recent — post-typewriter — innovations, at least in the case of the orthographies for which the requests are coming in to encode them.

We are requesting the addition of these as distinct from, and contrasting with, the ASCII characters. Both of these characters are used in legacy encodings contrastively with the ASCII characters and need to be encoded as distinct characters for roundtrip mapping. We recognize their historical innovation from the

COLON and EQUAL, however. Thus, we propose that these have compatibility decomposition mappings to those characters.

The MODIFIER LETTER COLON and MODIFIER LETTER SHORT EQUAL are orthographic characters used in cases we are aware of for writing tone. Both are used in one or more languages of Congo (Budu); MODIFIER LETTER COLON is also used in at least one language in Kenya (Sabaot) and at least nine languages in Papua New Guinea (Erima [ERI], Gizra [TOF], Go:bosi [GOI], Gwahatike [DAH],Kaluli [BCO], Kamula [KHM], Kasua [KHS], Kuni-Boazi [KVG], Zimakani [ZIK]). Note that Go:bosi even uses MODIFIER LETTER COLON in the name of the language.

These characters are used in the orthographies of these languages to write *grammatical* tones. For instance, in the Budu language, MODIFIER LETTER COLON indicates past tense, whereas MODIFIER LETTER SHORT EQUAL indicates future tense; in the Sabaot language, the MODIFIER LETTER COLON functions as a subject marker. For that reason, the tone is written as a separate letter rather than as a vowel diacritic. In the case of at least some of the languages, the etic pitch levels / contours that are represented vary between different dialects and for that reason an explicit orthographic choice was made not to use a character suggestive of level / contour such as the acute, grave and macron diacritics.

These characters are distinct from the similar punctuation colon and equal sign characters. They are used as word-forming characters; so, for instance, they should never indicate a word boundary. Also, their graphic appearance is specifically distinct from the colon and equal sign:

- Compared with a typical colon glyph, the dots of the MODIFIER LETTER COLON should be closer together, and the side bearings should be narrower. (Note that the sample in Figure 6 is not as good an examplar in this regard as Figure 5.)

- Compared with a typical glyph for the equal sign, the MODIFIER LETTER SHORT EQUAL is rather shorter.

The following figures demonstrate attested usage of these characters:

