

Encoding before and after Unicode: The case of Ethiopic and Amharic

1. The character inventories
- 1.1. Ethiopic (from: *Alphabete und Schriftzeichen des Morgen- und Abendlandes*, 2. Aufl., Berlin: Bundesdruckerei 1969, S. 46):

Äthiopisch														26 x 7 = 182 Grundzeichen	
a	ä	i	ä	ē	ø (older ohne Vokal)		ō								
ሀ	ሁ	ሂ	ሃ	ሄ	ህ	ሆ	ሇ	ለ	ሉ	ሐ	ሑ	ሒ	ሓ		
la	lā	lī	lā	lē	lø	lō	ላ	ለ	ላ	ላ	ላ	ላ	ላ		
ሐ	ሑ	ሒ	ሓ	ሔ	ሕ	ሖ	ሗ	መ	ሙ	ሚ	ሜ	ሞ	ሟ		
ḥa	ḥā	ḥī	ḥā	ḥē	ḥø	ḥō	ሐ	ሐ	ሐ	ሐ	ሐ	ሐ	ሐ		
መ	ሙ	ሚ	ሜ	ሞ	ሟ	ሠ	ሡ	ሢ	ሣ	ሤ	ሥ	ሦ	ሧ		
ma	mā	mī	mā	mē	mø	mō	ሠ	ሠ	ሠ	ሠ	ሠ	ሠ	ሠ		
ሠ	ሡ	ሢ	ሣ	ሤ	ሥ	ሦ	ሧ	ረ	ሩ	ሪ	ራ	ራ	ራ		
ša	šā	šī	šā	šē	šø	šō	ሠ	ሠ	ሠ	ሠ	ሠ	ሠ	ሠ		
ረ	ሩ	ሪ	ራ	ራ	ራ	ራ	ራ	ራ	ራ	ራ	ራ	ራ	ራ		
ra	rā	rī	rā	rē	rø	rō	ራ	ራ	ራ	ራ	ራ	ራ	ራ		
ሰ	ሱ	ሲ	ሳ	ሴ	ስ	ሶ	ሷ	ሸ	ሹ	ሺ	ሻ	ሼ	ሽ		
sa	sā	sī	sā	sē	sø	sō	ሰ	ሰ	ሰ	ሰ	ሰ	ሰ	ሰ		
ቀ	ቁ	ቂ	ቃ	ቄ	ቅ	ቆ	ቇ	ቈ	቉	ቊ	ቋ	ቌ	ቍ		
qa	qā	qī	qā	qē	qø	qō	ቀ	ቀ	ቀ	ቀ	ቀ	ቀ	ቀ		
ቦ	ቦ	ቦ	ቦ	ቦ	ቦ	ቦ	ቦ	ቦ	ቦ	ቦ	ቦ	ቦ	ቦ		
ba	bā	bī	bā	bē	bø	bō	ቦ	ቦ	ቦ	ቦ	ቦ	ቦ	ቦ		
ተ	ቱ	ቲ	ታ	ቴ	ት	ቶ	ቷ	ቸ	ቹ	ቺ	ቻ	ቼ	ች		
ta	tā	tī	tā	tē	tø	tō	ተ	ተ	ተ	ተ	ተ	ተ	ተ		
ኀ	ኁ	ኂ	ኃ	ኄ	ኅ	ኆ	ኇ	ኈ	኉	ኊ	ኋ	ኌ	ኍ		
ḥa	ḥā	ḥī	ḥā	ḥē	ḥø	ḥō	ኀ	ኀ	ኀ	ኀ	ኀ	ኀ	ኀ		
ነ	ኑ	ኒ	ና	ኔ	ን	ኖ	ኗ	ኘ	ኙ	ኚ	ኛ	ኜ	ኝ		
na	nā	nī	nā	nē	nø	nō	ነ	ነ	ነ	ነ	ነ	ነ	ነ		
አ	አ	አ	አ	አ	አ	አ	አ	አ	አ	አ	አ	አ	አ		
'a	'ā	'ī	'ā	'ē	'ø	'ō	አ	አ	አ	አ	አ	አ	አ		
ከ	ከ	ከ	ከ	ከ	ከ	ከ	ከ	ከ	ከ	ከ	ከ	ከ	ከ		
ka	kā	kī	kā	kē	kø	kō	ከ	ከ	ከ	ከ	ከ	ከ	ከ		
ወ	ወ	ወ	ወ	ወ	ወ	ወ	ወ	ወ	ወ	ወ	ወ	ወ	ወ		
wa	wā	wī	wā	wē	wø	wō	ወ	ወ	ወ	ወ	ወ	ወ	ወ		
ዐ	ዐ	ዐ	ዐ	ዐ	ዐ	ዐ	ዐ	ዐ	ዐ	ዐ	ዐ	ዐ	ዐ		
'a	'ā	'ī	'ā	'ē	'ø	'ō	ዐ	ዐ	ዐ	ዐ	ዐ	ዐ	ዐ		
ዘ	ዘ	ዘ	ዘ	ዘ	ዘ	ዘ	ዘ	ዘ	ዘ	ዘ	ዘ	ዘ	ዘ		
za	zā	zī	zā	zē	zø	zō	ዘ	ዘ	ዘ	ዘ	ዘ	ዘ	ዘ		
የ	የ	የ	የ	የ	የ	የ	የ	የ	የ	የ	የ	የ	የ		
ja	jā	jī	jā	jē	jø	jō	የ	የ	የ	የ	የ	የ	የ		
ደ	ደ	ደ	ደ	ደ	ደ	ደ	ደ	ደ	ደ	ደ	ደ	ደ	ደ		
da	dā	dī	dā	dē	dø	dō	ደ	ደ	ደ	ደ	ደ	ደ	ደ		
ገ	ገ	ገ	ገ	ገ	ገ	ገ	ገ	ገ	ገ	ገ	ገ	ገ	ገ		
ga	gā	gī	gā	gē	gø	gō	ገ	ገ	ገ	ገ	ገ	ገ	ገ		
ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ		
ta	tā	tī	tā	tē	tø	tō	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ		
ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ		
pa	pā	pī	pā	pē	pø	pō	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ		
ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ		
ጻ	ጻ	ጻ	ጻ	ጻ	ጻ	ጻ	ጻ	ጻ	ጻ	ጻ	ጻ	ጻ	ጻ		
ša	šā	šī	šā	šē	šø	šō	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ		
ፀ	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ		
da	dā	dī	dā	dē	dø	dō	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ		
ፈ	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ		
fa	fā	fī	fā	fē	fø	fō	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ		
ፐ	ፐ	ፐ	ፐ	ፐ	ፐ	ፐ	ፐ	ፐ	ፐ	ፐ	ፐ	ፐ	ፐ		
pa	pā	pī	pā	pē	pø	pō	ፐ	ፐ	ፐ	ፐ	ፐ	ፐ	ፐ		

4 x 5 = 20 Ligaturen									
ከሐ	kua	ከሁ	kuī	ከላ	kuā	ከሀ	kuā	ከሐ	kuē
ገሐ	gua	ገሁ	guī	ገላ	guā	ገሀ	guā	ገሐ	guē
ቁሐ	qua	ቁሁ	quī	ቁላ	quā	ቁሀ	quā	ቁሐ	quē
ኀሐ	hua	ኀሁ	huī	ኀላ	huā	ኀሀ	huā	ኀሐ	huē

1.2. Additional Amharic characters (from: Alphabete und Schriftzeichen des Morgen- und Abendlandes, 2. Aufl., Berlin: Bundesdruckerei 1969, S. 47):

