

To: Unicode Technical Committee
From: Neil Patel and Mark Jamra (JamraPatel), Craig Cornelius (Google), Ibrahima Barry, Abdoulaye Barry
Subject: Replacement of Adlam Reference Font in Codesheet to Updated Design
Date: 19 April 2019

1. Introduction

This document describes the changes that have been made to Adlam letterforms by Abdoulaye and Ibrahima Barry since Adlam was proposed ([L2/13-191](#), [L2/14-219](#)) and included in Unicode 9.0. The changes are substantial enough to consider replacing the Unicode reference typeface.

During the 2 year period between the final proposal and the release of Unicode 9.0, an increase in literacy efforts brought new insights from the language community that exposed instances of ambiguity amongst letterforms and highlighted potential legibility concerns. These informed changes to letterforms that the Barrys and the language community hope to incorporate into the Unicode standard.

2. Recommendation

We recommend replacing the reference font in the Adlam Codesheet with either *Ebrima* or *Kigelia* to establish the correct reference for the design of Adlam typefaces going forward. This will ensure that future fonts are produced with the correct letterform model, minimizing the propagation of the out-of-date design. At this time, *Noto* is the only Unicode-compliant Adlam font broadly available and *Ebrima* and *Kigelia* are currently available in a limited fashion. The latter two fonts will be more broadly released in the coming year. As a result, it is a good time to replace the reference typeface in Unicode. Adlam users have been exposed to all iterations of the design through a variety of mobile and web apps, which means there is already a familiarity with the ideal forms within the language community. Also, efforts to make form changes that have some relation to earlier historical models of Adlam create continuity amongst readers.

3. Comparison of Unicode Glyphs to Proposed Glyphs and Other Fonts

KEY

PULAAR – Released 2007, Non-Unicode
UNICODE – Released 2014

NOTO – *Noto Sans Adlam*, Released 2017
PROPOSED – *Kigelia*, Released 2018































Name (Pronunciation)	Font	Capital	Small	Notes
		1E900	1E922	
ALIF (A)	PULAAR	ᲀ ᲁ	ᲀ ᲁ	The design in the proposed replacement font is a stylistic variation of the Unicode font.
	NOTO	ᲀ ᲁ	ᲀ ᲁ	
	UNICODE	ᲀ ᲁ	ᲀ ᲁ	
	PROPOSED	ᲀ ᲁ	ᲀ ᲁ	
		1E901	1E923	
DAALI (DA)	PULAAR	ᲂ ᲃ	ᲂ ᲃ	The proposed replacement eliminates the ascenders in the medial and final lowercase letters to prevent diacritic collision.
	NOTO	ᲂ ᲃ	ᲂ ᲃ	
	UNICODE	ᲂ ᲃ	ᲂ ᲃ	
	PROPOSED	ᲂ ᲃ	ᲂ ᲃ	
		1E902	1E924	
LAAM (LA)	PULAAR	ᲄ ᲅ	ᲄ ᲅ	The introduction of the vertical line in front of the uppercase letters of the proposed replacement helps distinguish the letterform the lowercase.
	NOTO	ᲄ ᲅ	ᲄ ᲅ	
	UNICODE	ᲄ ᲅ	ᲄ ᲅ	
	PROPOSED	ᲄ ᲅ	ᲄ ᲅ	
		1E903	1E925	
MIIM (MA)	PULAAR	ᲆ ᲇ	ᲆ ᲇ	The integration of the additional vertical line in uppercase letter helps distinguish the letterform from the lowercase. This is conceptually similar to the additional line used in the uppercase Laam.
	NOTO	ᲆ ᲇ	ᲆ ᲇ	
	UNICODE	ᲆ ᲇ	ᲆ ᲇ	
	PROPOSED	ᲆ ᲇ	ᲆ ᲇ	
		1E904	1E926	
BA (BA)	PULAAR	ᲈ Ᲊ	ᲈ Ᲊ	The proposed replacement eliminates the ascenders in the medial and final lowercase letters to prevent diacritic collision.
	NOTO	ᲈ Ᲊ	ᲈ Ᲊ	
	UNICODE	ᲈ Ᲊ	ᲈ Ᲊ	
	PROPOSED	ᲈ Ᲊ	ᲈ Ᲊ	
		1E905	1E927	
SINNYIYHE (SA)	PULAAR	ᲊ ᲋	ᲊ ᲋	The proposed replacement reduces the height of the ascenders in the across all lowercase positons to prevent diacritic collision. The connection stroke in the uppercase has been standardized to come from the right-most stroke across all positions to simplify writing.
	NOTO	ᲊ ᲋	ᲊ ᲋	
	UNICODE	ᲊ ᲋	ᲊ ᲋	
	PROPOSED	ᲊ ᲋	ᲊ ᲋	