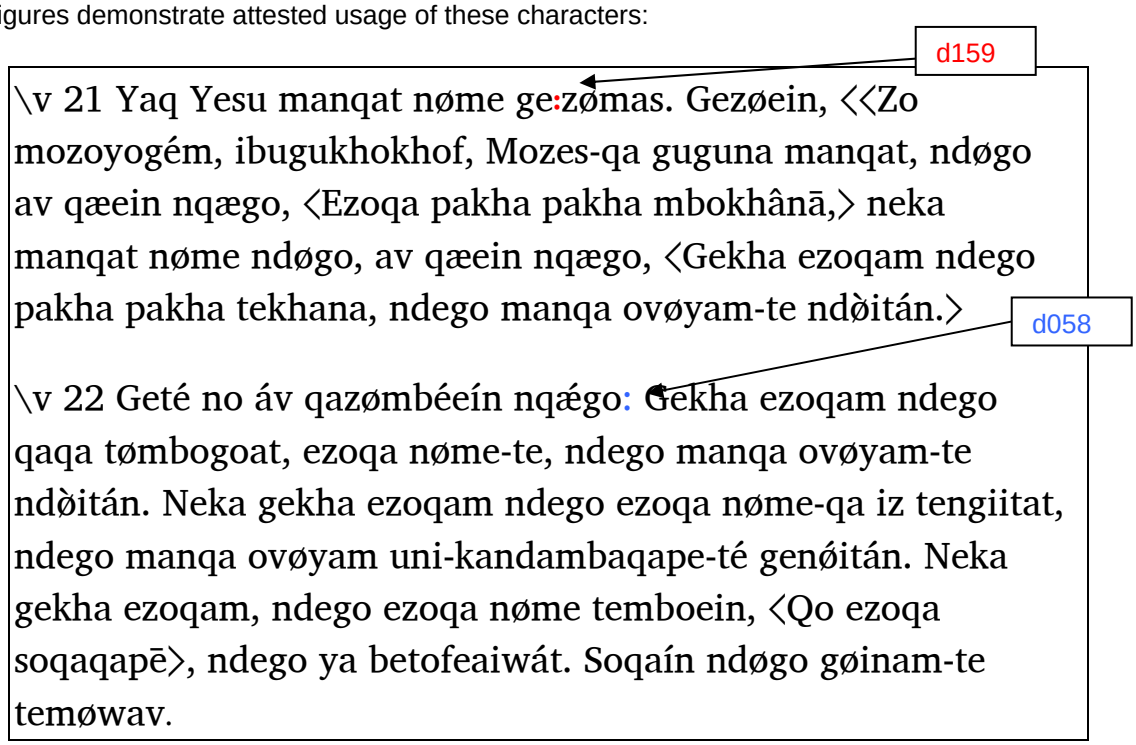


Figure 5. MODIFIER LETTER COLON [Kuni-Boazi language]

Figure 5 is from data file for the Kuni-Boazi language. The first highlighted character is the MODIFIER LETTER COLON and is encoded as d159 in the legacy encoding. The second is COLON and is encoded as d058 in the legacy encoding. It is formated with PNG SILCharis font using a legacy font encoding. (See the section for the "PNG SILCharis" font in Appendix A to see the legacy encoding.)

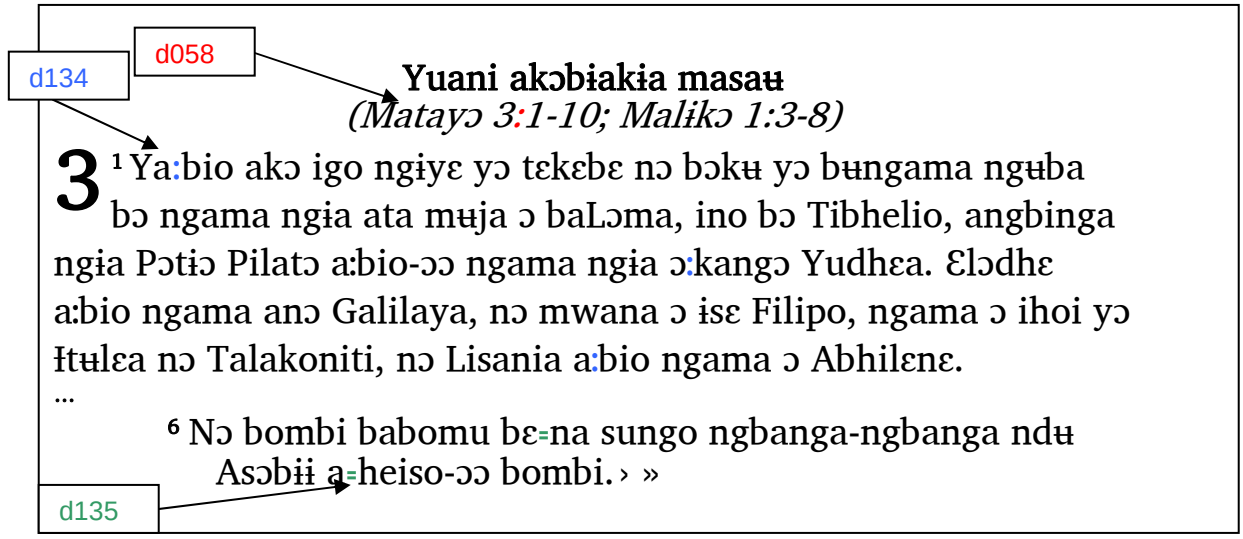


Figure 6. MODIFIER LETTER COLON and MODIFIER LETTER EQUAL [Budu language]

Figure 6 is from a data file for the Budu language. The first highlighted "colon" is the COLON character and is encoded in the legacy encoding as d058 (ASCII code point for COLON). The second is the MODIFIER LETTER COLON and is encoded in the legacy encoding as d134. The "equal" is the MODIFIER LETTER SHORT EQUAL and is encoded as d135. (This document does not contain both d135 and d61, the ASCII code point for EQUAL. However, there are very likely other documents which use this font and use d61 and/or d135.) It is formated with the ECG SILCharis font using a legacy font encoding. (See the section for the "ECG SILCharis" font in Appendix A to see the legacy encoding.)

F. References

The Bible League. 2006. *Kushu Kufas Kufe Rife Adakunom*. The Bible League.