8 x 7 = 56 Grundzeichen														Amharisch	
a		ā		i		ā		ē		ə		ō			
ሰ	ሰ̄	ሱ	ሱ̄	ሲ	ሲ̄	ሳ	ሳ̄	ሴ	ሴ̄	ሶ	ሶ̄	ሸ	ሸ̄		
ቸ	ቸ̄	ቹ	ቹ̄	ቺ	ቺ̄	ቻ	ቻ̄	ቼ	ቼ̄	ቾ	ቾ̄	ቿ	ቿ̄		
ኘ	ኘ̄	ኙ	ኙ̄	ኚ	ኚ̄	ኛ	ኛ̄	ኜ	ኜ̄	ኞ	ኞ̄	ኟ	ኟ̄		
ሻ	ሻ̄	ሼ	ሼ̄	ሽ	ሽ̄	ሾ	ሾ̄	ሿ	ሿ̄	ሰ	ሰ̄	ሱ	ሱ̄		
ሠ	ሠ̄	ሡ	ሡ̄	ሢ	ሢ̄	ሣ	ሣ̄	ሤ	ሤ̄	ሦ	ሦ̄	ሸ	ሸ̄		
ጸ	ጸ̄	ጹ	ጹ̄	ጺ	ጺ̄	ጻ	ጻ̄	ጼ	ጼ̄	ጾ	ጾ̄	ጿ	ጿ̄		
ጨ	ጨ̄	ጮ	ጮ̄	ጬ	ጬ̄	ጭ	ጭ̄	ጮ	ጮ̄	ጰ	ጰ̄	ጱ	ጱ̄		
3 x 7 - 1 = 20 Ligaturen															
ሠ	ሠ̄	ሡ	ሡ̄	ሢ	ሢ̄	ሣ	ሣ̄	ሤ	ሤ̄	ሦ	ሦ̄	ሸ	ሸ̄		
ሠ	ሠ̄	ሡ	ሡ̄	ሢ	ሢ̄	ሣ	ሣ̄	ሤ	ሤ̄	ሦ	ሦ̄	ሸ	ሸ̄		
ሠ	ሠ̄	ሡ	ሡ̄	ሢ	ሢ̄	ሣ	ሣ̄	ሤ	ሤ̄	ሦ	ሦ̄	ሸ	ሸ̄		
20 Ziffern															
፩	1	፪	2	፫	3	፬	4	፭	5	፮	6	፯	7		
፰	8	፱	9	፲	10	፳	11	፴	12	፵	13	፶	14		
፷	15	፸	16	፹	17	፺	18	፻	19	፼	20	፽	21		
፿	22	፾	23	፽	24	፿	25	፷	26	፸	27	፹	28		
፸	29	፹	30	፺	31	፻	32	፼	33	፽	34	፿	35		
፸	36	፹	37	፺	38	፻	39	፼	40	፽	41	፿	42		
፸	43	፹	44	፺	45	፻	46	፼	47	፽	48	፿	49		
፸	50	፹	51	፺	52	፻	53	፼	54	፽	55	፿	56		
፸	57	፹	58	፺	59	፻	60	፼	61	፽	62	፿	63		
፸	64	፹	65	፺	66	፻	67	፼	68	፽	69	፿	70		
፸	71	፹	72	፺	73	፻	74	፼	75	፽	76	፿	77		
፸	78	፹	79	፺	80	፻	81	፼	82	፽	83	፿	84		
፸	85	፹	86	፺	87	፻	88	፼	89	፽	90	፿	91		
፸	92	፹	93	፺	94	፻	95	፼	96	፽	97	፿	98		
፸	99	፹	100	፺	1000	፻	10000	፼	100000	፽	1000000	፿	10000000		

Silbentrennung: Es darf nach jedem Buchstaben abgetrennt werden.

Interpunktion: 4 Zeichen

⋮ Worttrenner ; Komma ; Semikolon # Punkt

Allgemeines: Die äthiopische Schrift ist aus der altsüdarabischen (sabäischen) entstanden. Die ältesten Zeugnisse dieser Schrift sind Steininschriften, deren umfangreichste aus der Zeit des Königs 'Ezānā von Aksum stammen (4. Jh. n. Chr.). Als einzige semitische Schrift wird die äthiopische von links nach rechts geschrieben, wahrscheinlich nach dem Vorbild der griechischen. Wie die anderen semitischen Schriften war auch die äthiopische ursprünglich eine reine Konsonantenschrift; die aksumitischen Inschriften sind zum Teil noch unvokalisiert. Doch wurde im Zusammenhang mit der Einführung des Christentums als Staatsreligion im 4. Jh. ein Vokalsystem entwickelt. Die Vokale werden hier nicht bloß durch zusätzliche Punkte, Striche u. dgl. bezeichnet, sondern durch Veränderungen an den Buchstaben selbst, so daß die äthiopische Schrift in ihrer jetzigen Gestalt eigentlich eine Silbenschrift ist.

In äthiopischer Schrift wurde nicht nur das Altäthiopische oder Gə'əz geschrieben, das heute nur noch Kirchensprache ist, sondern sie wird auch für andere abessinische Sprachen gebraucht, so vor allem für das Amharische, die jetzige Verkehrs- und Schriftsprache in Äthiopien. Da das Amharische einige Laute hat, die das Gə'əz nicht kannte, wurden durch kleine Veränderungen schon vorhandener Buchstaben zusätzliche Zeichen für diese Laute geschaffen.

Die Ziffern sind aus den griechischen entstanden; sie werden durch einen kleinen waagrechten Strich darüber und darunter von den übrigen Schriftzeichen abgehoben.

Literatur:
 Grammatiken: A. Dillmann, Grammatik der äthiopischen Sprache, 2. Auflage von C. Bezold (1899)
 I. Guidi, Grammatica elementare della lingua amarica (3. Auflage 1924)
 Wörterbücher: A. Dillmann, Lexikon linguae aethiopiae (1865)
 S. Grébaut, Supplement au Lexicon . . . de Dillmann et édition du lexique de Juste d'Urbin (1952)
 I. Guidi, Vocabolario americano-italiano (1935), mit Supplemento von F. Gallina und E. Cerulli (1940)

- 1.3. 26 × 7 = 182 primary characters for Ethiopic
 4 × 5 = 20 "ligatures" for Ethiopic
 8 × 7 = 56 additional characters for Amharic
 3 × 7 = 21 "ligatures" for Amharic
 20 number symbols
 4 punctuation marks incl. word divider
 303 characters (**minimal set**)

2.2. Postscript / TrueType fonts for printing with Wordperfect 5.1.
 (characters with a byte value less than 32 are not printable; the same holds true for character no. 127 and several others):

Font: Amharisch	
	0 1 2 3 4 5 6 7 8 9 A B C D E F
0	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
1	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
2	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
3	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
4	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
5	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
6	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
7	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
8	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
9	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
A	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
B	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
C	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
D	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
E	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
F	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ

Font: Aethiopisch	
	0 1 2 3 4 5 6 7 8 9 A B C D E F
0	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
1	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
2	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
3	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
4	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
5	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
6	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
7	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
8	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
9	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
A	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
B	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
C	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
D	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
E	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ
F	ሰ ሱ ሲ ሳ ሴ ስ ሶ ሷ ሸ ሹ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ ሺ ሻ ሼ ሽ ሾ ሿ

Note that "font switching" is necessary in any way whenever Ethiopic and/or Amharic texts are to be printed.

3. Two byte encoding: The WordPerfect case
 Since version 5.0. (1987), WordPerfect has established a font management which uses one-byte representations (of "ASCII" characters) as well as two-byte representations contained in 12 additional "character sets", comprising a total of 1873 characters:

- Character set 1: "Multinational 1": 234 diacritics and combinations, e.g. ū
- Character set 2: "Multinational 2": 28 diacritics (mostly subscripts) and Greenlandic κ
- Character set 3: "Box drawing": 88 graphical elements used for box drawing, e.g. ┘
- Character set 4: "Typographic symbols": 85 symbols used for various purposes, e.g. †
- Character set 5: "Iconic symbols": 35 symbols used for various purposes, e.g. ♪
- Character set 6: "Math": 235 primary symbols used in mathematics, e.g. ∃
- Character set 7: "Math extension": 229 further mathematical symbols, e.g. ∆
- Character set 8: "Greek": 210 characters and symbols used for Greek, e.g. ῖ
- Character set 9: "Hebrew": 44 characters used for Modern Hebrew, e.g. ך
- Character set 10: "Cyrillic": 150 characters used in Slavonic Cyrillic scripts, e.g. Я
- Character set 11: "Japanese Kana": 185 characters and symbols used in the Japanese syllabaries, Hiragana and Katakana, e.g. ゝ
- Character set 12: "User defined": 255 definable characters for any purposes, e.g. ǝ

(This is the WP 5.1. standard. Later versions contain additional characters, e.g. a Phonetic [IPA] set within character set 2 or a Georgian one within the Cyrillic set [!]; the "Language Module" Arabic adds two character sets [13 and 14] for Arabic, Persian etc., the "Language Module" Hebrew adds characters necessary for Ancient Hebrew in character set 9, etc.)