		1E906	1E928	The counterspace of the lowercase letters in the proposed replacement font has been opened up to improve color and legibility.
PE (PA)	PULAAR	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	NOTO	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	UNICODE	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	PROPOSED	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
		1E907	1E929	The initial and medial uppercase forms have been changed to be consistent across all positional forms. The revised forms flow more naturally when written. The changes to the lowercase are mostly a stylistic change that serves to open up the counterspaces for improved legibility.
BHE (BHA)	PULAAR	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	NOTO	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	UNICODE	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	PROPOSED	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
		1E908	1E92A	The proposed replacement features small ascenders in the isolated and initial lowercase forms. This helps define the letter when written in connected fashion while the elimination of the ascenders in medial and final positions prevent diacritic collisions.
RA (RA)	PULAAR	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	NOTO	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	UNICODE	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	PROPOSED	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
		1E909	1E92B	The design in the proposed replacement font is a stylistic variation of the Unicode font.
E (E)	PULAAR	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	NOTO	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	UNICODE	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	PROPOSED	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
		1E90A	1E92C	The design in the proposed replacement font is a stylistic variation of the Unicode font.
FA (FA)	PULAAR	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	NOTO	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	UNICODE	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	PROPOSED	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
		1E90B	1E92D	The proposed replacement features a small ascender in the medial form of the lowercase to help define the letter in running text.
I (I)	PULAAR	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	NOTO	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	UNICODE	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	PROPOSED	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
		1E90C	1E92E	The lowercase forms in the proposed design use a mix of open and closed forms. The closed forms are easier to write in the medial and final positions.
O (O)	PULAAR	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	NOTO	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	UNICODE	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	
	PROPOSED	ᐃᐃᐃ ᐃ	ᐃᐃᐃ ᐃ	

		1E90D	1E92F	The addition of the left ascender in the proposed design improves the relationship to the uppercase form and is a reversion to the historical design. The short horizontal bar in the uppercase is used to distinguish between cases rather than the descender used in the Unicode font.
DHA (DHA)	PULAAR	𐌵𐌵𐌵 𐌵	𐌵𐌵𐌵 𐌵	
	NOTO	𐌵𐌵𐌵 𐌵	𐌵𐌵𐌵 𐌵	
	UNICODE	𐌵𐌵𐌵 𐌵	𐌵𐌵𐌵 𐌵	
	PROPOSED	𐌵𐌵𐌵 𐌵	𐌵𐌵𐌵 𐌵	
		1E90E	1E930	The design of the lowercase in the proposed font reduces the letter height to prevent diacritic collision.
YHE (YHA)	PULAAR	𐌶𐌶𐌶 𐌶	𐌶𐌶𐌶 𐌶	
	NOTO	𐌶𐌶𐌶 𐌶	𐌶𐌶𐌶 𐌶	
	UNICODE	𐌶𐌶𐌶 𐌶	𐌶𐌶𐌶 𐌶	
	PROPOSED	𐌶𐌶𐌶 𐌶	𐌶𐌶𐌶 𐌶	
		1E90F	1E931	The design in the proposed replacement font is a stylistic variation of the Unicode font. The changes give the upper and lower cases their own distinctive structure.
WAW (WA)	PULAAR	𐌷𐌷𐌷 𐌷	𐌷𐌷𐌷 𐌷	
	NOTO	𐌷𐌷𐌷 𐌷	𐌷𐌷𐌷 𐌷	
	UNICODE	𐌷𐌷𐌷 𐌷	𐌷𐌷𐌷 𐌷	
	PROPOSED	𐌷𐌷𐌷 𐌷	𐌷𐌷𐌷 𐌷	
		1E910	1E932	The lowercase forms in the proposed font are simplified for ease of writing.
NUN (NA)	PULAAR	𐌸𐌸𐌸 𐌸	𐌸𐌸𐌸 𐌸	
	NOTO	𐌸𐌸𐌸 𐌸	𐌸𐌸𐌸 𐌸	
	UNICODE	𐌸𐌸𐌸 𐌸	𐌸𐌸𐌸 𐌸	
	PROPOSED	𐌸𐌸𐌸 𐌸	𐌸𐌸𐌸 𐌸	
		1E911	1E933	The upper and lowercase forms in the proposed font are more streamlined for writing. The ascenders in the lowercase forms were removed to prevent diacritic collision.
KAF (KA)	PULAAR	𐌹𐌹𐌹 𐌹	𐌹𐌹𐌹 𐌹	
	NOTO	𐌹𐌹𐌹 𐌹	𐌹𐌹𐌹 𐌹	
	UNICODE	𐌹𐌹𐌹 𐌹	𐌹𐌹𐌹 𐌹	
	PROPOSED	𐌹𐌹𐌹 𐌹	𐌹𐌹𐌹 𐌹	
		1E912	1E934	The forms in the proposed font make more consistent use the additional vertical stroke across all positons. The uppercase features the extra vertical stroke in the same fashion as the Laam, while the stroke has been removed from the lowercase.
YA (YA)	PULAAR	𐌺𐌺𐌺 𐌺	𐌺𐌺𐌺 𐌺	
	NOTO	𐌺𐌺𐌺 𐌺	𐌺𐌺𐌺 𐌺	
	UNICODE	𐌺𐌺𐌺 𐌺	𐌺𐌺𐌺 𐌺	
	PROPOSED	𐌺𐌺𐌺 𐌺	𐌺𐌺𐌺 𐌺	
		1E913	1E935	The changes in the proposed font are largely a stylistic variation of the Unicode font. The changes help open up the counterspaces to make them more legible. The addition of the short horizontal stroke in the uppercase helps distinguish it from the lowercase.
U (U)	PULAAR	𐌻𐌻𐌻 𐌻	𐌻𐌻𐌻 𐌻	
	NOTO	𐌻𐌻𐌻 𐌻	𐌻𐌻𐌻 𐌻	
	UNICODE	𐌻𐌻𐌻 𐌻	𐌻𐌻𐌻 𐌻	
	PROPOSED	𐌻𐌻𐌻 𐌻	𐌻𐌻𐌻 𐌻	

