04 Mwaneḷe Typography

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To the Mwane, as they find their way in the 21st century

Hello everyone!

For this issue of Segments we're less typology and more typography! In this article, I'm going to talk about my process for designing a digital font for the script I use to write Mwaneḷe. My goal is to write something that shows my train of thought and creative process, but that could also be helpful for people who are designing fonts for their own conlangs. Before I get to that, I want to give an overview of how the Mwane script works.

How Mwane Script Works—

Mwaneḷe is written with an abugida, natively called **tatasi mwane**, which means *'Mwane writing.'* In-world, it's descended from an earlier alphabet and reflects a couple things about the recent evolution of the language's sound system. Out-of-world, I created it during Lexember 2018 when I was first making the language.

It's good to know bit of Mwaneḷe phonology to see how the script works. Southern Mwaneḷe has a bog-standard five vowel system along with these consonants:

	Labial		Coronal		Dorsal	
	Vel.	**Lab.**	**Plain**	**Vel.**	**Plain**	**Lab.**
Stop	p^{ɣ} b^{ɣ}	p^{w} b^{w}	t d	t^{ɣ} d^{ɣ}	k g	k^{w} g^{w}
Nasal	m^{ɣ}	m^{w}	n	n^{ɣ}	ŋ	ŋ^{w}
Fricative	f^{ɣ}	ɸ	ʃ	s^{ɣ}	x	x^{w}
Approx.			l	l^{ɣ}	j	w

Consonants and vowels always alternate: the first syllable of a word can be just V and the last syllable can be CVC, but otherwise syllables are strictly CV. Word-finally, voicing and secondary articulation are neutralized, except for /l l^{ɣ}/, and glides are disallowed.

I usually write Mwaneḷe in a phonemic romanization. I write labialized consonants with ⟨Cw⟩ digraphs and velarized coronals with an underdot. I write /fˠ ɸ/ as ⟨f f̣⟩ but otherwise I write velarized labials as ⟨p b m⟩ (since they don't have plain counterparts). I write /ʃ/ as ⟨s⟩ since there's no plain /s/. The rest of the sounds have their IPA letters. As an example, the name of the language /mʷánelˠe/ is romanized as ⟨mwaneḷe⟩ with an ⟨mw⟩ digraph for the labialized consonant, a dotted ⟨ḷ⟩ for the velarized consonant, and IPA values elsewhere.

Looking back at the consonants, as long as you group /j w/ together, you get neat pairs distinguished by secondary articulation. Mwane people traditionally divide these into **mek** *'light'* and **tax** *'dark'* groups. Labialized consonants and plain coronals are considered light and velarized consonants and plain dorsals are considered dark.

Historically, labialization occurred when a labial or velar consonant came before a rounded vowel. Until recently there were two low vowels, /æ ɑ/ but they merged to /a/ in almost all dialects, creating some minimal pairs distinguished by rounding. Velarization occured mostly as a result of cluster simplification, first with /Cl Cr/ clusters merging to /Cɹˠ/, and then /ɹˠ/ being lost and leaving velarization behind. If there was another consonant between a velar and a rounded vowel, it blocked labialization, even though velar consonants can't be velarized. This merger plus the loss of consonant clusters led to phonemic secondary articulation.