Carrasco Zúñiga, Abad, et al. 2006. *Xtángoo xú mì'tháán ajngáa mè'phàà* (Standards for writing the Me'phaa language). Ojo de Agua, Municipio de Malinaltepec, Guerrero, México: Kajuàà ná Magajàà Ajngá ló' Mè'phàà (Association for Linguistic development of the Me'phaa Language)

La Liga Bíblica. in press. *Nin Tének Káwintal An Ok'óxláb* (El Nuevo Testamento en el huasteco de Veracruz).

Wycliffe Bible Translators. 2000. *Ɨsaʉ yɛɛ Ido ngia yɨ LUKA, Evangile selon Luc.* Orlando, FL: Wycliffe Bible Translators. Distribution: Projet de Traduction de la Bible et d'Alphabétisation en Langue Budu, CECCA/16, B.P. Isiro. République Démocratique du Congo.

Wolgemuth, Carl. 2002. *Gramática Náhuatl (Mela'tájtol) de los municipios de Mecayapan y tatahuicapan de Juárez*, Veracruz Serie de gramáticas de lenguas indígenas de México. Núm. 5. (Segunda edición). Mexico.
See also http://www.sil.org/mexico/nahuatl/istmo/G027a-GramNahIst-nhx.htm

Appendix A

TimesNRomMè'phàà (font encoding used for Figure 2) — note the encoding distinction between uppercase saltillo (d199) and lowercase saltillo (d231), and between these and the ASCII apostrophe (d039).

032	033 !	034 "	035 #	036 $	037 %	038 ʔ	039 '	040 (	041)	042 *	043 +	044 ,	045 -	046 .	047 /
048 0	049 1	050 2	051 3	052 4	053 5	054 6	055 7	056 8	057 9	058 :	059 ;	060 <	061 =	062 >	063 ?
064 @	065 A	066 B	067 C	068 D	069 E	070 F	071 G	072 H	073 I	074 J	075 K	076 L	077 M	078 N	079 O
080 P	081 Q	082 R	083 S	084 T	085 U	086 V	087 W	088 X	089 Y	090 Z	091 [	092 \	093]	094 ^	095 _
096 `	097 a	098 b	099 c	100 d	101 e	102 f	103 g	104 h	105 i	106 j	107 k	108 l	109 m	110 n	111 o
112 p	113 q	114 r	115 s	116 t	117 u	118 v	119 w	120 x	121 y	122 z	123 {	124 |	125 }	126 ~	127 □
128 €	129 □	130 ‚	131 ǰ	132 „	133 ⇒	134 ɦ	135 w̃	136 ỹ	137 ‰	138 Š	139 ˪	140 Œ	141 ˩	142 Ž	143 □
144 □	145 ‘	146 ’	147 “	148 ”	149 •	150 –	151 —	152 ˜	153 ™	154 š	155 ˫	156 œ	157 ˋ	158 ž	159 ű
160	161 ¡	162 ¢	163 Ṽ	164 ¤	165 Ỳ	166 ¦	167 §	168 ¨	169 ᷊	170 ª	171 «	172 ˍ	173 -	174 ˘	175 ¯
176 °	177 ±	178 ²	179 ³	180 ´	181 Ỳ	182 ¶	183 ·	184 ¸	185 ¹	186 º	187 »	188 h	189 w	190 y	191 ¿
192 Ą	193 Á	194 ã	195 Ã	196 á	197 Å	198 Æ	199 '	200 Ę	201 É	202 ẽ	203 é	204 Į	205 Í	206 ì	207 í
208 Đ	209 Ñ	210 Ǫ	211 Ó	212 õ	213 Õ	214 ő	215 ×	216 Ø	217 Ų	218 Ú	219 ů	220 Ü	221 Ŋ	222 Þ	223 ß
224 ą	225 á	226 à	227 ã	228 ä	229 å	230 æ	231 '	232 ę	233 é	234 è	235 ẽ	236 į	237 í	238 ì	239 ĩ
240 ð	241 ñ	242 ǫ	243 ó	244 ò	245 õ	246 ö	247 ÷	248 ø	249 ų	250 ú	251 ù	252 ü	253 ŋ	254 č	255 ũ

Mexhus SILCharis (font encoding used for Figure 3) — note the encoding distinction between saltillo (d223) and the ASCII apostrophe (d039), the MODIFIER LETTER APOSTROPHE (d156), and the right single quotation mark (d146).