		1E914	1E936	The proposed font shifts the exiting connecting stroke to the center of the letter. The loops are staggered to help disambiguate it from the letter Tu. The connecting strokes of the lowercase letters have been moved to the outer strokes to better define the letter in running text.
JIIM (JA)	PULAAR	ᲢᲢ Ტ	ᲢᲢ Ტ	
	NOTO	ᲢᲢᲢ Ტ	ᲢᲢᲢ Ტ	
	UNICODE	ᲢᲢᲢ Ტ	ᲢᲢᲢ Ტ	
	PROPOSED	ᲢᲢᲢ Ტ	ᲢᲢᲢ Ტ	
		1E915	1E937	The changes in the proposed font are a stylistic variation of the Unicode font.
CHI (CHA)	PULAAR	ᲗᲗᲗ Თ	ᲗᲗᲗ Თ	
	NOTO	ᲗᲗᲗ Თ	ᲗᲗᲗ Თ	
	UNICODE	ᲗᲗᲗ Თ	ᲗᲗᲗ Თ	
	PROPOSED	ᲗᲗᲗ Თ	ᲗᲗᲗ Თ	
		1E916	1E938	The changes in the proposed fonts are largely a stylistic variation of the Unicode font. The vertical stroke of of the uppercase letters is exaggerated and more vertically oriented to help distinguish it from the lowercase.
HA (HA)	PULAAR	ᲕᲕ Ვ	ᲕᲕ Ვ	
	NOTO	ᲕᲕ Ვ	ᲕᲕ Ვ	
	UNICODE	ᲕᲕ Ვ	ᲕᲕ Ვ	
	PROPOSED	ᲕᲕ Ვ	ᲕᲕ Ვ	
		1E917	1E939	The proposed font standardizes the use of the additional vertical stroke in the uppercase to be consistent with other uppercase letters like the Laam. The ascenders in the medial and final lowercase positions are eliminated to prevent diacritic collision.
QAAF (QA)	PULAAR	ᲞᲞᲞ Პ	ᲞᲞᲞ Პ	
	NOTO	ᲞᲞᲞ Პ	ᲞᲞᲞ Პ	
	UNICODE	ᲞᲞᲞ Პ	ᲞᲞᲞ Პ	
	PROPOSED	ᲞᲞᲞ Პ	ᲞᲞᲞ Პ	
		1E918	1E93A	The changes in the proposed fonts are largely a stylistic variation of the Unicode font. The addition of the the ascender in the lowercase helps define the letter in running text.
GA (GA)	PULAAR	ᲚᲚᲚ Ლ	ᲚᲚᲚ Ლ	
	NOTO	ᲚᲚᲚ Ლ	ᲚᲚᲚ Ლ	
	UNICODE	ᲚᲚᲚ Ლ	ᲚᲚᲚ Ლ	
	PROPOSED	ᲚᲚᲚ Ლ	ᲚᲚᲚ Ლ	
		1E919	1E93B	The changes in the proposed fonts are largely a stylistic variation of the Unicode font.
NYA (NYA)	PULAAR	ᲠᲠᲠ Რ	ᲠᲠᲠ Რ	
	NOTO	ᲠᲠᲠ Რ	ᲠᲠᲠ Რ	
	UNICODE	ᲠᲠᲠ Რ	ᲠᲠᲠ Რ	
	PROPOSED	ᲠᲠᲠ Რ	ᲠᲠᲠ Რ	
		1E91A	1E93C	The changes in the proposed fonts are largely a stylistic variation of the Unicode font. The loops on the right have been opened up for improved color and legibility.
TU (TA)	PULAAR	ᲣᲣᲣ Უ	ᲣᲣᲣ Უ	
	NOTO	ᲣᲣᲣ Უ	ᲣᲣᲣ Უ	
	UNICODE	ᲣᲣᲣ Უ	ᲣᲣᲣ Უ	
	PROPOSED	ᲣᲣᲣ Უ	ᲣᲣᲣ Უ	

		1E91B	1E93D	The changes in the proposed fonts are largely a stylistic variation of the Unicode font. The additional vertical stroke in the uppercase helps distinguish it from the lowercase. This short stroke can be removed in heavier weights. This letter is a supplementary letter which is not part of the standard Pular orthography.
NHA (NHA)	PULAAR	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	NOTO	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	UNICODE	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	PROPOSED	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
		1E91C	1E93E	The design in the proposed replacement font is a stylistic variation of the original Unicode font. The changes give the upper and lower cases their own distinctive structure. This letter is a supplementary letter which is not part of the standard Pular orthography.
VA (VA)	PULAAR	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	NOTO	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	UNICODE	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	PROPOSED	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
		1E91D	1E93F	The changes in the proposed font are quite dramatic. This new form gives the letter more of a relationship to the letter Kaf. This letter is a supplementary letter which is not part of the standard Pular orthography.
KHA (KHA)	PULAAR	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	NOTO	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	UNICODE	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	PROPOSED	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
		1E91E	1E940	The changes in the proposed font are quite dramatic. This new form gives the letter more of a relationship to the letter Bhe. This letter is a supplementary letter which is not part of the standard Pular orthography.
GBE (GBA)	PULAAR	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	NOTO	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	UNICODE	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	PROPOSED	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
		1E91F	1E941	The changes in the proposed font are quite dramatic. This new form make the letter more distinctive. This letter is a supplementary letter which is not part of the standard Pular orthography.
ZAL (ZA)	PULAAR	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	NOTO	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	UNICODE	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	PROPOSED	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
		1E920	1E942	The changes in the proposed font are quite dramatic. This new form simplifies the letter making it less dense and easier to read while maintaining some relationship to what is in the Unicode font. This letter is a supplementary letter which is not part of the standard Pular orthography.
KPO (KPA)	PULAAR	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	NOTO	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	UNICODE	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	PROPOSED	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
		1E921	1E943	The changes in the proposed font are quite dramatic. This new form simplifies the letter making it less dense and easier to read. This letter is a supplementary letter which is not part of the standard Pular orthography.
SHA (SHA)	PULAAR	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	NOTO	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	UNICODE	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	
	PROPOSED	ᑭᑭᑭ ᑭ	ᑭᑭᑭ ᑭ	