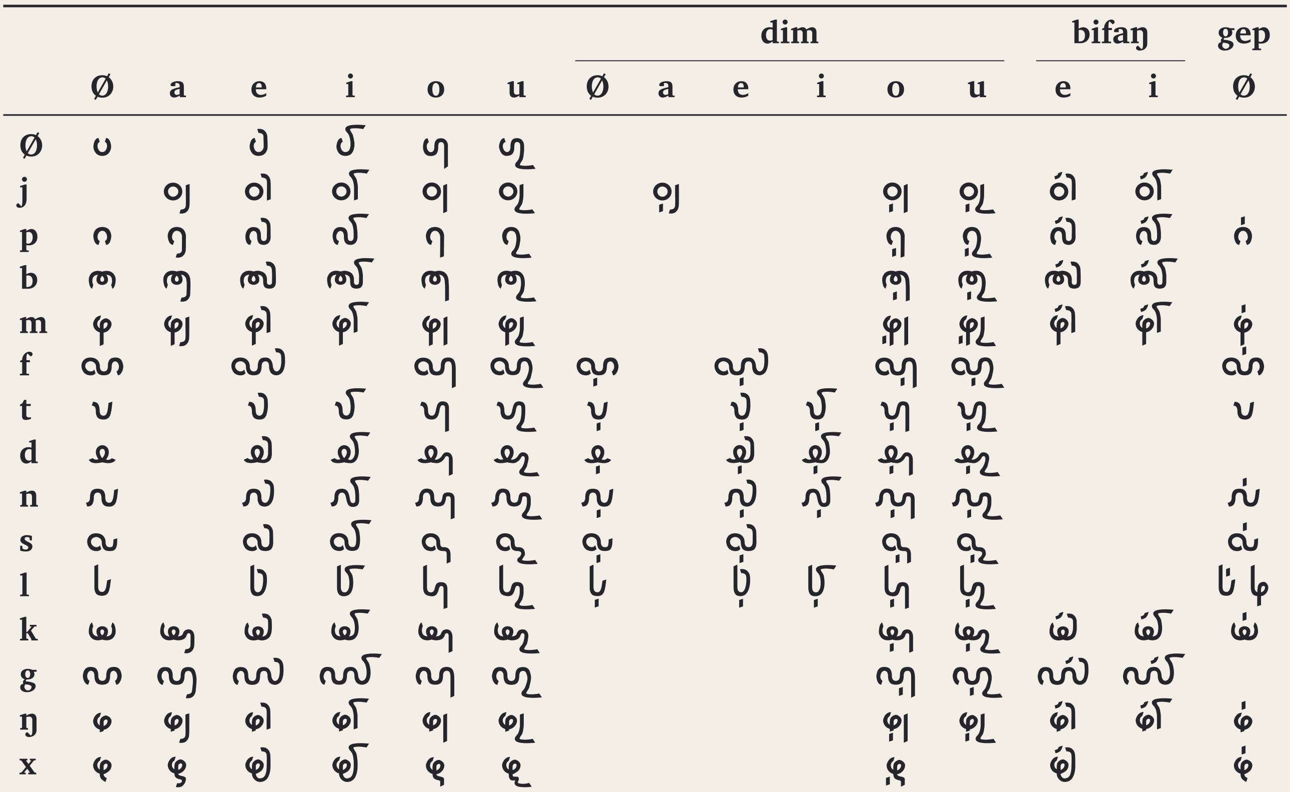


Table 1: The glyphs used to write Standard Southern Mwaneḷe

Some of this history is reflected in the way that the Mwane script works. The modern script is an abugida with fourteen consonant series, plus a series for word-initial vowels. It dates back to when there were 6 vowels and from before there was contrastive secondary articulation, so the vowels and the consonants don't quite match up. Bare consonant letters are pronounced with an inherent vowel /a/. Each consonant has a form for each of the other vowels /e i o u/ and some have an additional written form for /a/. Word-final consonants are marked with a vertical line above, called the **gep**, to mark that there is no inherent /a/. There's a special character for word-final /lˠ/. You can see all of the glyphs in table 1.

Each consonant series is unspecified for secondary articulation. So the same letter base is used for /b^{ʏ}/ and /b^{w}/ or for /ʃ/ and /s^{ʏ}/. There's also a single glide series for /w/ and /j/. Each consonant's secondary articulation is marked by the following vowel in combination with a few diacritics. In general, the vowel signs for back vowels /o/ and /u/ as well as the overt /a/ labialize consonants, whereas the signs for the front vowels /e/ and /i/ as well as the inherent /a/ don't. There are two diacritics that mark secondary articulation: a vertical line below the letter, the **dim**, marks consonants as velarized or non-labialized, and a curved stroke above the letter, the **bifaŋ**, marks consonants as labialized before front vowels. Here's how it works out for each group of consonants:

For most non-coronal consonant letters (the ⟨p b m k g ŋ x⟩ series) the base letter is pronounced non-labialized plus /a/ and remains non-labialized when combined with the vowel signs for /e i/. The consonants are labialized before the vowel signs for /a o u/. Non-labialized consonants before /o u/ are written with the vowel signs plus the **dim**. Labialized consonants before /e i/ are written with the vowel sign plus the **bifaŋ**.

