Implementing ADLaM: What Happens After Unicode Adds the Script?

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FULANI - PULLO/FULBHE: The People

- One of the largest ethnic groups and numbering more than 50 millions
- From the Senegal river delta on the Atlantic coast to the banks of the Nile River in Sudan
- Present in 23 countries and in many large cities in Africa and around the world
- Called Fulani, Fula, Peulh, Fulbhe, Fellata, etc
  - FULANI by English speakers, a word borrowed from the Hausa language in Nigeria
  - PEULH by French speakers who borrowed it from the Wolof in Senegal
  - They refer to themselves as PULLO in Singular and FULBHE in the plural form
- They include other subgroups: Wodaabhe, Bororo, Wassulu, Khasoneke, Kurte, etc
- They are historically a nomadic people known primarily for cattle herding
- They created many kingdoms in Africa
FULANI REGIONS
FULFULDE/PULAAR: The Language

FULANI GROUPS ACROSS AFRICA

[Map showing the distribution of Fulani groups across Africa with labels for countries and regions such as Mauritania, Senegal, Mali, Nigeria, Chad, and Ethiopia. The map also includes regional names like Fulfulde Maasina, Fulfulde Gorgal, and Fulfulde Bagirmi, indicating the spread of the Fulani language and culture.]

*Fulani are also called the Fulfulde, Peul, and Pular depending on their location and surrounding peoples.

Maximal extent of Fulani areas

0 500 1000 1500 2000 Kilometers
FULFULDE/PULAAR: The Language

- Belong to the North Atlantic branch of the Niger Congo Family of languages
- Known as Pular or Pulaar in countries West of Mali and Fulfulde on the East
- Spoken in at least two dozen countries and is recognized as a national language in many of them including: Guinea, Senegal, Mauritania, Burkina Faso, Mali, Cameroon, etc.
- It is one of the recognized languages of the African Union and the ECOWAS
- Originally written using the Arabic alphabet (Ajami) without standardization: there are many manuscripts in Guinea, Senegal, Nigeria, Mali
- Latin Alphabet has been used but in different forms since 1970’s
  - In Guinea it was taught during the first regime using a different set of latin characters
THE BEGINNING OF BINDI PULAR

- Existing Alphabets: Ajami and Latin
  - Lack of standardization
  - Lack of enthusiasm
- Idea: Born from challenges with the existing alphabets and the promise
  - To our dad
  - To a friend of the family at our mom’s restaurant
- Techniques
  - Randomly drawing
  - Imagining what a letter should look like and drawing it based on that image
- Bindi Pular (Fulani Script) was the name of Alphabet
- Our sister was the first to learn the new alphabet.
- Taught the new alphabet at the local market
FIRST STUDENT: Aissata
THE 1\textsuperscript{ST} GENERATION (1990-1994) : EARLY MANUSCRIPTS
FIRST BOOKS (1990-1994)

- Main characteristic: joined letters.
- Handwritten
THE 2\textsuperscript{ND} GENERATION (1994-1998)

- Main characteristic: Letters were unjoined
- Easy to learn and to read for new students
3rd Generation: 2000s
EARLY CHALLENGES AND OPPORTUNITIES

- Challenges: Until 2007, books and learning materials were all written by hands
  - Writing books took more time
  - Multiplying books was a challenge
  - Doubt from users and criticism from others for the lack of computerization
  - Misinformation about its origin and adoption by technology companies
  - Lack of support from the establishment

- BINDI PULAR opportunities
  - High rate of illiteracy in French
  - Attachment to national languages
  - Accuracy in reproducing all the sounds of the Pular language
4TH GENERATION: BINDI PULAR IN COMPUTERS

- March 2007: Ibrahima moved to the US. He spent 3 weeks teaching the ADLaM and informing people about the need to develop a keyboard

- August 2007: Worked with a company in Seattle to create fonts for the alphabet and create a keyboard for it. Three fonts were made
  - Pulaar
  - Fuuta
  - Aissata (in the memory of our late sister who was the first student of the Alphabet)
SPREADING BINDI PULAR IN AFRICA

- Two trips across West Africa
  - Thierno Boubacar Barry went to 9 countries in 2011
  - Jinde Niasse in 2010, 2015 visited Nigeria, Cameroon
ADLAM IMPACT: Books and Newspapers
THE 5TH GENERATION 2010s: ADLaM, CALLIGRAPHY AND NEW DESIGNS

- 2012: The instructors of the alphabet in Guinea gave a more appropriate name to the writing system: ADALAMA → ADLaM from the first four letters of the Alphabet
- Class with Rebecca (discovering the world of Calligraphy)
ძველი ხანის მნიშვნელობა
სამეცნიერო და
საფუძვლად საბრძოლო მონაწილეობა
1884 წლის სტატიის
ხელით. მიღწევა.