1E944			
ALIF LENGTHENER	PULAAR		The proposed font shows upper and lower case variants for better fitting with the Alif. These are stylistic variations of one another.
	NOTO		
	UNICODE		
	PROPOSED	 	
1E945			
VOWEL LENGTHENER	PULAAR		The proposed font shows upper and lower case variants for better fitting with the Alif. These are stylistic variations that are discussed in the Unicode Proposal but not part of the Unicode Font.
	NOTO		
	UNICODE		
	PROPOSED	 	
1E946			
GEMINATION MARK	PULAAR		The proposed font shows upper and lower case variants. The uppercase form is wider to provide better balance to the larger letterforms. These are stylistic variations of one another.
	NOTO		
	UNICODE		
	PROPOSED	 	
1E947			
HAMZA	PULAAR		
	NOTO		
	UNICODE		
	PROPOSED		
1E948			
CONSONANT MODIFIER	PULAAR		
	NOTO		
	UNICODE		
	PROPOSED		
1E949			
GEMINATE CONSONANT MODIFIER	PULAAR	NA	
	NOTO		
	UNICODE		
	PROPOSED		
1E94A			
NUKTA	PULAAR		
	NOTO		
	UNICODE		
	PROPOSED		

1E950			
0	PULAAR	᠐	The proposed font uses an open form for the zero. This helps distinguish it from the zero in the Latin script. This is a reversion to a historical form.
	NOTO	᠐	
	UNICODE	᠐	
	PROPOSED	᠐	
1E951			
1	PULAAR	᠊	
	NOTO	᠊	
	UNICODE	᠊	
	PROPOSED	᠊	
1E952			
2	PULAAR	᠋	
	NOTO	᠋	
	UNICODE	᠋	
	PROPOSED	᠋	
1E953			
3	PULAAR	᠌	The design in the proposed replacement font is a stylistic variation of what is in the original Unicode Code Chart.
	NOTO	᠌	
	UNICODE	᠌	
	PROPOSED	᠌	
1E954			
4	PULAAR	᠍	
	NOTO	᠍	
	UNICODE	᠍	
	PROPOSED	᠍	
1E955			
5	PULAAR	᠎	
	NOTO	᠎	
	UNICODE	᠎	
	PROPOSED	᠎	
1E956			
6	PULAAR	᠏	Users were finding the number six used in the Unicode charts confusable with the letter Ha. The change in the proposed font makes the six more distinctive.
	NOTO	᠏	
	UNICODE	᠏	
	PROPOSED	᠏	

1E957			
7	PULAAR	𞤈	
	NOTO	𞤉	
	UNICODE	𞤊	
	PROPOSED	𞤋	
1E958			
8	PULAAR	𞤌	
	NOTO	𞤍	
	UNICODE	𞤎	
	PROPOSED	𞤏	
1E959			
9	PULAAR	𞤐	
	NOTO	𞤑	
	UNICODE	𞤒	
	PROPOSED	𞤓	
1E95E			
EXCLAMATION MARK	PULAAR	NA	The Adlam exclamation mark is used at the beginning of a sentence. The form was changed in the proposed font to be more aesthetically appealing to readers.
	NOTO	𞤔	
	UNICODE	𞤕	
	PROPOSED	𞤖	
1E95F			
QUESTION MARK	PULAAR	NA	The Adlam question mark is used at the beginning of a sentence. The form was changed in the proposed font to be more aesthetically appealing to readers.
	NOTO	𞤗	
	UNICODE	𞤘	
	PROPOSED	𞤙	

4. Usage of Supplementary Characters

The supplementary characters in Adlam are used for loan words and for proper nouns that come from neighboring ethnic groups. While these words are common, their use varies by region. Because the loan sounds are unique to these words and names the changes in the letterforms are not intrinsically confusing because readers can identify the words by their context.

The **𞤈** or **𞤉**(sha) is used in *Aisha* 𞤈𞤍𞤏𞤓. It is a very popular name but also in words borrowed mostly from Arabic: 𞤈𞤍𞤏𞤓𞤏𞤓 (cheick).

The **𞤐** or **𞤑**(kpo) as in *Kpelle* 𞤐𞤏𞤓𞤏 (Kpelle) name of an ethnic group in the south of Guinea and Liberia. 𞤐𞤏𞤓𞤏 (a local bar).

The **𞤎** or **𞤏**(zal) as in *Nzerekore*, town where the Barrys were born), 𞤎𞤏𞤓𞤏 (zakat) 𞤎𞤏𞤓𞤏 (Zina).

The **𞤒** or **𞤓**(gbe) as in *hometown of a former president*) and there are many other names and words in the coastal and Savannah regions with this sound. 𞤒𞤏𞤓𞤏𞤓𞤏𞤓 𞤒𞤏𞤓𞤏𞤓.