The glide letter mostly works the same way as non-coronal consonants, treating /w/ as the labialized form of /j/. The one exception is that /ja/ is written with the overt /a/ vowel sign plus the **dim**.

For other consonant letters (the ⟨f t d n s l⟩ series), consonants are plain before all vowel letters. Velarized consonants are marked with a **dim** before all vowels.

If you look at the table 1, you'll see a few holes. There are gaps in the columns with the overt /a/ sign and the **bifaŋ**, since coronal consonants don't use those and with the **dim** before non-back vowels since non-coronal consonants don't need that. The glide letter and voiced stops don't take the **gep** since they don't occur word-finally. Since secondary articulation distinctions are mostly neutralized at the ends of words, letters with the **gep** can't also have a **dim** or **bifaŋ**. The one exception is the character for /l^{ʏ}/ ⟨⟩, which has a special character.

There are also a few gaps that result from the syllable they represent not actually showing up in the language. Before /i/, /ʃ s^{ʏ}/ merge to [ɕ] and /x x^{w}/ merge to [ç]. Before /u/, /x/ merges to /x^{w}/. These are written with the glyphs for ⟨si xi xwu⟩ respectively, so the glyphs that would write ⟨ṣi xwi xu⟩ aren't used. Historically, labialized consonants didn't occur before /i/, but thanks to ideophones and to loanwords from nearby languages like Anroo, Lam Proj and Ṭaleŋeḷe, most labialized consonants can occur before /i/, if rarely. However, [fi] was loaned as /f^{ʏ}i/ rather than /ɸi/, so the glyph that would write ⟨fi⟩ is not used.

Independent words are written with spaces between them, but clitics are written without a space between them and their host. Ends of independent clauses or sentences are marked with a vertical line | and ends of paragraphs or sections of text are marked with a double vertical line ||. I'm sure there's other punctuation, I just haven't created it (and/or learned about it) yet.

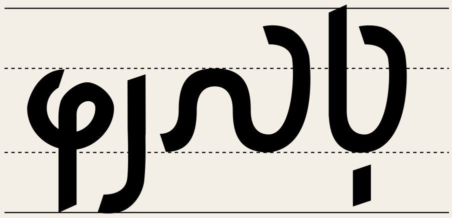
Break it down now, y'all—

I had designed this script back in 2018. I handwrite things in it, so I've gotten a feel for how it works. But when we announced the theme for this issue of Segments, I still hadn't digitized it.

When I started thinking about how to go about making a Mwane font, I remembered this super interesting graphic I had seen a few years ago by Filipino designer Norman de los

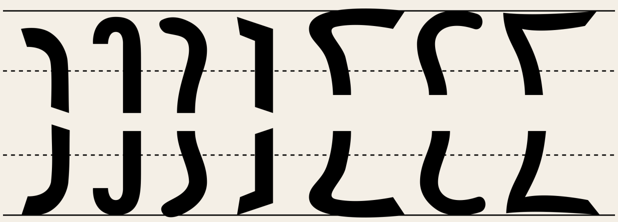
Santos.[1] In this graphic, he breaks down the shapes of Baybayin, an indigenous Filipino script, to show the different components and elements that make up the letters. He gives a couple different versions for each of the components to show what they could look like in different typefaces. I wanted to make something like this for Mwane script.

First I thought about measurements and guidelines. Mwane letters have a central body with a relatively constant height. There are also ascenders (like in) and descenders (like in), which peak above or dip below the main body of the characters by about the same height. The proportions of the letters are more or less defined by these measurements.

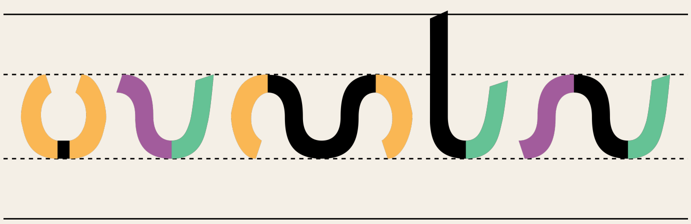


Then I thought a bit about the different components that make up the characters. Most of the glyphs have one of five vowel markers on them as a component on the right-hand side. The ⟨o⟩ sign is a straight vertical descender. The ⟨a⟩ sign is a descender with a small hook to the left and the ⟨e⟩ sign is an ascender with a small hook to the left. Those two can be built from the same component, just flipped. Similarly, the ⟨u⟩ sign is a descender that first moves left, then ends in a curve pointing to the right, and the ⟨i⟩ sign is an ascender with the same pattern. Those can be built from a single component too.