ამბიციონურად მონაწილე
ჩამოთვლის სიტუაცია
მდგომარეობაზე და
ინტენსიურად.
ADLaM & THE PATH TO UNICODE

How do we make ADLaM available in computers and other electronic devices?

Unicode

- Long process
- 2004 & 2007: Contacts University of Berkley
- 2012: Contacted SIL and Berkley
- 2013: Calligraphy conference in Colorado Springs, Colorado: Randy Hasson and Stephen Rapp helped reestablish contact with Unicode
PATH TO UNICODE

- September 2013: Met with Michael Everson in Vancouver
- November 2013: Preliminary Proposal was submitted
- May 2014: Meeting in NY
- May 2014: First ADLaM code chart
ADLaM ENCODED

- Unicode Technical Committee Meeting in October 2014
- Started working with MTI for making the ADLaM Noto font
- After the long wait, finally:

Dear Abdoulaye and Ibramhima,
I am very happy to report that on Friday, 13 May, the Unicode Technical Committee approved the release in June (or possibly early July) of Unicode 9.0, which will include Adlam. Congratulations!

May 16, 2016
Adding Adlam

Unicode is just the start
Adlam Unicode at a glance

- 34 letters + 7 modifiers + 10 digits + 2 punctuation
- vowels, consonants, modifiers, punctuation
- bicameral: upper and lower case
- right-to-left direction for text
- numbers are RTL - most significant on right
- characters may be joined in rendering
From Unicode to Usable

The following are generally needed for actual use of the language / script:

- Fonts
- Keyboard
- Browser support
- Text support in applications
- Mobile device support
Font challenges

1. Rendering systems: need to know that the script is RTL
2. Display text in “joining” mode
3. New fonts need to be developed
4. Combining characters need to display correctly in all combinations
5. Font should include other characters including punctuation, ASCII, numerals
Text processing challenges

1. Displaying / rendering characters in applications
2. Upper and lower case conversions - not implemented on all platforms, e.g., JavaScript
3. Existing text in font encoding form needs conversion
   1. Arabic-based text
   2. Latin-based
4. Spell check and suggestions?
Keyboards

- Layout of characters:
  - decide what characters where
  - what layers to use
  - alternate alphabet(s)?

- Rules:
  - key combinations
  - short cuts

- Soft keyboards:
  - long press options
  - word lists to display for suggestions
All platforms: desktop, web and mobile devices

- Support for Unicode characters beyond the BMP
- Older phones and new fonts
  - Can we use Adlam on phones that are not the latest version?
- Keyboards:
  - mobile
  - web
  - desktop
- Apps:
  - text processing
  - example: calculator application
  - Other needs: SMS / Texting
Our testing website: adlamtesting.appspot.com

- Basics:
  - Prototype the keyboard
    - Layout of characters
    - Which keys to include
    - Rules for converting input or shortcuts
  - Check font rendering options
    - Character shape
    - Check interactions with combining and base characters
Advanced features

- Debug converting old font encodings to Unicode
- Collect word and phrase lists in Fulani and another languages
- Promote online learning
- Support audio phrases upload and playing
ADLAM’S IMPACT

- ADLaM is a great leveler
- Opportunities for women and young girls to get educated
- People who were discounted as illiterates can now read and write and even author books.
- Access to information and to knowledge
- Increase enthusiasm for the language
- Unification of the language: With other writing systems, each group is writing in their own dialect
- More integration between the people
Learning centers in Nigeria & Niger
Learning Center in Benin and Togo
Learning Centers in Sierra Leone
Learning Centers in Guinea
ADLaM in CAMEROON
PROJECTS

- Fonts for the encoded characters
  - Noto
  - Additional fonts and keyboards
  - Working with Craig Cornelius for online tools
- Addition of ADLaM to all platforms: (Windows, Android, iOS, Facebook, etc.)
- Websites using the new encoded fonts
- Creating an online ADLaM learning platform
- Create applications for learning and communicating
- Annual ADLaM conventions in Guinea and soon in other countries
- ADLaM for other African languages
CHALLENGES

- Technology
  - Smartphones and Computers
  - Fragmentation (Android, Windows, iOS, Facebook, etc.)
  - Direction: RTL Vs LTR
  - Backward Compatibility (Android...)
- Missing punctuations
- Resources
  - Time
  - Materials and Publications
  - People
ADLaM PROSPECTS

- More than 50 million speakers of the Pular/Fulfulde in Africa and around the world
- Between 100 and 150 million potential speakers in West Africa alone.
- Potential for ADLaM to be used for Hausa in Nigeria.
- Big presence of Fulani on social media.
- Big interest in ADLaM smartphones and other devices
- Many Grassroots movements to support the promotion of ADLaM
- Schools and learning centers opening across West and Central Africa