The **𞤔** or **𞤕**(va) as in *velo or bicycle*), 𞤔𞤏𞤓𞤏𞤓 (avion), 𞤔𞤏𞤓𞤏 (Vassy).

The **𞤗** or **𞤘**(kha) as in *laakhara or hereafter*) and used a lot in names and words in the coastal regions. 𞤗𞤏𞤓𞤏 𞤗𞤏𞤓𞤏.

5. Supporting Images

	1E90	1E91	1E92	1E93	1E94	1E95
0	𐌲	𐌳	𐌴	𐌵	𐌶	𐌷
1	𐌸	𐌹	𐌺	𐌻	𐌼	𐌽
2	𐌾	𐌿	𐍀	𐍁	𐍂	𐍃
3	𐍄	𐍅	𐍆	𐍇	𐍈	𐍉
4	𐍊	𐍋	𐍌	𐍍	𐍎	𐍏
5	𐍐	𐍑	𐍒	𐍓	𐍔	𐍕
6	𐍖	𐍗	𐍘	𐍙	𐍚	𐍛
7	𐍜	𐍝	𐍞	𐍟	𐍠	𐍡
8	𐍢	𐍣	𐍤	𐍥	𐍦	𐍧
9	𐍨	𐍩	𐍪	𐍫	𐍬	𐍭
A	𐍮	𐍯	𐍰	𐍱	𐍲	𐍳
B	𐍴	𐍵	𐍶	𐍷	𐍸	𐍹
C	𐍺	𐍻	𐍼	𐍽	𐍾	𐍿
D	𐎀	𐎁	𐎂	𐎃	𐎄	𐎅
E	𐎇	𐎈	𐎉	𐎊	𐎋	𐎌
F	𐎍	𐎎	𐎏	𐎐	𐎑	𐎒

	1E90	1E91	1E92	1E93	1E94	1E95
0	𐌲	𐌳	𐌴	𐌵	𐌶	𐌷
1	𐌸	𐌹	𐌺	𐌻	𐌼	𐌽
2	𐌾	𐌿	𐍀	𐍁	𐍂	𐍃
3	𐍄	𐍅	𐍆	𐍇	𐍈	𐍉
4	𐍊	𐍋	𐍌	𐍍	𐍎	𐍏
5	𐍐	𐍑	𐍒	𐍓	𐍔	𐍕
6	𐍖	𐍗	𐍘	𐍙	𐍚	𐍛
7	𐍜	𐍝	𐍞	𐍟	𐍠	𐍡
8	𐍢	𐍣	𐍤	𐍥	𐍦	𐍧
9	𐍨	𐍩	𐍪	𐍫	𐍬	𐍭
A	𐍮	𐍯	𐍰	𐍱	𐍲	𐍳
B	𐍴	𐍵	𐍶	𐍷	𐍸	𐍹
C	𐍺	𐍻	𐍼	𐍽	𐍾	𐍿
D	𐎀	𐎁	𐎂	𐎃	𐎄	𐎅
E	𐎇	𐎈	𐎉	𐎊	𐎋	𐎌
F	𐎍	𐎎	𐎏	𐎐	𐎑	𐎒

Figure 1 – Comparison of Codesheets from the 2013 Adlam Unicode Proposal (left) and the 2014 Adlam Unicode Proposal (right)

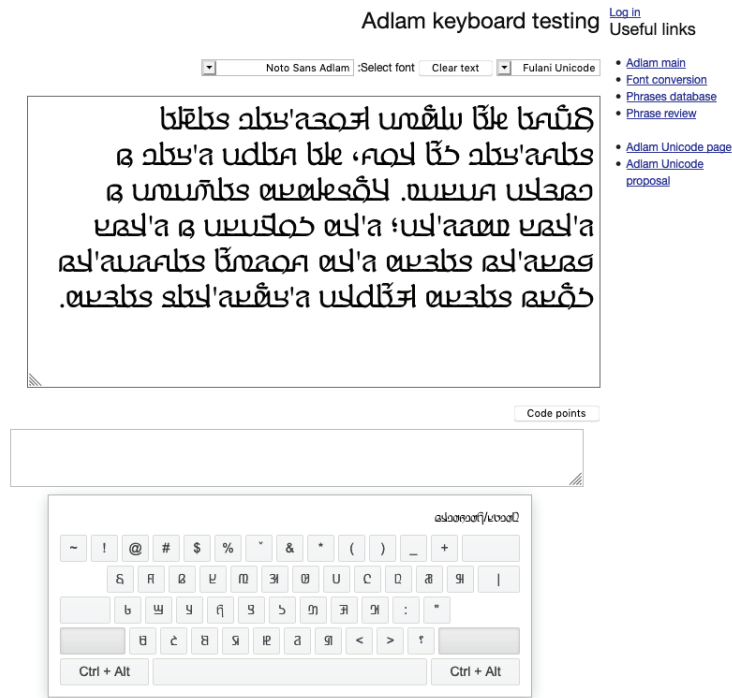


Figure 2 – Adlam Appspot utility by Google allows users to type Adlam text with an on-screen keyboard and convert text from pre-Unicode fonts. This utility uses the Noto Sans Adlam and the three pre-Unicode fonts, Pulaar, Aissata and Fuuta. Dec. 2016