There are lots of ways to play with the shapes of the vowel glyphs. You can change how far the ascenders and descenders curve, you can make the curves smooth or angular, you can give them rounded or blunt edges, and so on.

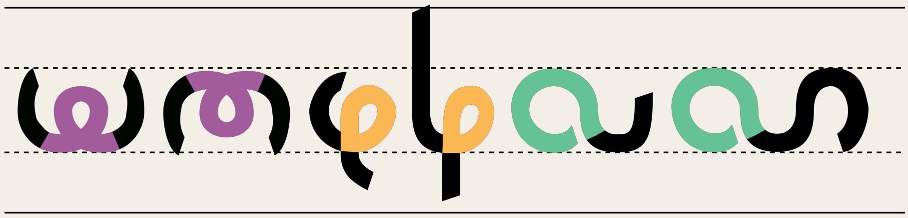


Now the base letters. I started by identifying some strokes that make up the base letterforms. Mwane script has a few strong vertical lines, but most of the components of base letters are curves around the base height. The curve colored yellow is common at beginnings and ends of letters. The curve colored green is common on the right-hand side of letters and is sometimes used as a smooth transition to ascenders when letters ending in the yellow stroke take high vowel signs. The curve in purple shows up as a flourish at the beginning of letters. Some letters, like and below, have connectors with curves similar to the ones in purple.



[1] If you're reading the PDF, then that's a link, but you can click here to see it too. If you're reading a printed copy, then search for 'nordenx baybayin' and you'll find the chart!

Mwane script has a couple looping motifs too. There's the purple loop with the ends pointing in opposite directions that shows up right-side-up in and upside-down in . There's a similar loop in , although it can be a bit higher, so has the right character height. Then there's a loop where the line enters from the left and leaves pointing downwards, highlighted in yellow in and , but which also shows up in and . Last, there's the loop in green on the left-hand side of and . That loop can be fully closed or slightly open at the bottom.



Figuring out the different components that the script was made of gave me a good place to start working on it. With the vowel signs and the different repeating elements of the consonant letters identified, I started working on the typeface itself.

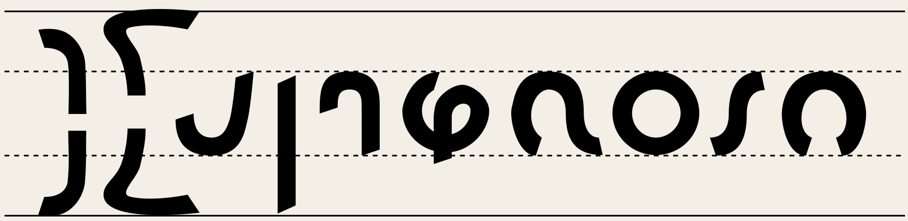
Building the Typeface—

I set up guidelines for the ascender height, character height, and descender depth. I settled on a ratio of 5:7:5, with descenders and ascenders a bit shorter than the body, but not by much. (Those are the proportions I've been showing in the examples so far.)

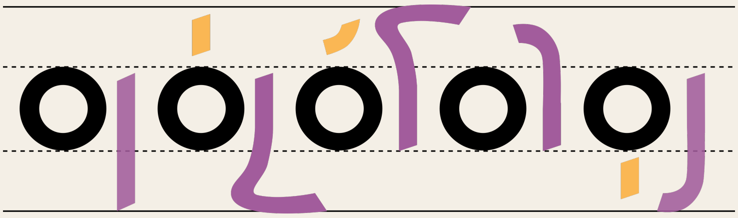
Then I made some components. After playing around a bit, I made a few design choices. In-world, Mwane script evolved to be written in palm-leaf manuscripts, so strokes are generally curved with no sharp angles. More recently, there are versions of the script with sharp corners and with some loops replaced by cusps, but I decided to keep it traditional. Gentle curves and open loops, with a fairly constant line weight.