3.1. Adaptation of Ethiopic and Amharic to the WordPerfect encoding using character set 11 ("Japanese Kana") and 12 ("User defined") ("Printer Polyglott 4"):

Character set 11:

Ethiopic and Amharic syllabic characters containing vowels *ā, ī, ū, ē, ō*

11,0	አ	Ethiopic	ā	11,54	ሁ	Ethiopic	hū	11,108	ጸ	Ethiopic	ṣī
11,1	ኢ	Ethiopic	ī	11,55	ኦ	Ethiopic	hē	11,109	ሹ	Amharic	šū
11,2	ኣ	Ethiopic	ū	11,56	ሀ	Ethiopic	hō	11,110	ሺ	Amharic	šā
11,3	ኤ	Ethiopic	ē	11,57	ባ	Ethiopic	bā	11,111	ሻ	Amharic	šē
11,4	አ	Ethiopic	ō	11,58	ቤ	Ethiopic	bī	11,112	ቃ	Ethiopic	hā
11,5	ጸ	Ethiopic	ṣū	11,59	ቦ	Ethiopic	bū	11,113	ጸ	Ethiopic	hī
11,6	ሃ	Ethiopic	yā	11,60	ብ	Ethiopic	bē	11,114	ሱ	Ethiopic	hū
11,7	ሃ	Ethiopic	yū	11,61	ቦ	Ethiopic	bō	11,115	ሱ	Ethiopic	hē
11,8	ሃ	Ethiopic	yō	11,62	ገ	Ethiopic	pā	11,116	ሰ	Ethiopic	hō
11,9	ዉ	Ethiopic	wū	11,63	ገ	Ethiopic	pī	11,117	ቃ	Ethiopic	qā
11,10	ዉ	Ethiopic	wī	11,64	ገ	Ethiopic	pū	11,118	ቃ	Ethiopic	qī
11,11	ዉ	Ethiopic	wē	11,65	ገ	Ethiopic	pē	11,119	ቃ	Ethiopic	qū
11,12	ዓ	Ethiopic	ā	11,66	ገ	Ethiopic	pō	11,120	ቃ	Ethiopic	qē
11,13	ዓ	Ethiopic	ī	11,67	ግ	Ethiopic	mā	11,121	ቃ	Ethiopic	qō
11,14	ዐ	Ethiopic	ū	11,68	ግ	Ethiopic	mī	11,122	ጸ	Amharic	ḡā
11,15	ዓ	Ethiopic	ē	11,69	ግ	Ethiopic	mū	11,123	ጸ	Amharic	ḡī
11,16	ዐ	Ethiopic	ō	11,70	ግ	Ethiopic	mē	11,124	ጸ	Amharic	ḡū
11,17	ካ	Ethiopic	kā	11,71	ግ	Ethiopic	mō	11,125	ጸ	Amharic	ḡē
11,18	ካ	Ethiopic	kī	11,72	ኩ	Ethiopic	yē	11,126	ጸ	Amharic	ḡō
11,19	ካ	Ethiopic	kū	11,73	ኩ	Ethiopic	yī	11,127	ሣ	Ethiopic	sā
11,20	ካ	Ethiopic	kē	11,74	ጸ	Ethiopic	ṣō	11,128	ሣ	Ethiopic	sī
11,21	ካ	Ethiopic	kō	11,75	ራ	Ethiopic	rā	11,129	ሣ	Ethiopic	sū
11,22	ገ	Ethiopic	gā	11,76	ራ	Ethiopic	rī	11,130	ሣ	Ethiopic	sē
11,23	ገ	Ethiopic	gī	11,77	ራ	Ethiopic	rū	11,131	ሣ	Ethiopic	sō
11,24	ገ	Ethiopic	gū	11,78	ራ	Ethiopic	rē	11,132	ሣ	Amharic	žā
11,25	ገ	Ethiopic	gē	11,79	ራ	Ethiopic	rō	11,133	ሣ	Amharic	žī
11,26	ገ	Ethiopic	gō	11,80	ዋ	Ethiopic	wā	11,134	ሣ	Amharic	žū
11,27	ሳ	Ethiopic	sā	11,81	ዋ	Ethiopic	wō	11,135	ሣ	Amharic	žē
11,28	ሳ	Ethiopic	sī	11,82	ጸ	Ethiopic	ṣā	11,136	ሣ	Amharic	žō
11,29	ሳ	Ethiopic	sū	11,83	ኣ	Ethiopic	kwā	11,137	ግ	Ethiopic	tā
11,30	ሳ	Ethiopic	sē	11,84	ጸ	Ethiopic	gwā	11,138	ግ	Ethiopic	tī
11,31	ሳ	Ethiopic	sō	11,85	ቋ	Ethiopic	qwā	11,139	ግ	Ethiopic	tū
11,32	ሣ	Ethiopic	zā	11,86	ጸ	Ethiopic	hwā	11,140	ግ	Ethiopic	tē
11,33	ሣ	Ethiopic	zī	11,87	ኣ	Ethiopic	kwē	11,141	ግ	Ethiopic	tō
11,34	ሣ	Ethiopic	zū	11,88	ጸ	Ethiopic	gwē	11,142	ግ	Ethiopic	dā
11,35	ሣ	Ethiopic	zē	11,89	ቋ	Ethiopic	qwē	11,143	ጸ	Ethiopic	dī
11,36	ሣ	Ethiopic	zō	11,90	ቃ	Ethiopic	hwē	11,144	ግ	Ethiopic	dū
11,37	ቃ	Ethiopic	tā	11,91	ካ	Ethiopic	kwī	11,145	ጸ	Ethiopic	dē
11,38	ቃ	Ethiopic	tī	11,92	ገ	Ethiopic	gwī	11,146	ዎ	Ethiopic	dō
11,39	ቃ	Ethiopic	tū	11,93	ቋ	Ethiopic	qwī	11,147	ጸ	Amharic	ñā
11,40	ቃ	Ethiopic	tē	11,94	ኣ	Ethiopic	hwī	11,148	ጸ	Amharic	ñī
11,41	ቃ	Ethiopic	tō	11,95	ካ	Ethiopic	kwa	11,149	ጸ	Amharic	ñū
11,42	ቋ	Ethiopic	dā	11,96	ገ	Ethiopic	gwa	11,150	ጸ	Amharic	ñē
11,43	ቋ	Ethiopic	dī	11,97	ቃ	Ethiopic	qwa	11,151	ጸ	Amharic	ñō
11,44	ቋ	Ethiopic	dū	11,98	ኣ	Ethiopic	hwa	11,152	ሐ	Ethiopic	hā
11,45	ቋ	Ethiopic	dē	11,99	ካ	Ethiopic	kwā	11,153	ሐ	Ethiopic	hī
11,46	ቋ	Ethiopic	dō	11,100	ካ	Amharic	xā	11,154	ሐ	Ethiopic	hū
11,47	ሃ	Ethiopic	nā	11,101	ካ	Amharic	xī	11,155	ሐ	Ethiopic	hē
11,48	ኣ	Ethiopic	nī	11,102	ካ	Amharic	xū	11,156	ሐ	Ethiopic	hō
11,49	ኣ	Ethiopic	nū	11,103	ካ	Amharic	xē	11,157	ሐ	Ethiopic	fā
11,50	ኣ	Ethiopic	nē	11,104	ካ	Amharic	xō	11,158	ሐ	Ethiopic	fī
11,51	ሃ	Ethiopic	nō	11,105	ጸ	Ethiopic	ṣē	11,159	ሐ	Ethiopic	fū
11,52	ሃ	Ethiopic	hā	11,106	ጸ	Amharic	čā	11,160	ሐ	Ethiopic	fē
11,53	ሃ	Ethiopic	hī	11,107	ጸ	Amharic	čū	11,161	ሐ	Ethiopic	fō

11,162	ጸ	Ethiopic <i>pā</i>	11,167	ጸ	Amharic <i>čā</i>	11,175	ላ	Ethiopic <i>lā</i>
11,163	ጹ	Ethiopic <i>pī</i>	11,168	ጹ	Amharic <i>čī</i>	11,176	ሊ	Ethiopic <i>lī</i>
11,164	ጺ	Ethiopic <i>pū</i>	11,169	ጺ	Amharic <i>čū</i>	11,177	ላ	Ethiopic <i>lū</i>
11,165	ጻ	Ethiopic <i>pē</i>	11,170	ጻ	Amharic <i>čē</i>	11,178	ሌ	Ethiopic <i>lē</i>
11,166	ጼ	Ethiopic <i>pō</i>	11,171	ጼ	Amharic <i>čō</i>	11,179	ሎ	Ethiopic <i>lō</i>
			11,172	ቸ	Amharic <i>čt</i>	11,180	ሸ	Amharic <i>šā</i>
			11,173	ቹ	Amharic <i>čē</i>	11,181	ሸ	Amharic <i>šō</i>
			11,174	ቻ	Amharic <i>čō</i>	11,182	ጉ	Ethiopic <i>gwā</i>
						11,183	ቀ	Ethiopic <i>qwā</i>
						11,184	ጉ	Ethiopic <i>hwā</i>

Character set 12:

Ethiopic and Amharic syllabic characters containing vowels *a* and *ə*; numbers; punctuation marks