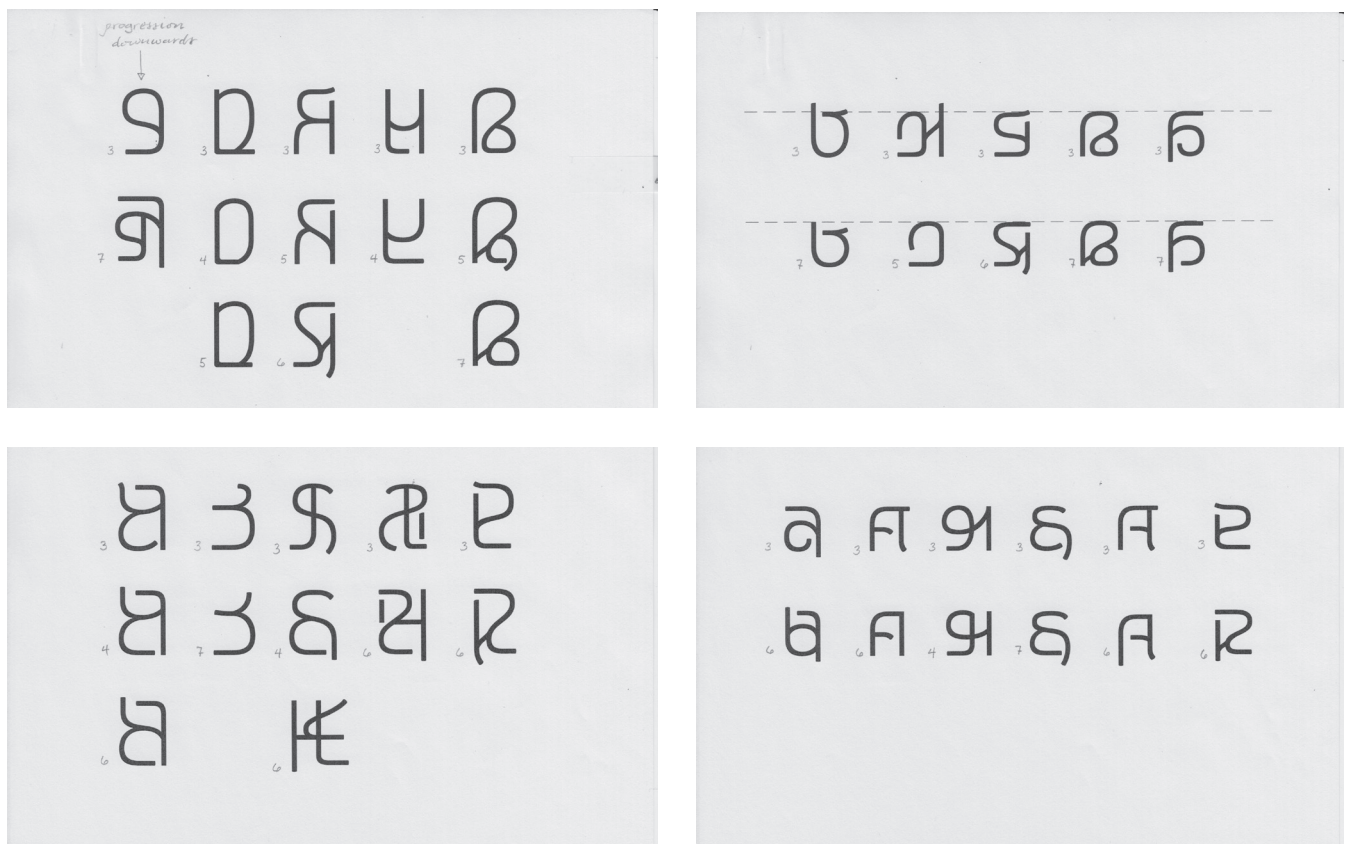


Figure 3 – Example of design iterations between 2017–2018. Variations are chronologically arranged top to bottom in each example.

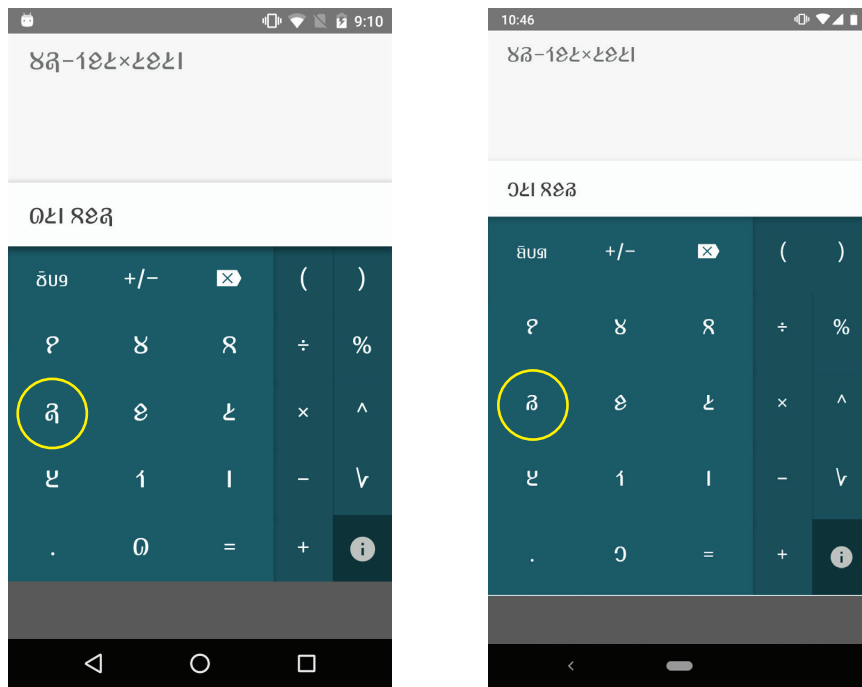


Figure 4 – Adlam Kiimirgal, calculator app. Early version (left) and newer version (right) showing updated numerals. Note: The reversal of the lower part of number six (circled) was an error that was fixed in Kigelia and is slated to be updated in Ebrima. June 2017