032	033	034	035	036	037	038	039	040	041	042	043	044	045	046	047
	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
048	049	050	051	052	053	054	055	056	057	058	059	060	061	062	063
0	1	2	3	4	5	6	7	8	9	:	;	‹	=	›	?
064	065	066	067	068	069	070	071	072	073	074	075	076	077	078	079
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
080	081	082	083	084	085	086	087	088	089	090	091	092	093	094	095
P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
096	097	098	099	100	101	102	103	104	105	106	107	108	109	110	111
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	□
128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
□			*ƒ*	„	…	†	‡	ˆ	‰	Š	‹	Œ	□	□	□
144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
□	‘	’	“	”	•	–	—	~	™	š	›	’	□	□	Ÿ
160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
	¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	–	®	¯
176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
°	±	2	3	´	µ	¶	□	¸	1	º	»	¼	½	¾	¿
192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
Đ	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	'
224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255
ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

Iz Er2 SILCharis (font encoding used for Figure 4) — note the encoding distinction between saltillo (d197), the ASCII apostrophe (d039) and the right single quotation mark (d146).

032	033 !	034 "	035 #	036 $	037 %	038 &	039 '	040 (	041)	042 *	043 +	044 ,	045 -	046 .	047 /
048 0	049 1	050 2	051 3	052 4	053 5	054 6	055 7	056 8	057 9	058 :	059 ;	060 <	061 =	062 >	063 ?
064 @	065 A	066 B	067 C	068 D	069 E	070 F	071 G	072 H	073 I	074 J	075 K	076 L	077 M	078 N	079 O
080 P	081 Q	082 R	083 S	084 T	085 U	086 V	087 W	088 X	089 Y	090 Z	091 [	092 \	093]	094 ^	095 _
096 `	097 a	098 b	099 c	100 d	101 e	102 f	103 g	104 h	105 i	106 j	107 k	108 l	109 m	110 n	111 o
112 p	113 q	114 r	115 s	116 t	117 u	118 v	119 w	120 x	121 y	122 z	123 {	124 |	125 }	126 ~	127 □
128 □	129 □	130 ‚	131 *ƒ*	132 é̲	133 …	134 †	135 ‡	136 ˆ	137 ‰	138 Š	139 ‹	140 Œ	141 □	142 □	143 □
144 □	145 ‘	146 ’	147 “	148 ”	149 •	150 –	151 —	152 ˜	153 ™	154 š	155 ›	156 œ	157 □	158 □	159 Ÿ
160	161 ¡	162 ¢	163 £	164 ¤	165 ¥	166 ¦	167 §	168 ¨	169 ©	170 a̲	171 «	172 ¬	173 –	174 ®	175 ¯
176 °	177 ±	178 2	179 3	180 E̲	181 Q̲	182 ¶	183 □	184 ¸	185 1	186 o̲	187 »	188 ¼	189 ½	190 ¾	191 ¿
192 á	193 Á	194 Â	195 ó̲	196 e̲	197 '	198 Æ	199 Ç	200 È	201 É	202 é	203 Ë	204 Ì	205 Í	206 Î	207 Ï
208 Ð	209 Ñ	210 Ò	211 Ó	212 í	213 Õ	214 Ö	215 ×	216 Ø	217 o̲	218 Ú	219 Û	220 Ü	221 Ý	222 ó	223 ß
224 à	225 á	226 â	227 ã	228 ä	229 å	230 æ	231 ç	232 ú	233 é	234 ê	235 ë	236 ì	237 í	238 î	239 ï
240 ð	241 ñ	242 ò	243 ó	244 ô	245 õ	246 ö	247 ÷	248 ø	249 ù	250 ú	251 û	252 ü	253 ý	254 þ	255 ÿ

PNG SILCharis (font encoding used for Figure 5) — note the encoding distinction between the MODIFIER LETTER COLON (d159) and the ASCII COLON (d058).