12,0	አ	Ethiopic <i>ʾa</i>	12,128	ሰ	Ethiopic <i>sə</i>	12,175	ቸ	Amharic <i>čwā</i>
12,1	በ	Ethiopic <i>ba</i>	12,129	ሥ	Ethiopic <i>śə</i>	12,176	ደ	Amharic <i>dwā</i>
12,2	ፐ	Ethiopic <i>pa</i>	12,130	ጸ	Ethiopic <i>ṣə</i>	12,177	ረ	Amharic <i>rwā</i>
12,3	ተ	Ethiopic <i>ta</i>	12,131	ፅ	Ethiopic <i>də</i>	12,178	ሰ	Amharic <i>swā</i>
12,4	ጸ	Ethiopic <i>pā</i>	12,132	ጥ	Ethiopic <i>tə</i>	12,179	ሸ	Amharic <i>šwā</i>
12,5	ጹ	Amharic <i>gā</i>	12,133	ሽ	Amharic <i>śə</i>	12,180	ጸ	Amharic <i>ṣwā</i>
12,6	ቸ	Amharic <i>čā</i>	12,134	ዕ	Ethiopic <i>ʿə</i>	12,182	ጥ	Amharic <i>ṭwā</i>
12,7	ሐ	Ethiopic <i>hā</i>	12,135	ሽ	Amharic <i>xə</i>	12,183	ዚ	Amharic <i>zwā</i>
12,8	ኀ	Ethiopic <i>ḥā</i>	12,136	ፍ	Ethiopic <i>fə</i>	12,184	ፎ	Amharic <i>fwā</i>
12,9	ደ	Ethiopic <i>dā</i>	12,137	ቅ	Ethiopic <i>qə</i>	12,185	ሻ	Amharic <i>xwā</i>
12,10	ኘ	Amharic <i>nā</i>	12,138	ከ	Ethiopic <i>kə</i>	12,188	ሰ	Amharic <i>lwā</i>
12,11	ረ	Ethiopic <i>rā</i>	12,139	ግ	Ethiopic <i>gə</i>	12,189	ጫ	Amharic <i>mwā</i>
12,12	ዘ	Ethiopic <i>zā</i>	12,140	ል	Ethiopic <i>lə</i>	12,190	ኒ	Amharic <i>nwā</i>
12,13	ዠ	Amharic <i>žā</i>	12,141	ጦ	Ethiopic <i>mə</i>	12,192	ሻ	Amharic <i>ywā</i>
12,14	ሰ	Ethiopic <i>sā</i>	12,142	ጉ	Ethiopic <i>nə</i>	12,193	ሰ	Amharic <i>bwā</i>
12,15	ሥ	Ethiopic <i>śā</i>	12,143	ው	Ethiopic <i>wə</i>	12,195	ቲ	Amharic <i>twā</i>
12,16	ጸ	Ethiopic <i>ṣā</i>	12,144	ሀ	Ethiopic <i>hə</i>	12,196	ጫ	Amharic <i>čwā</i>
12,17	ፅ	Ethiopic <i>də</i>	12,145	ይ	Ethiopic <i>yə</i>	12,198	ሻ	Amharic <i>žwā</i>
12,18	ጥ	Ethiopic <i>tə</i>	12,146	፲	Ethiopic 10	12,199	ሩ	Amharic <i>rwā</i> (var.)
12,19	ሽ	Amharic <i>śā</i>	12,147	፳	Ethiopic 1	12,200	አ	Amharic <i>ʾā</i>
12,20	ዕ	Ethiopic <i>ʿā</i>	12,148	፳	Ethiopic 2	12,207	ቸ	Amharic <i>fwā</i> (var.)
12,21	ሽ	Amharic <i>xā</i>	12,149	፳	Ethiopic 3	12,212	ጫ	Amharic <i>mwā</i> (var.)
12,22	ፈ	Ethiopic <i>fā</i>	12,150	፳	Ethiopic 4	12,213	ፎ	Amharic <i>nwā</i> (var.)
12,23	ቀ	Ethiopic <i>qā</i>	12,151	፳	Ethiopic 5	12,214	፳	Amharic <i>n̄wā</i>
12,24	ከ	Ethiopic <i>kā</i>	12,152	፳	Ethiopic 6	12,216	ሽ	Amharic <i>vā</i>
12,25	ገ	Ethiopic <i>gā</i>	12,153	፳	Ethiopic 7	12,217	ሽ	Amharic <i>vū</i>
12,26	ለ	Ethiopic <i>lā</i>	12,154	፳	Ethiopic 8	12,218	ሽ	Amharic <i>vī</i>
12,27	ጠ	Ethiopic <i>mā</i>	12,155	፳	Ethiopic 9	12,219	ሽ	Amharic <i>vā</i>
12,28	ነ	Ethiopic <i>nā</i>	12,156	ጸ	Amharic <i>čə</i>	12,220	ሽ	Amharic <i>vē</i>
12,29	ወ	Ethiopic <i>wā</i>	12,160	፳	Ethiopic 10000	12,221	ሽ	Amharic <i>və</i>
12,30	ሀ	Ethiopic <i>hā</i>	12,161	፳	Ethiopic 100	12,222	ሽ	Amharic <i>vō</i>
12,31	የ	Ethiopic <i>yā</i>	12,162	፳	Ethiopic 20	12,230	:	Ethiopic Word divider
12,32	ጸ	Amharic <i>čā</i>	12,163	፳	Ethiopic 30	12,231	፳	Ethiopic Full stop
12,98	እ	Ethiopic <i>ʾə</i>	12,164	፳	Ethiopic 40			
12,99	፥	Ethiopic Comma	12,165	፳	Ethiopic 50			
12,100	፥	Ethiopic Semicolon	12,166	፳	Ethiopic 60			
12,120	ቸ	Amharic <i>čə</i>	12,167	፳	Ethiopic 70			
12,121	ሐ	Ethiopic <i>hə</i>	12,168	፳	Ethiopic 80			
12,122	ኀ	Ethiopic <i>ḥə</i>	12,169	፳	Ethiopic 90			
12,123	ደ	Ethiopic <i>də</i>	12,170	ብ	Ethiopic <i>bə</i>			
12,124	ኘ	Amharic <i>nə</i>	12,171	ፐ	Ethiopic <i>pə</i>			
12,125	ረ	Ethiopic <i>rə</i>	12,172	ተ	Ethiopic <i>tə</i>			
12,126	ዘ	Ethiopic <i>zə</i>	12,173	ጸ	Ethiopic <i>pə</i>			
12,127	ዠ	Amharic <i>žə</i>	12,174	ጹ	Amharic <i>gə</i>			

4. **Unicode:** A full two-byte encoding system comprising (256 × 256 =) 65.536 items. The Unicode consortium (Unicode, Inc.), a group of companies including Netscape, Microsoft, Apple, Xerox, ISO (International Standardization Organization).

4.1. First attempt of encoding Ethiopic:

Unicode Technical Report #1: Draft Proposals; Unicode Inc., 1992 (p. 15 ff.):
"Proposal for Ethiopian Encoding"

»The Ethiopian proposal consists of a list of questions/issues, a chart, a character names list, and a block introduction. The content is based on UTC/1991-026 On the Extended Ethiopic Alphabet of February 26, 1991 and its later adjustments by Lloyd Anderson, unioned with features of the Xerox Amharic implementation by Joe Becker. The character names are based on those in DP 10646, which came from WG2/N459 "Ethiopian character sets" by Michael Mann.« (Draft October 30, 1992; rev 93/01/08)

Ethiopic characters are arranged in one character block consisting of 96 characters. This is achieved by splitting Ethiopic characters into consonantal and vocalic components (cf. Figure 7):

