

Proposal for Encoding the Mwangwego Script in the UCS

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To: Script Encoding Working Group (SEWG) / Unicode Technical Committee (UTC)

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Subject: Mwangwego

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General Overview:

This is a revised proposal to encode the Mwangwego script into the Unicode Standard. It supersedes the following documents:

- [L2/12-251](#): “Preliminary proposal to encode the Mwangwego script in the UCS”
- [L2/12-311](#): “Proposal to encode the Mwangwego script in the UCS”

This version differs from the most recent version, L2/12-311, due to the following reasons and updates:

- Confirmed and up to date statistics of current learners and past learners.
- Addition of several technical terms for all graphemes/letters, vowel modifiers, consonant modifiers/marks, etc.
- Several example words for Mituyo stacks missing from previous proposal.
- Several pictures of evidence of use from teachers, students, personal daily use.
- Collation (ordering) of every aspect of the entire script.
- Link to keyboard.

I Background

The Mwangwego script was first devised in 1979 by Nolence Moses Mwangwego of Malawi, and is designed for writing the languages of Malawi. Some of these languages include the following, along with their *ISO 639 code* and speaker count: Chewa (*nya*, 2 million), Lomwe (*ngl*, 2.5 million), Sena (*swk* in Malawi, *seh* in Mozambican, *bwg* for the divergent Barwe dialect; 2.9 million), Tonga (*tog*, 170,000), Tumbuka (*tum*, 2.3 million), Yao (*yao*, 3.1 million), Nyakyusa (*nyy*, 1.4 million). The majority of these languages are also spoken in parts of nearby countries such as Mozambique, Tanzania and Zambia.

Additional letters were created up until 1997. The script has not changed significantly over time and is not related to any other script. There was an official “launch” of the script in 2003 that received notable publicity, including an audience with Minister Kamangadzai Kingsley Chambalo, the Malawian Minister of Youth, Sports and Culture at the time.

The users of the community are students of the script, some of which are school-aged children. There was an initial community of 200-300 adherents of Mwangwego script in 2001. The number of people who have learned the script since 2001 is between 2,500-3,000. Many are training to be teachers themselves. The script has been continuously learned and taught since 2001 in all 3 regions of Malawi: Northern, Central and Southern Regions. The script has been taught informally since 2001. The distribution of January 2023 cohort of students is broken down as follows: 10 in Karonga, 15 in Mzuzu,

10 in the Malawian capital of Lilongwe, and 5 in Blantyre. The script is also included in primers and learning exercise materials for students. As of mid-2024, another cohort of teachers are being trained.

There has only been 1 full book published in the script, by the creator, as cost is a major obstacle for the majority of past and current learners. There is no government support for the script. There are at least 2 fonts: one made by Andrij Rovenchak, and one by Jana Reddemann and Jenna Leich, the latter of which is used in this proposal. Under consultation with the script creator, the authors have developed a keyboard that applies the character model described in this proposal. The keyboard has been developed with the well-known “Keyman” software and a Microsoft Windows executable is available here: <https://bit.ly/4e11h3D>.

There are no other scripts in the community competing with the Mwangwego script. There is a current project to digitize Nolence Mwangwego’s Chichewa language book “*ᖃ ᖃᖃᖃ ᖃᖃ ᖃᖃᖃ?*” (transliteration: “*A Malawi Tili Pati?*”; translation: “*Malawians, where are we?*”), which was written in the Mwangwego script.

II Script Name

The proposed script name is “**MWANGWEGO**”, which is named after the creator, Nolence Mwangwego. This is the name used by the script community.

On 3 April 2024, Nolence Mwangwego stated on Facebook that the script “*in Malawian languages is called ‘musitu wa Mwangwego’*. The word ‘musitu’ comes from three parts of the script: *musisi*, *siri*, *mutuyo*. Mwangwego script was invented in April 1979 and was inaugurated on April 7, 1997. These are dates to remember” (see Reference 6 in Section VII).

III Structure

The Mwangwego script is an abugida written left-to-right in horizontal lines, from the top to the bottom of a page. The basic grapheme inventory accounts for 31 consonants and 5 vowels – /a/, /ε/, /i/, /ɔ/, and /u/. Each basic grapheme represents a syllable composed of a consonant and a vowel (CV), or a vowel (V) by itself. Students first learn the graphemes that have an inherent /a/ vowel (e.g., /a/, /ba/, /tʃa/, etc.). These inherent /a/ vowel graphemes, as shown in the chart below under the column labeled “/a/”. Any single one of these graphemes is called a **Musisi**. All Musisi (i.e., the plural) is collectively called **Misisi**. Misisi can be slightly altered in 1 of 4 graphically consistent ways to change the grapheme’s vowel from an inherent /a/ to /ε/, /i/, /ɔ/, or /u/. Any single one of these 4 vowel modifiers is called a **Siri**. All Siri (i.e., the plural) is collectively called **Masiri**. Attaching Masiri to Misisi will yield a total of 160 basic V or CV syllabic graphemes. Any single one of these new graphemes with a vocalic value of /ε/, /i/, /ɔ/, or /u/ is called a **Musiri**. All Musiri (i.e., the plural) is collectively called **Misiri**.