I thought about how I wanted the ends of the lines to look. I tried tapered ends, rounded ends, squircle ends, and blunt rectangular ends. Tapered ends didn't match the otherwise consistent line weight and I thought that rounded ends didn't look very clean. I decided that for this typeface at least, I'd end lines on a 1:3 slant.

Here's the menu of components that I created.

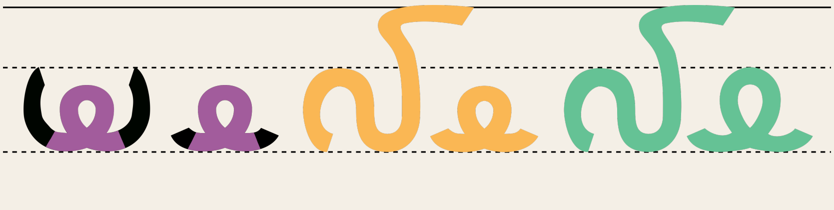


From these components, I could build out letters. I started with the glide series. Since those letters all consist of a circle plus an unattached vowel sign, I thought they were an easy place to start. I had to modify the vowel signs a bit to fit as full-length standalone glyphs instead of being attached to the base character. I also made the three diacritics and checked their placement to make sure they'd fit with the vowel signs.



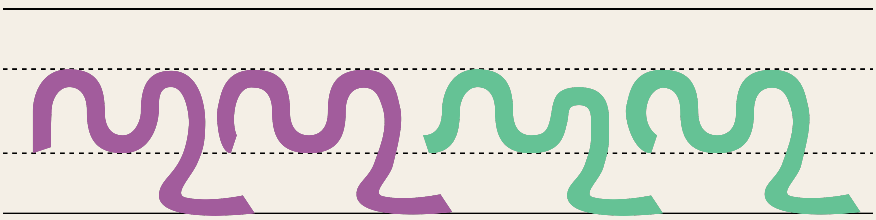
I felt fine about the way the glide letters looked, so I started making base letters for each of the consonants (). I put together most of the letters out of the components more or less how I showed them broken down above.

I ran into a problem with . My initial plan had been to make the letter using the same component as the loops in and . You can see the purple bit copied between them in the figure below. The mid-loop for doesn't reach to the top of the character body space, so the original letter was shorter than the others. When I made that and tested the font, I found that in running text, it just looked off. It felt disproportional and dwarfed by other letters. I decided to tweak the base form so that the bottom curves of the loop would meet at the same angle, but the loop itself would be taller and wider, stretching to the same height as other characters. The green one below is what I ended up going with for the final form.

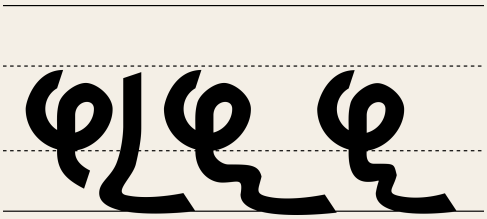


Once I had made all of the characters with unattached vowel signs, I started making some characters with attached ones. Most of these flowed really nicely, but I ended up with a few letters that looked pretty similar. Some of the differences in my handwriting didn't immediately transfer to the font. One good example is that ⟨ne ni no nu⟩ looked almost exactly like ⟨pe pi gwo gwu⟩ in the original. A needed an upwards curve for a high vowel, making it look like a , and a needed a downwards curve for a low vowel, making it look like a . The first draft for ⟨nu gwu⟩ is in purple below. Not good.

I tweaked each one to make them a little more distinct. Honestly it might have made sense for me to pick a new letterform for ⟨n⟩ here, but three years in, I was too invested to change it. First, I lowered the height of the downards curve for the ⟨n⟩ series. Since unlike in the ⟨g⟩ series, it's not part of the base letter, I wanted to make it less prominent. Then, I added a little outward flourish to the left-hand side of , modeled after the one in . Last, I made the bowl on the left side of and curve a little further in. I figured this would add even more contrast with the swash at the beginning of the new . Since that bowl was a component in other glyphs like , I deepened those curves the same amount to keep consistency. The final forms are in green. Not perfect, but pretty good while keeping the letterforms roughly the same.