"Consonant phonetic letters"	"Vowel phonetic letters"
1200 ETHIOPIAN CONSONANT H	1230 ETHIOPIAN VOWEL AE
1201 ETHIOPIAN CONSONANT L	1231 ETHIOPIAN VOWEL U
1202 ETHIOPIAN CONSONANT HH	1232 ETHIOPIAN VOWEL I
1203 ETHIOPIAN CONSONANT M	1233 ETHIOPIAN VOWEL A
1204 ETHIOPIAN CONSONANT SZ	1234 ETHIOPIAN VOWEL E
1205 ETHIOPIAN CONSONANT R	1235 ETHIOPIAN VOWEL SCHWA
1206 ETHIOPIAN CONSONANT S	1236 ETHIOPIAN VOWEL O
1207 ETHIOPIAN CONSONANT SH	1237 ETHIOPIAN VOWEL PHONETIC AE
1208 ETHIOPIAN CONSONANT Q	used primarily with U+1211
1209 ETHIOPIAN CONSONANT QH	ETHIOPIAN CONSONANT GLOTTAL
120A ETHIOPIAN CONSONANT B	1238 ETHIOPIAN VOWEL WAE
120B ETHIOPIAN CONSONANT V	1239 (unassigned)
120C ETHIOPIAN CONSONANT T	123A ETHIOPIAN VOWEL WI
120D ETHIOPIAN CONSONANT C	123B ETHIOPIAN VOWEL WA
120E ETHIOPIAN CONSONANT X	123C ETHIOPIAN VOWEL WE
120F ETHIOPIAN CONSONANT N	123D ETHIOPIAN VOWEL W
1210 ETHIOPIAN CONSONANT NY	(123E and 123F unassigned)
1211 ETHIOPIAN CONSONANT GLOTTAL	
1212 ETHIOPIAN CONSONANT K	"Numbers"
1213 ETHIOPIAN CONSONANT XX	1240 (unassigned)
1214 ETHIOPIAN CONSONANT W	1241 ETHIOPIAN NUMBER ONE
1215 ETHIOPIAN CONSONANT NULL	1242 ETHIOPIAN NUMBER TWO
1216 ETHIOPIAN CONSONANT Z	1243 ETHIOPIAN NUMBER THREE
1217 ETHIOPIAN CONSONANT ZH	1244 ETHIOPIAN NUMBER FOUR
1218 ETHIOPIAN CONSONANT Y	1245 ETHIOPIAN NUMBER FIVE
1219 ETHIOPIAN CONSONANT D	1246 ETHIOPIAN NUMBER SIX
121A ETHIOPIAN CONSONANT DD Oromo	1247 ETHIOPIAN NUMBER SEVEN
121B ETHIOPIAN CONSONANT J	1248 ETHIOPIAN NUMBER EIGHT
121C ETHIOPIAN CONSONANT G	1249 ETHIOPIAN NUMBER NINE
121D ETHIOPIAN CONSONANT GG Bilen	124A ETHIOPIAN NUMBER TEN
121E ETHIOPIAN CONSONANT TH	124B ETHIOPIAN NUMBER TWENTY
121F ETHIOPIAN CONSONANT CH	124C ETHIOPIAN NUMBER THIRTY
1220 ETHIOPIAN CONSONANT PH	124D ETHIOPIAN NUMBER FORTY
1221 ETHIOPIAN CONSONANT TS	124E ETHIOPIAN NUMBER FIFTY
1222 ETHIOPIAN CONSONANT TZ	124F ETHIOPIAN NUMBER SIXTY
1223 ETHIOPIAN CONSONANT F	1250 ETHIOPIAN NUMBER SEVENTY
1224 ETHIOPIAN CONSONANT P	1251 ETHIOPIAN NUMBER EIGHTY
(1225 to 122F unassigned)	1252 ETHIOPIAN NUMBER NINETY
	1253 ETHIOPIAN NUMBER HUNDRED
"Punctuation"	1254 ETHIOPIAN NUMBER TEN THOUSAND
1255 ETHIOPIAN WORDSPACE	
1256 ETHIOPIAN COMMA modern usage like colon	1259 ETHIOPIAN NEW COMMA modern usage
1257 ETHIOPIAN COLON mod. usage like semicolon	125A ETHIOPIAN QUESTION MARK archaic
1258 ETHIOPIAN PERIOD	125B ETHIOPIAN PARAGRAPHSEPARATOR archaic

- 4.2. The character / glyph distinction: Glyphs, i.e. representations of individual characters containing both consonantal and vocalic elements, are not encoded as such; the correct shaping of characters is a task of the "font machinery" ("intelligent fonts"): »Rendering. Each visible glyph of the Ethiopic script represents a syllable rather than a single letter. The syllables can all be treated as simple (consonant + vowel) pairs, so that each glyph can be thought of as a ligature of two underlying letters. Thus the syllable "MA" would be represented in the encoding as U+1203 ETHIOPIAN CONSONANT M plus U+1233 ETHIOPIAN VOWEL A. The syllable glyphs themselves are not intended to be incorporated in this encoding. The individual consonant or vowel codes should not be isolated (i.e. unpaired) in normal final text, and their rendering in such circumstances is an option of the implementation. One possibility is to use special symbols for the individual letters, as is done in the code charts here.«

		Ethiopian							
		120	121	122	123	124	125	126	127
0		ሀ	ኀ	አ	ፀ		ፈ		
1		ለ	አ	አ	ፀ	ፈ	ፈ		
2		ሐ	ከ	ፀ	ፈ	ፈ	ፈ		
3		መ	ከ	ፈ	ፈ	ፈ	ፈ		
4		ሠ	ወ	ፈ	ፈ	ፈ	ፈ		
5		ረ	ዐ		ፈ	ፈ	:		
6		ሰ	ዘ		ፈ	ፈ	÷		
7		ሸ	ዠ		ፈ	ፈ	ፈ		
8		ቀ	የ		ፈ	ፈ	::		
9		ቆ	ደ			ፈ	ፈ		
A		ብ	ደ		ፈ	ፈ	ፈ		
B		ቨ	ደ		ፈ	ፈ	:::		
C		ተ	ገ		ፈ	ፈ			
D		ቸ	ገ		ፈ	ፈ			
E		ገ	ጠ			ፈ			
F		ገ	ጠ			ፈ			

Figure 7: First draft proposal for Ethiopic

- 4.3. Second attempt of development of an Ethiopic Unicode encoding scheme: Joe Becker (cf. <http://www.cs.indiana.edu/hyplan/dmulholl/fidel/becker2.txt>, dated February 26, 1995):

»This proposal constitutes a major revision of the Draft Proposal for Ethiopic Encoding of October 1992 published in Unicode Technical Report #1. Based on feedback received concerning the 1992 proposal, the basic coding scheme has been changed from an "underlying alphabetic" representation to a syllable-based representation.

The current proposal consists of a chart, a character names list, and a block introduction. The content is based primarily on "View and Recommendation on The Unicode Technical Report #1 Draft Proposal on Ethiopic Script", by the Committee for Standardization of Ethiopic Script (CSES), August 1993. The members of the CSES include:«

Abass Alamnehe	EthiO Systems and University of Houston
Fesseha Atlaw	Hewlett Packard and Dashen Engineering Company
Tekle Awdew	Informix, formerly IBM
Tsehay Demeke	Rensselaer Polytechnic Institute, formerly American Red Cross
Yitna Firdiyewek	Northern Virginia Community College
Grum Ketema	AT&T labs
Theodros Kidane	Hewlett Packard
Samuel Kinde	Virginia Polytechnic Institute
Terrefe Ras-Work	International Telecommunication Union
Teshager Tesfaye	Sun Microsystems
Tadesse Tsegaye	Pacific Gas and Electric
Matewos Worku	University of California Berkeley

The arrangement proposed now consists of a block of 384 characters (Unicode U+1200 → U+137F) covering Ethiopic as well as Amharic, Tigriña, Oromiffa.