032	033 !	034 "	035 #	036 $	037 %	038 &	039 '	040 (	041)	042 *	043 +	044 ,	045 -	046 .	047 /
048 0	049 1	050 2	051 3	052 4	053 5	054 6	055 7	056 8	057 9	058 :	059 ;	060 <	061 =	062 >	063 ?
064 @	065 A	066 B	067 C	068 D	069 E	070 F	071 G	072 H	073 I	074 J	075 K	076 L	077 M	078 N	079 O
080 P	081 Q	082 R	083 S	084 T	085 U	086 V	087 W	088 X	089 Y	090 Z	091 [	092 \	093]	094 ^	095 _
096 `	097 a	098 b	099 c	100 d	101 e	102 f	103 g	104 h	105 i	106 j	107 k	108 l	109 m	110 n	111 o
112 p	113 q	114 r	115 s	116 t	117 u	118 v	119 w	120 x	121 y	122 z	123 {	124 |	125 }	126 ~	127 □
128 Λ	129 ʌ	130 Ĩ	131 ĩ	132 Ĭ	133 ĭ	134 ◌̄	135 ◌̲	136 ◌̂	137 ◌̂	138 Ī	139 □	140 Œ	141 Ł	142 ł	143 Ł
144 ł	145 ‘	146 ’	147 “	148 ”	149 •	150 –	151 —	152 ◌̃	153 ◌̃	154 Ʉ	155 ʉ	156 œ	157 ◌̄	158 Ḡ	159 :
160	161 ā	162 ē	163 ī	164 ¤	165 ō	166 ū	167 Ʒ	168 ʒ	169 □	170 ◌̲	171 «	172 ¬	173 ◌̲	174 ◌̄	175 ◌̲
176 ◌̊	177 ◌̲	178 ◌̲	179 ◌́	180 ◌́	181 ◌̩	182 ¶	183 ·	184 ◌̩	185 ◌̈́	186 ◌̈	187 »	188 ◌̌	189 ◌̀	190 ◌̌	191 ◌̀
192 À	193 Á	194 Â	195 Ã	196 Ä	197 □	198 Æ	199 Ɨ	200 È	201 É	202 Ê	203 Ë	204 Ì	205 Í	206 Î	207 Ï
208 Ł	209 Ñ	210 Ò	211 Ó	212 Ô	213 Õ	214 Ö	215 Ɋ	216 Ø	217 Ù	218 Ú	219 Û	220 Ü	221 Ŋ	222 ŋ	223 ’
224 à	225 á	226 â	227 ã	228 ä	229 □	230 æ	231 ɨ	232 è	233 é	234 ê	235 ë	236 ì	237 í	238 î	239 ï
240 ł	241 ñ	242 ò	243 ó	244 ô	245 õ	246 ö	247 ɋ	248 ø	249 ù	250 ú	251 û	252 ü	253 ŋ	254 ḡ	255 '

Ecg SILCharis (font encoding used for Figure 6) — note the encoding distinctions between MODIFIER LETTER COLON and MODIFIER LETTER SHORT EQUAL on the one hand (d134, d135) and the ASCII characters COLON and EQUAL on the other (d058, d061).

032	033	034	035	036	037	038	039	040	041	042	043	044	045	046	047
	!	″	#	$	%	&	’	(	)	*	+	,	-	.	/
048	049	050	051	052	053	054	055	056	057	058	059	060	061	062	063
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
064	065	066	067	068	069	070	071	072	073	074	075	076	077	078	079
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
080	081	082	083	084	085	086	087	088	089	090	091	092	093	094	095
P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
096	097	098	099	100	101	102	103	104	105	106	107	108	109	110	111
‘	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	□
128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
â	ê	‚		„	…	:	꞉	ˆ	‰	Ǎ	‹	Ȁ	Ø	ë	ï
144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
î	‘	’	“	”	•	–	—	˜	™	ǎ	›	ȁ	ô	ö	Ǐ
160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
	¡	¢	£	¤	û	¦	ù	¨	©	ª	«	¬	-	®	¯
176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
°	±	2	3	´	µ	¶	·	¸	1	0	»	¼	½	¾	¿
192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
À	Á	Ő	Ă	Ä	Ʉ	Ě	«	È	É	Ɛ́	Ɛ	Ì	Í	Ɨ́	Ɨ
208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
ǐ	“	Ò	Ó	Ɔ́	Ǒ	Ɔ	×	Ǔ	Ù	Ú	Ʉ́	Ʉ	Ǔ	Ì	'
224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
à	á	ő	ă	ä	ʉ	ě	»	è	é	ɛ́	ɛ	ì	í	ɨ́	ɨ
240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255
ǐ	”	ò	ó	ɔ́	ǒ	ɔ	÷	ǔ	ù	ú	ʉ́	ʉ	ǔ	ì	ǐ