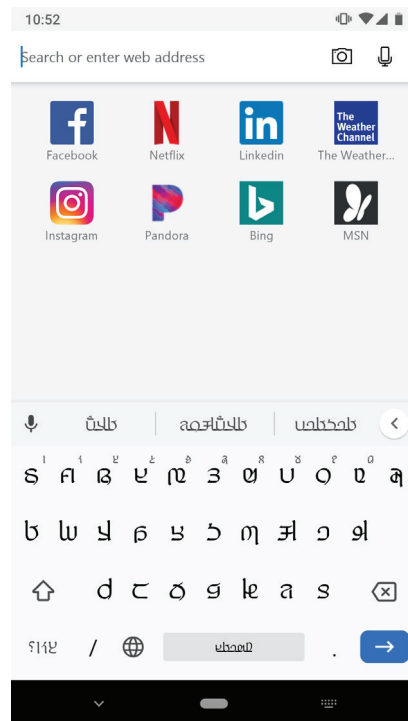


Figure 5 – Google Gboard for Adlam using Noto Sans Adlam. Dec 2017

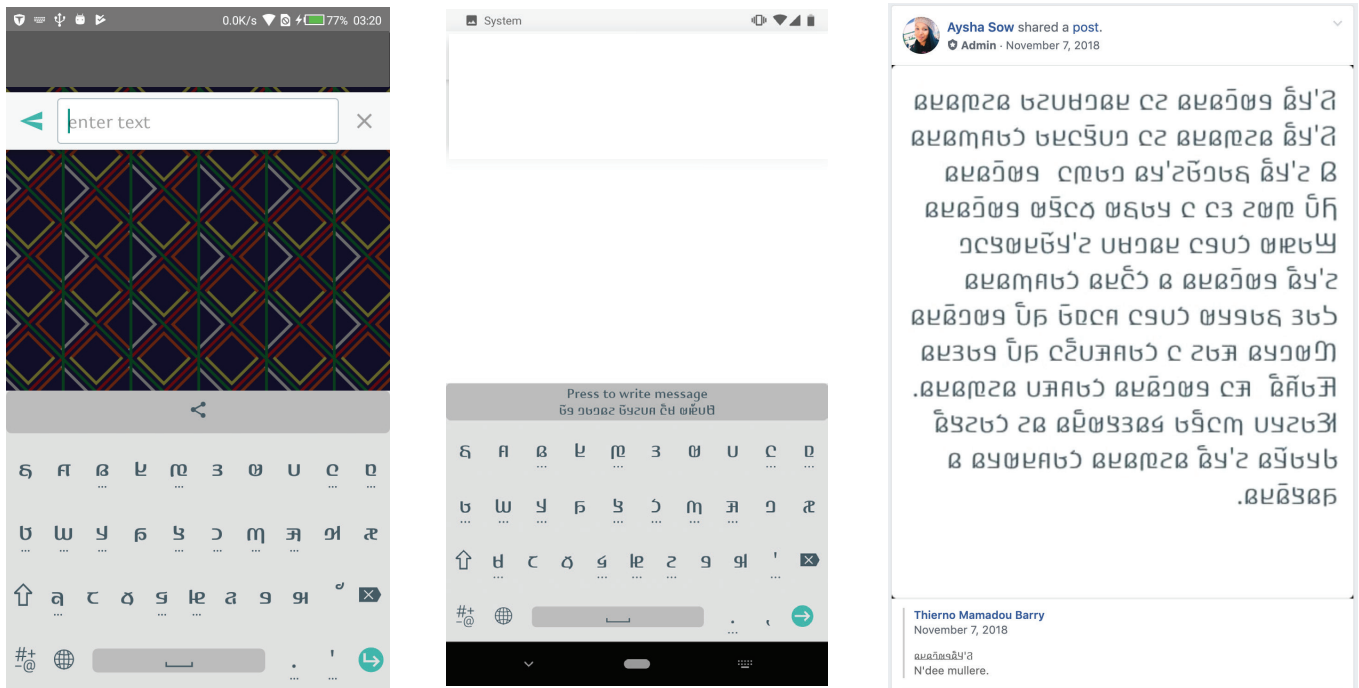


Figure 6 – Tappirgal Adlam, keyboard app. Early version (left) and newer version (center) showing letterforms that were updated while developing Kigelia. The image on the right shows Kigelia being used on Facebook using the text-to-image feature of Tappirgal. March 2018

- Ra - center top.
 E. B - rounder top part
 remodel bottom
 ↳ kicks up from bottom
 vertical
 - rest corner based on medi
 Fa - make connected to like isol ^{"hump"}
 O - see drawing.
 Dha - tighten top right corner.
 Yhe - fine same treatment as O.
 - Waa - ad like isol.
 - K - tighten right corner.
 Ya - take head treatment to rest
 also the bottom.
 I - make bottom like W
 Jim make optically even.
 lower ~~left~~ side
 right
 Chi - copy isol changes. <sup>Do all designs
(Nm o11)</sup>
 Ha - redesign refine ~~as~~ vertical to
 curve. look @ init.
 Roet - tighten vertical. - like others.
~~hadi~~
 Ga - took proportions all the
 top line - important to distinguish
 but has the correct branding.
 Ga needs new connection.
 Nga revert to old. (perfect)
 Nga because connection.
 To copy isol for fine strokes connection
 fine.
 - Nha - revert to old.
 - Vla - copy waa.
 Kta ~~at some~~ as Kafi Vla all same ^{conn}.