BLOCK Ethiopic U+1200 -> U+137F: CHARACTER NAMES LIST

Letters

1200	ETHIOPIAN LETTER HAE	123C	ETHIOPIAN LETTER SHY	1276	ETHIOPIAN LETTER HXO
1201	ETHIOPIAN LETTER HU	123D	ETHIOPIAN LETTER SHE	1277	ETHIOPIAN LETTER HXWA
1202	ETHIOPIAN LETTER HI	123E	ETHIOPIAN LETTER SHO	1278	ETHIOPIAN LETTER NAE
1203	ETHIOPIAN LETTER HA	123F	ETHIOPIAN LETTER SHWA	1279	ETHIOPIAN LETTER NU
1204	ETHIOPIAN LETTER HY			127A	ETHIOPIAN LETTER NI
1205	ETHIOPIAN LETTER HE	1240	ETHIOPIAN LETTER QAE	127B	ETHIOPIAN LETTER NA
1206	ETHIOPIAN LETTER HO	1241	ETHIOPIAN LETTER QU	127C	ETHIOPIAN LETTER NY
1207		1242	ETHIOPIAN LETTER QI	127D	ETHIOPIAN LETTER NE
1208	ETHIOPIAN LETTER LAE	1243	ETHIOPIAN LETTER QA	127E	ETHIOPIAN LETTER NO
1209	ETHIOPIAN LETTER LU	1244	ETHIOPIAN LETTER QY	127F	ETHIOPIAN LETTER NWA
120A	ETHIOPIAN LETTER LI	1245	ETHIOPIAN LETTER QE		
120B	ETHIOPIAN LETTER LA	1246	ETHIOPIAN LETTER QO	1280	ETHIOPIAN LETTER NYAE
120C	ETHIOPIAN LETTER LY	1247	ETHIOPIAN LETTER QWA	1281	ETHIOPIAN LETTER NYU
120D	ETHIOPIAN LETTER LE	1248	ETHIOPIAN LETTER QHAE	1282	ETHIOPIAN LETTER NYI
120E	ETHIOPIAN LETTER LO		this series: Tigrigna	1283	ETHIOPIAN LETTER NYA
120F	ETHIOPIAN LETTER LWA	1249	ETHIOPIAN LETTER QHU	1284	ETHIOPIAN LETTER NYY
		124A	ETHIOPIAN LETTER QHI	1285	ETHIOPIAN LETTER NYE
1210	ETHIOPIAN LETTER HHAE	124B	ETHIOPIAN LETTER QHA	1286	ETHIOPIAN LETTER NYO
1211	ETHIOPIAN LETTER HHU	124C	ETHIOPIAN LETTER QHY	1287	ETHIOPIAN LETTER NYWA
1212	ETHIOPIAN LETTER HHI	124D	ETHIOPIAN LETTER QHE	1288	ETHIOPIAN LETTER AAE
1213	ETHIOPIAN LETTER HHA	124E	ETHIOPIAN LETTER QHO	1289	ETHIOPIAN LETTER AU
1214	ETHIOPIAN LETTER HHY	124F	ETHIOPIAN LETTER QHWA	128A	ETHIOPIAN LETTER AI
1215	ETHIOPIAN LETTER HHE			128B	ETHIOPIAN LETTER AA
1216	ETHIOPIAN LETTER HHO	1250	ETHIOPIAN LETTER BAE	128C	ETHIOPIAN LETTER AY
1217	ETHIOPIAN LETTER HHWA	1251	ETHIOPIAN LETTER BU	128D	ETHIOPIAN LETTER AE
1218	ETHIOPIAN LETTER MAE	1252	ETHIOPIAN LETTER BI	128E	ETHIOPIAN LETTER AO
1219	ETHIOPIAN LETTER MU	1253	ETHIOPIAN LETTER BA	128F	ETHIOPIAN LETTER AWA
121A	ETHIOPIAN LETTER MI	1254	ETHIOPIAN LETTER BY		
121B	ETHIOPIAN LETTER MA	1255	ETHIOPIAN LETTER BE	1290	ETHIOPIAN LETTER KAE
121C	ETHIOPIAN LETTER MY	1256	ETHIOPIAN LETTER BO	1291	ETHIOPIAN LETTER KU
121D	ETHIOPIAN LETTER ME	1257	ETHIOPIAN LETTER BWA	1292	ETHIOPIAN LETTER KI
121E	ETHIOPIAN LETTER MO	1258	ETHIOPIAN LETTER VAE	1293	ETHIOPIAN LETTER KA
121F	ETHIOPIAN LETTER MWA	1259	ETHIOPIAN LETTER VU	1294	ETHIOPIAN LETTER KY
		125A	ETHIOPIAN LETTER VI	1295	ETHIOPIAN LETTER KE
1220	ETHIOPIAN LETTER SZAE	125B	ETHIOPIAN LETTER VA	1296	ETHIOPIAN LETTER KO
1221	ETHIOPIAN LETTER SZU	125C	ETHIOPIAN LETTER VY	1297	ETHIOPIAN LETTER KWA
1222	ETHIOPIAN LETTER SZI	125D	ETHIOPIAN LETTER VE	1298	ETHIOPIAN LETTER KXAE
1223	ETHIOPIAN LETTER SZA	125E	ETHIOPIAN LETTER VO	1299	ETHIOPIAN LETTER KXU
1224	ETHIOPIAN LETTER SZY	125F	ETHIOPIAN LETTER VWA	129A	ETHIOPIAN LETTER KXI
1225	ETHIOPIAN LETTER SZE			129B	ETHIOPIAN LETTER KXA
1226	ETHIOPIAN LETTER SZO	1260	ETHIOPIAN LETTER TAE	129C	ETHIOPIAN LETTER KXY
1227	ETHIOPIAN LETTER SZWA	1261	ETHIOPIAN LETTER TU	129D	ETHIOPIAN LETTER KXE
1228	ETHIOPIAN LETTER RAE	1262	ETHIOPIAN LETTER TI	129E	ETHIOPIAN LETTER KXO
1229	ETHIOPIAN LETTER RU	1263	ETHIOPIAN LETTER TA	129F	ETHIOPIAN LETTER KXWA
122A	ETHIOPIAN LETTER RI	1264	ETHIOPIAN LETTER TY		
122B	ETHIOPIAN LETTER RA	1265	ETHIOPIAN LETTER TE	12A0	ETHIOPIAN LETTER WAE
122C	ETHIOPIAN LETTER RY	1266	ETHIOPIAN LETTER TO	12A1	ETHIOPIAN LETTER WU
122D	ETHIOPIAN LETTER RE	1267	ETHIOPIAN LETTER TWA	12A2	ETHIOPIAN LETTER WI
122E	ETHIOPIAN LETTER RO	1268	ETHIOPIAN LETTER CAE	12A3	ETHIOPIAN LETTER WA
122F	ETHIOPIAN LETTER RWA	1269	ETHIOPIAN LETTER CU	12A4	ETHIOPIAN LETTER WY
		126A	ETHIOPIAN LETTER CI	12A5	ETHIOPIAN LETTER WE
1230	ETHIOPIAN LETTER SAE	126B	ETHIOPIAN LETTER CA	12A6	ETHIOPIAN LETTER WO
1231	ETHIOPIAN LETTER SU	126C	ETHIOPIAN LETTER CY	12A7	
1232	ETHIOPIAN LETTER SI	126D	ETHIOPIAN LETTER CE	12A8	ETHIOPIAN LETTER OAE
1233	ETHIOPIAN LETTER SA	126E	ETHIOPIAN LETTER CO	12A9	ETHIOPIAN LETTER OU
1234	ETHIOPIAN LETTER SY	126F	ETHIOPIAN LETTER CWA	12AA	ETHIOPIAN LETTER OI
1235	ETHIOPIAN LETTER SE			12AB	ETHIOPIAN LETTER OA
1236	ETHIOPIAN LETTER SO	1270	ETHIOPIAN LETTER HXAE	12AC	ETHIOPIAN LETTER OY
1237	ETHIOPIAN LETTER SWA	1271	ETHIOPIAN LETTER HXU	12AD	ETHIOPIAN LETTER OE
1238	ETHIOPIAN LETTER SHAE	1272	ETHIOPIAN LETTER HXI	12AE	ETHIOPIAN LETTER OO
1239	ETHIOPIAN LETTER SHU	1273	ETHIOPIAN LETTER HXA	12AF	
123A	ETHIOPIAN LETTER SHI	1274	ETHIOPIAN LETTER HXY		
123B	ETHIOPIAN LETTER SHA	1275	ETHIOPIAN LETTER HXE		