Another issue I ran into was *how* to connect the vowels. Sometimes it wasn't obvious. I had to think a bit about how to connect low vowels to the 𐞀 base letter, since the diacritics connect to a descender that already exists. In handwriting you can move it around depending on what's around it, but for the font I didn't want to mess with contextual forms or ligatures any more than I already had to. I wanted one form that would fit any context. My first thought was to just try one with a detached vowel sign, but I thought that looked too much like 𐞀𐞂. Then I thought, what the hell, I'll just attach a little swash to the descender and connect it to the vowel letter. It looked great, but it didn't play well with others. The descender extended too far out from the base of the letter, and it ended up messing up the spacing. If the letter after it had no descender, you could sort of kern it back to normalcy, but if there was a descender, I couldn't find a way to make it look good. You can even see that in the example graphic below. The descenders are evenly spaced, which makes the bodies look pretty uneven. I squished it a bit and shortened it to make something with a more manageable rightward descender, a bit more like the other letters with a /u/ vowel sign. I still like the long middle one here though, so future versions of the script I might include it as a variant for when the next letter doesn't have a nearby descender.



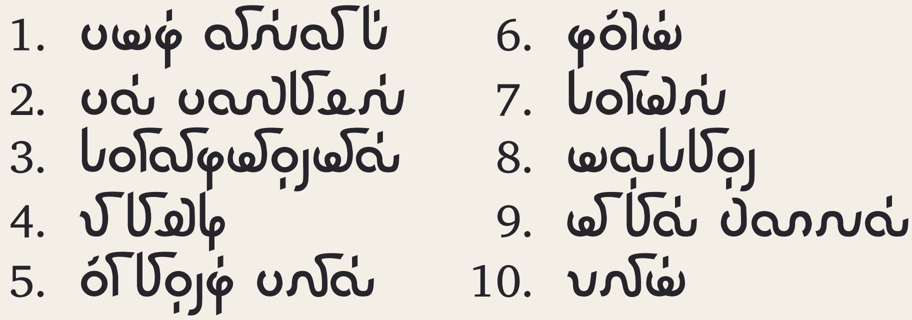
Once I had ironed out some of the kinks in the design, I copied it all over to FontForge. To make the abugida work, I created unassigned glyphs for each consonant-vowel combination and set them as ligatures. I tried encoding the word-final consonants using the word-final variant feature, but I found a problem. I use the word-final consonants when there's a final consonant before a clitic boundary, but I don't separate clitics with spaces. The first way I tried wasn't rendering right. The fix I came up with was to store the final variants as ligatures with '-' so I could choose exactly where to use them. In the future what I'll do instead is set the final variants as default instead of the true base letters, and store the base letters as ligatures with ⟨a⟩. That way the Mwaneḷe text I type will match the romanization completely.

Initially I was intimidated by setting up kerning tables for a script with around 150 glyphs (which means over 20,000 possible pairwise combinations!). But I thought about it a bit and realized that kerning only really depends on the right edge and the left edge of each glyph. There are really only six possible right edges: the plain letters plus one for each vowel letter, except the overt /a/ sign, which has the same profile as the /o/ sign. Likewise, there are at most as many left edges as there are consonant characters. FontForge lets you make kerning classes, so I set those up and pretty quickly made the computer do the work of turning a two-digit number of manual tweaks into a five-digit number of automatic ones.

And there it was! A Mwane font. I'm proud of how it turned out and of how quickly I got things to work. Now that I've been using it, I'm already thinking about other designs I could make, in particular one using some of the more angular designs I showed components for at the beginning of the article. Building this also taught me what I'll need to make fonts in the future.

Challenge—

And now a little challenge! I'm getting close to the submission deadline, and I don't have the time to write a whole passage, but how about this: here are a few names of people who have contributed to past editions of Segments, transliterated into Mwaneḷe. Try and see if you can figure out who they are! Or find yourself!



If you have any questions, comments, or suggestions, reach out to me on Reddit at u/roipoiboy or on Discord at mi 二 comet#5147!

Thanks for reading!