Gbe change to Nha + conn.
 - ~~Zed redesign~~ note optically balanced.
 - hump like ~~See~~
 Kpe kill stroke 2 connected
 Sha redesign new connection
 medium.
 + Lowercase. overall the lowercase
 looks squished. lot. should have
 the proportion of uppercase.
 hard to read & feels offhand.
 lower alt. initial. has ~~as~~ and isol has
 ascender rest low.
 da - initial isol tall rest low.
 ↳ alt etc will have different
 - medial forms. even ~~in~~ unconnected.
 la - bottom right corner very important.
 - ~~form~~ ~~or~~ ~~style~~ connection
 like upper case
 Nam - flatter inner curve ^{contrast}
 ta - ascender isol. initial. ^{conn/uncon}
 rest same height.
 ↳ same curve.
 ra - same ascender treatment.
 - slope of P like upside down Fa
 e - match capital.
 fa - ^B round top. aim same
 optical width.
 ↳ rising curve.
 o - make capital. ^{init & isol}
 tail on final form nudge in.
 dho medial slightly higher ascender but no
 callition with mark.
 - unconnected type same.
 yhe. minor optical
 connection good.
 ewas - minor tweak for connected. see medi
 on all even isol.

Figure 7 – Sample pages of notes taken during the Spring 2018 session to finalize all letterforms.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
1E90	Რ	Ს	Ტ	Უ	Ფ	Ქ	Ღ	Ყ	Შ	Ჩ	Ც	Ძ	Წ	Ჭ	Ხ	Ჯ	JamraPatel's Kigelia
	Რ	Ს	Ტ	Უ	Ფ	Ქ	Ღ	Ყ	Შ	Ჩ	Ც	Ძ	Წ	Ჭ	Ხ	Ჯ	Microsoft's Ebrima
1E91	Ლ	Მ	Ნ	Ო	Პ	Ჟ	Რ	Ს	Ტ	Უ	Ფ	Ქ	Ღ	Ყ	Შ	Ჩ	
	Ლ	Მ	Ნ	Ო	Პ	Ჟ	Რ	Ს	Ტ	Უ	Ფ	Ქ	Ღ	Ყ	Შ	Ჩ	
1E92	Ლ	Მ	Ნ	Ო	Პ	Ჟ	Რ	Ს	Ტ	Უ	Ფ	Ქ	Ღ	Ყ	Შ	Ჩ	
	Ლ	Მ	Ნ	Ო	Პ	Ჟ	Რ	Ს	Ტ	Უ	Ფ	Ქ	Ღ	Ყ	Შ	Ჩ	
1E93	Ლ	Მ	Ნ	Ო	Პ	Ჟ	Რ	Ს	Ტ	Უ	Ფ	Ქ	Ღ	Ყ	Შ	Ჩ	
	Ლ	Მ	Ნ	Ო	Პ	Ჟ	Რ	Ს	Ტ	Უ	Ფ	Ქ	Ღ	Ყ	Შ	Ჩ	
1E94	Ლ	Მ	Ნ	Ო	Პ	Ჟ	Რ	Ს	Ტ	Უ	Ფ	Ქ	Ღ	Ყ	Შ	Ჩ	
	Ლ	Მ	Ნ	Ო	Პ	Ჟ	Რ	Ს	Ტ	Უ	Ფ	Ქ	Ღ	Ყ	Შ	Ჩ	
1E95	Ლ	Მ	Ნ	Ო	Პ	Ჟ	Რ	Ს	Ტ	Უ	Ფ	Ქ	Ღ	Ყ	Შ	Ჩ	
	Ლ	Მ	Ნ	Ო	Პ	Ჟ	Რ	Ს	Ტ	Უ	Ფ	Ქ	Ღ	Ყ	Შ	Ჩ	

Figure 8 – Comparison of Ebrima to Kigelia. Ebrima and Kigelia are designed using the same letterform models. Being a system font, Ebrima only includes the unconnected variant of the letters. Note: Corrected form of number six (1E956) is shown in both fonts. Ebrima will be updated in Windows soon. May 2018

ADLaM and Osage keyboard support

Building on the font support we [announced](#) recently, today we're introducing keyboard support for ADLaM and Osage. ADLaM script is used to write Pular/Fulfulde, the language of the Fulani people of West Africa. Osage script is used to write the Osage language spoken by the Osage Nation in Oklahoma.

Here is an example what you'd see on the touch keyboard when using ADLaM:

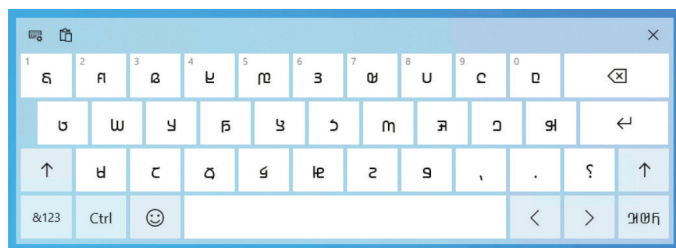


Figure 9 – Screenshot of the Windows Insider blog announcing Adlam support with Ebrima and accompanying keyboard. Feb 2019