12B0	ETHIOPIAN LETTER ZAE	12EE	ETHIOPIAN LETTER THO	132C	ETHIOPIAN LETTER QHWY
12B1	ETHIOPIAN LETTER ZU	12EF	ETHIOPIAN LETTER THWA	132D	ETHIOPIAN LETTER QHWE
12B2	ETHIOPIAN LETTER ZI			132E	
12B3	ETHIOPIAN LETTER ZA	12F0	ETHIOPIAN LETTER CHAE	132F	
12B4	ETHIOPIAN LETTER ZY	12F1	ETHIOPIAN LETTER CHU		
12B5	ETHIOPIAN LETTER ZE	12F2	ETHIOPIAN LETTER CHI	1330	ETHIOPIAN LETTER HXWAE
12B6	ETHIOPIAN LETTER ZO	12F3	ETHIOPIAN LETTER CHA	1331	
12B7	ETHIOPIAN LETTER ZWA	12F4	ETHIOPIAN LETTER CHY	1332	ETHIOPIAN LETTER HXWI
12B8	ETHIOPIAN LETTER ZHAE	12F5	ETHIOPIAN LETTER CHE	1333	
12B9	ETHIOPIAN LETTER ZHU	12F6	ETHIOPIAN LETTER CHO	1334	ETHIOPIAN LETTER HXWY
12BA	ETHIOPIAN LETTER ZHI	12F7	ETHIOPIAN LETTER CHWA	1335	ETHIOPIAN LETTER HXWE
12BB	ETHIOPIAN LETTER ZHA	12F8	ETHIOPIAN LETTER PHAE	1336	
12BC	ETHIOPIAN LETTER ZHY	12F9	ETHIOPIAN LETTER PHU	1337	
12BD	ETHIOPIAN LETTER ZHE	12FA	ETHIOPIAN LETTER PHI	1338	ETHIOPIAN LETTER KWAE
12BE	ETHIOPIAN LETTER ZHO	12FB	ETHIOPIAN LETTER PHA	1339	
12BF	ETHIOPIAN LETTER ZHWA	12FC	ETHIOPIAN LETTER PHY	133A	ETHIOPIAN LETTER KWI
		12FD	ETHIOPIAN LETTER PHE	133B	
12C0	ETHIOPIAN LETTER YAE	12FE	ETHIOPIAN LETTER PHO	133C	ETHIOPIAN LETTER KWY
12C1	ETHIOPIAN LETTER YU	12FF	ETHIOPIAN LETTER PHWA	133D	ETHIOPIAN LETTER KWE
12C2	ETHIOPIAN LETTER YI			133E	
12C3	ETHIOPIAN LETTER YA	1300	ETHIOPIAN LETTER TSAE	133F	
12C4	ETHIOPIAN LETTER YY	1301	ETHIOPIAN LETTER TSU		
12C5	ETHIOPIAN LETTER YE	1302	ETHIOPIAN LETTER TSI	1340	ETHIOPIAN LETTER GWAE
12C6	ETHIOPIAN LETTER YO	1303	ETHIOPIAN LETTER TSA	1341	
12C7		1304	ETHIOPIAN LETTER TSY	1342	ETHIOPIAN LETTER GWI
12C8	ETHIOPIAN LETTER DAE	1305	ETHIOPIAN LETTER TSE	1343	
12C9	ETHIOPIAN LETTER DU	1306	ETHIOPIAN LETTER TSO	1344	ETHIOPIAN LETTER GWY
12CA	ETHIOPIAN LETTER DI	1307	ETHIOPIAN LETTER TSWA	1345	ETHIOPIAN LETTER GWE
12CB	ETHIOPIAN LETTER DA	1308	ETHIOPIAN LETTER TZAE		(1346-135F unassigned)
12CC	ETHIOPIAN LETTER DY	1309	ETHIOPIAN LETTER TZU		
12CD	ETHIOPIAN LETTER DE	130A	ETHIOPIAN LETTER TZI		Punctuation
12CE	ETHIOPIAN LETTER DO	130B	ETHIOPIAN LETTER TZA	1360	ETHIOPIAN SPACE
12CF	ETHIOPIAN LETTER DWA	130C	ETHIOPIAN LETTER TZY	1361	ETHIOPIAN WORDSPACE
		130D	ETHIOPIAN LETTER TZE	1362	ETHIOPIAN PERIOD
12D0	ETHIOPIAN LETTER DDAE	130E	ETHIOPIAN LETTER TZO	1363	ETHIOPIAN COMMA
	this series: Oromiffa -- note:	130F			modern usage
	variant glyphs exist for this series			1364	ETHIOPIAN SEMICOLON
12D1	ETHIOPIAN LETTER DDU	1310	ETHIOPIAN LETTER FAE		pre-modern usage like colon
12D2	ETHIOPIAN LETTER DDI	1311	ETHIOPIAN LETTER FU	1365	ETHIOPIAN COLON
12D3	ETHIOPIAN LETTER DDA	1312	ETHIOPIAN LETTER FI		pre-modern usage like comma
12D4	ETHIOPIAN LETTER DDY	1313	ETHIOPIAN LETTER FA	1366	ETHIOPIAN QUESTION
12D5	ETHIOPIAN LETTER DDE	1314	ETHIOPIAN LETTER FY		MARK archaic
12D6	ETHIOPIAN LETTER DDO	1315	ETHIOPIAN LETTER FE	1367	ETHIOPIAN PARAGRAPH
12D7	ETHIOPIAN LETTER DDWA	1316	ETHIOPIAN LETTER FO		SEPARATOR archaic
12D8	ETHIOPIAN LETTER JAE	1317	ETHIOPIAN LETTER FWA		
12D9	ETHIOPIAN LETTER JU	1318	ETHIOPIAN LETTER PAE		Numbers
12DA	ETHIOPIAN LETTER JI	1319	ETHIOPIAN LETTER PU	1368	ETHIOPIAN DIGIT ONE
12DB	ETHIOPIAN LETTER JA	131A	ETHIOPIAN LETTER PI	1369	ETHIOPIAN DIGIT TWO
12DC	ETHIOPIAN LETTER JY	131B	ETHIOPIAN LETTER PA	136A	ETHIOPIAN DIGIT THREE
12DD	ETHIOPIAN LETTER JE	131C	ETHIOPIAN LETTER PY	136B	ETHIOPIAN DIGIT FOUR
12DE	ETHIOPIAN LETTER JO	131D	ETHIOPIAN LETTER PE	136C	ETHIOPIAN DIGIT FIVE
12DF	ETHIOPIAN LETTER JWA	131E	ETHIOPIAN LETTER PO	136D	ETHIOPIAN DIGIT SIX
		131F	ETHIOPIAN LETTER PWA	136E	ETHIOPIAN DIGIT SEVEN
12E0	ETHIOPIAN LETTER GAE			136F	ETHIOPIAN DIGIT EIGHT
12E1	ETHIOPIAN LETTER GU	1320	ETHIOPIAN LETTER QWAE	1370	ETHIOPIAN DIGIT NINE
12E2	ETHIOPIAN LETTER GI	1321		1371	ETHIOPIAN NUMBER TEN
12E3	ETHIOPIAN LETTER GA	1322	ETHIOPIAN LETTER QWI	1372	ETHIOPIAN NR. TWENTY
12E4	ETHIOPIAN LETTER GY	1323		1373	ETHIOPIAN NR. THIRTY
12E5	ETHIOPIAN LETTER GE	1324	ETHIOPIAN LETTER QWY	1374	ETHIOPIAN NUMBER FORTY
12E6	ETHIOPIAN LETTER GO	1325	ETHIOPIAN LETTER QWE	1375	ETHIOPIAN NUMBER FIFTY
12E7	ETHIOPIAN LETTER GWA	1326		1376	ETHIOPIAN NUMBER SIXTY
12E8	ETHIOPIAN LETTER THAE	1327		1377	ETHIOPIAN NR. SEVENTY
12E9	ETHIOPIAN LETTER THU	1328	ETHIOPIAN LETTER QHWAE	1378	ETHIOPIAN NR. EIGHTY
12EA	ETHIOPIAN LETTER THI		this series: Tigergna	1379	ETHIOPIAN NR. NINETY
12EB	ETHIOPIAN LETTER THA	1329		137A	ETHIOPIAN NR. HUNDRED
12EC	ETHIOPIAN LETTER THY	132A	ETHIOPIAN LETTER QHWI	137B	ETH. NR. TEN THOUSAND
12ED	ETHIOPIAN LETTER THE	132B			(137C-137F unassigned)

4.4. Table showing the arrangement of characters according to the second proposal (characters that are not printable using Printer Polyglott are represented by X):

		<i>a</i>	<i>ū</i>	<i>ī</i>	<i>ā</i>	<i>ē</i>	<i>ə</i>	<i>ō</i>	<i>wā</i>	<i>a</i>	<i>ū</i>	<i>ī</i>	<i>ā</i>	<i>ē</i>	<i>ə</i>	<i>ō</i>	<i>wā</i>		
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		
<i>h</i>	120	ሀ	ሁ	ሂ	ሃ	ሄ	ህ	ሆ		ለ	ሉ	ሊ	ላ	ሌ	ል	ሎ	ሰ	120	<i>l</i>
<i>ḥ</i>	121	ሐ	ሑ	ሒ	ሓ	ሔ	ሕ	ሐ	X	መ	ሙ	ሚ	ማ	ሜ	ም	ሞ	ሚ	121	<i>m</i>
<i>ś</i>	122	ሠ	ሡ	ሢ	ሣ	ሤ	ሥ	ሦ	X	ረ	ሩ	ሪ	ራ	ራ	ር	ሮ	ረ	122	<i>r</i>
<i>s</i>	123	ሰ	ሱ	ሲ	ሳ	ሴ	ስ	ሶ	ሷ	ሸ	ሹ	ሺ	ሻ	ሼ	ሽ	ሾ	ሻ	123	<i>š</i>
<i>q</i>	124	ቀ	ቁ	ቂ	ቃ	ቄ	ቅ	ቆ	ቇ	X	X	X	X	X	X	X	X	124	<i>q̇</i>
<i>b</i>	125	በ	ቡ	ቢ	ባ	ቤ	ብ	ቦ	ቧ	ቨ	ቩ	ቪ	ቫ	ቬ	ቭ	ቮ	X	125	<i>v</i>
<i>t</i>	126	ተ	ቱ	ቲ	ታ	ቴ	ት	ቶ	ቷ	ቸ	ቹ	ቺ	ቻ	ቼ	ች	ች	ቻ	126	<i>č</i>
<i>ḥ̣</i>	127	ኀ	ኁ	ኂ	ኃ	ኄ	ኅ	ኆ	ኇ	ኈ	኉	ኊ	ኋ	ኌ	ኍ	኎	኏	127	<i>n</i>
<i>ñ</i>	128	ኘ	ኙ	ኚ	ኛ	ኜ	ኝ	ኞ	ኟ	አ	አ	አ	አ	አ	አ	አ	X	128	<i>ˆ</i>
<i>k</i>	129	ከ	ኩ	ኪ	ካ	ኬ	ክ	ኮ	ኰ	ኸ	ኹ	ኺ	ኻ	ኼ	ኽ	ኾ	ኻ	129	<i>x</i>
<i>w</i>	12A	ወ	ዉ	ዊ	ዋ	ዌ	ወ	ዐ		ዐ	ዑ	ዒ	ዓ	ዔ	ዕ	ዖ		12A	<i>˘</i>
<i>z</i>	12B	ዘ	ዟ	ዠ	ዡ	ዢ	ዣ	ዤ	ዥ	ዦ	ዧ	የ	ዩ	ዪ	ያ	ዬ	ዦ	12B	<i>ž</i>
<i>y</i>	12C	የ	ዩ	ደ	ደ	ደ	ደ	ደ		ደ	ደ	ደ	ደ	ደ	ደ	ደ	ደ	12C	<i>d</i>
<i>dd</i>	12D	X	X	X	X	X	X	X	X	ጀ	ጀ	ጀ	ጀ	ጀ	ጀ	ጀ	ጀ	12D	<i>ǰ</i>
<i>g</i>	12E	ገ	ገ	ገ	ገ	ገ	ገ	ገ	ገ	ጠ	ጡ	ጢ	ጣ	ጤ	ጥ	ጦ	ጧ	12E	<i>ḡ</i>
<i>č̣</i>	12F	ጨ	ጨ	ጨ	ጨ	ጨ	ጨ	ጨ	ጨ	ጰ	ጰ	ጰ	ጰ	ጰ	ጰ	ጰ	X	12F	<i>ḥ̣</i>
<i>ṣ́</i>	130	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ		130	<i>ḡ</i>
<i>f</i>	131	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ	ፈ	ፐ	ፐ	ፐ	ፐ	ፐ	ፐ	ፐ	X	131	<i>p</i>
<i>qw</i>	132	ቈ		ቈ		ቈ	ቈ			X		X		X	X			132	<i>q̇w</i>
<i>hw</i>	133	ኸ		ኸ		ኸ	ኸ			ኸ		ኸ		ኸ	ኸ			133	<i>kw</i>
<i>gw</i>	134	ኸ		ኸ		ኸ	ኸ											134	

		<i>a</i>	<i>ū</i>	<i>ī</i>	<i>ā</i>	<i>ē</i>	<i>ə</i>	<i>ō</i>	<i>wā</i>	<i>a</i>	<i>ū</i>	<i>ī</i>	<i>ā</i>	<i>ē</i>	<i>ə</i>	<i>ō</i>	<i>wā</i>		
	135																	135	
	136		:	፡	X	፡	፡	X	X	፩	፪	፫	፬	፭	፮	፯	፰	136	
	137	፱	፲	፳	፴	፵	፶	፷	፸	፹	፺	፻	፼					137	
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		

4.5. BLOCK INTRODUCTION: Ethiopic U+1200 -> U+137F (quoted from the URL as given above):

The Ethiopic script, which originally evolved for the archaic language Ge'ez, is currently used to write several languages of Eastern Africa, including Amharic, Tigre, and Oromo. The script continues to be extended for writing languages that have little tradition of printed typography; new characters to cover such extensions may added to the standard later as definitive information about them becomes available.

Encoding Principles. The Ethiopic script is a syllabary that is traditionally presented as a 2-dimensional matrix of consonant-vowel combinations. The encoding follows this structure, in particular the codespace range U+1200 -> U+135F is interpreted as a matrix of 44 consonants crossed with 8 vowels. This arrangement is convenient for computer indexing as well as natural to users of the script.

Variant Glyph Forms. Each cell in the codespace range U+1200 -> U+135F represents a conceptual syllable, which may or not actually be realized in one or another language that uses the Ethiopic script. Also, the same syllable in the same language may occasionally be represented by slightly different glyph forms in one or another font, analogous to the minor glyph variants of Latin lowercase "a" or "g" which do not co-occur in the same font. Therefore, the particular glyph shown in the code chart for each position in the matrix, and indeed the presence or absence of a glyph and character name for a given cell, are merely indicative of one common graphic interpretation of that conceptual syllable. In implementations, the selection of particular glyph forms to represent each conceptual syllable is the prerogative of the font designer. Also, in the relatively rare cases where ligatures are desired within the Ethiopic script, these may be provided as features of particular fonts, but they are not represented in the character encoding.

Labialized Subseries. A few Ethiopic consonants have labialized ("W") forms that are traditionally allotted their own consonant group in the syllable matrix, though only a subset of the possible vowelized forms are realized. These derivative syllables are encoded after the main alphabet, currently in the range U+1320 -> U+1347. Since the standard vowel series includes both "A" and "WA", there are two conceptual syllable cells corresponding to labial consonants followed by "WA", e.g.

U+1247 ETHIOPIAN LETTER QWA // Q + WA
U+1323 [unnamed potential QWA] // QW + A

In these cases where the two syllables are equivalent, the Unicode encoding suggests that the "consonant + WA" entry in the main syllable chart be used in preference to the entry in the labialized subseries. The five specific cases that are currently encoded are:

U+1247 ETHIOPIAN LETTER QWA is preferred to U+1323
U+124F ETHIOPIAN LETTER QHWA is preferred to U+132B
U+1277 ETHIOPIAN LETTER HXWA is preferred to U+1333
U+1297 ETHIOPIAN LETTER KWA is preferred to U+133B
U+12E7 ETHIOPIAN LETTER GWA is preferred to U+1343

Also, *within* the labialized subseries groups, the 6th vowel ("-E") forms are sometimes considered to be 2nd vowel ("-U") forms, e.g.

U+1321 [unnamed potential QWU]
U+1325 ETHIOPIAN LETTER QWE

In these cases where the two syllables are nearly equivalent, the Unicode encoding suggests that the "-E" entry be used in preference to the "-U" entry. The five specific cases that are currently encoded are:

U+1325 ETHIOPIAN LETTER QWE is preferred to U+1321
U+132D ETHIOPIAN LETTER QHWE is preferred to U+1329
U+1335 ETHIOPIAN LETTER HXWE is preferred to U+1331
U+133D ETHIOPIAN LETTER KWE is preferred to U+1339
U+1345 ETHIOPIAN LETTER GWE is preferred to U+1341

Keyboard Input. Because there are over 300 characters in the Ethiopic script, the units of keyboard input must constitute some smaller set of entities, typically 44+8 codes interpreted as the coordinates of the syllable matrix. Since these keyboard input codes are expected to be transient entities that are resolved into syllabic characters before they enter stored text, keyboard input codes are not specified in this standard.

Letter Names. The Ethiopic script often has multiple letters corresponding to the same Latin letter, making it difficult to assign unique Latin names. Therefore the names list makes use of certain devices (such as doubling a Latin letter in the name) merely to create uniqueness; this has no relation to the phonetics of the Ethiopic letters.

Encoding Order and Sorting. The order of the letters in the encoding is based on the traditional alphabetical order. This order may differ from the sort order used for one or another language, if only because in many languages various pairs or triplets of letters are treated as equivalent in the first sorting pass. For example, an Amharic dictionary may start out with a section headed by *three* H-like letters:

U+1200 ETHIOPIAN LETTER HAE
U+1210 ETHIOPIAN LETTER HHAE
U+1270 ETHIOPIAN LETTER HXAE

Thus the encoding order cannot and does not implement a collation procedure for any particular language using this script.

Space Characters. The traditional word separator is U+1361 ETHIOPIAN WORDSPACE (:), but in modern usage a plain white wordspace is becoming common. A separate character U+1360 ETHIOPIAN SPACE has been provided for the latter usage, so that its (minimum) width may be set equal to that of the traditional wordspace if desired.

Diacritical Marks. The Ethiopic script generally makes no use of diacritical marks, but there are two circumstances in which such marks have been applied. Marks are sometimes used for scholarly or didactic purposes, in particular U+0308 COMBINING DIAERESIS or U+030E COMBINING DOUBLE VERTICAL LINE ABOVE to indicate emphasis or gemination. In such cases, marks from the General Diacritical Marks range U+0300 -> U+036F should be used; as always, a diacritical mark follows the letter to which it applies. The second case is that marks (often with a bow-tie appearance) are sometimes used to create variant letterforms, e.g. for using the Ethiopic script to spell other languages. This approach does not apply to the Unicode encoding, whose elements are conceptual syllables rather than syllable glyphs. Extensions to the script for additional syllables should be added at the end of the syllable matrix.

Encoding Structure. The Unicode block for the Ethiopic script is divided into the following ranges:

U+1200 -> U+135F	Syllabic letters
U+1360 -> U+1367	Punctuation
U+1368 -> U+137B	Numbers
U+137C -> U+137F	Currently unassigned