IPA	/a/	/ε/	/i/	/ɔ/	/u/
/vowel/	ᖃ	ᖥ	ᖦ	ᖧ	ᖨ
/b/	ᖃ	ᖥ	ᖦ	ᖧ	ᖨ
/tʃ/	ᖃ	ᖥ	ᖦ	ᖧ	ᖨ
/d/	ᖃ	ᖥ	ᖦ	ᖧ	ᖨ
/f/	ᖃ	ᖥ	ᖦ	ᖧ	ᖨ
/g/	ᖃ	ᖥ	ᖦ	ᖧ	ᖨ
/ɣ/	ᖃ	ᖥ	ᖦ	ᖧ	ᖨ
/h/	ᖃ	ᖥ	ᖦ	ᖧ	ᖨ

/dʒ/	𐌲	𐌳	𐌴	𐌵	𐌶
/ʒ/	𐌷	𐌸	𐌹	𐌺	𐌻
/k/	𐌰	𐌱	𐌲	𐌳	𐌴
/l/	𐌵	𐌶	𐌷	𐌸	𐌹
/m/	𐌺	𐌻	𐌼	𐌽	𐌾
/n/	𐌿	𐍀	𐍁	𐍂	𐍃
/ɲ/	𐍄	𐍅	𐍆	𐍇	𐍈
/p/	𐍉	𐍊	𐍋	𐍌	𐍍
/r/	𐍎	𐍏	𐍐	𐍑	𐍒
/s/	𐍓	𐍔	𐍕	𐍖	𐍗
/ʃ/	𐍘	𐍙	𐍚	𐍛	𐍜
/t/	𐍝	𐍞	𐍟	𐍠	𐍡
/ts/	𐍢	𐍣	𐍤	𐍥	𐍦
/pʰ/	𐍧	𐍨	𐍩	𐍪	𐍫
/v/	𐍬	𐍭	𐍮	𐍯	𐍰
/w/	𐍱	𐍲	𐍳	𐍴	𐍵
/j/	𐍶	𐍷	𐍸	𐍹	𐍺
/z/	𐍻	𐍼	𐍽	𐍾	𐍿
/dz/	𐎀	𐎁	𐎂	𐎃	𐎄
/dʰ/	𐎅	𐎆	𐎇	𐎈	𐎉
/tʰ/	𐎊	𐎋	𐎌	𐎍	𐎎
/ʎ/	𐎏	𐎐	𐎑	𐎒	𐎓
/ʎʰ/	𐎔	𐎕	𐎖	𐎗	𐎘
/ð/	𐎙	𐎚	𐎛	𐎜	𐎝

Table 1. Inventory of the basic V and CV syllabic graphemes in the Mwangwego script.

To change the inherent /a/ vowel of Misisi to /ɛ/, /i/, /ɔ/, or /u/, you fuse Masiri (vowel modifiers) to the bottom-right of Misisi:

- Emwa: 𐌰 Example: 𐌲 (ba) + 𐌰 (-ɛ) = 𐌳 (be)
- Ima: 𐌰 Example: 𐌲 (ba) + 𐌰 (-i) = 𐌴 (bi)
- Ota: 𐌰 Example: 𐌲 (ba) + 𐌰 (-ɔ) = 𐌶 (bo)
- Uyu: 𐌰 Example: 𐌲 (ba) + 𐌰 (-u) = 𐌸 (bu)

Mutuyo & Mituyo:

In addition to these vowel modifiers, some consonant (or tone) modifiers appear to the left (spacing) of the basic grapheme, or above or below (non-spacing) the basic grapheme. These can also be used in combination with one another to further extend the repertoire of consonant onsets or, in one case, to mark high-tone to distinguish between homographs. Not all of these modifiers can be used with all basic graphemes. Section X show which marks are possible for the Misiri. All valid possibilities are possible for the Misiri counterparts.

Any one of these marks is called **Mutuyo**. You can attach multiple Mutuyo onto a single basic grapheme. The plural of Mutuyo is **Mituyo**. Some Mituyo configurations produce more complex spacing characters.

The script's previous proposal (Section 4, [L2/12-311](#)) proposed to encode all spacing Mituyo configurations due to the constraints of ligation at the time. For compound consonant modifiers one could use the 'rlig' or 'ccmp' OpenType features to replace a sequent of modifiers with a precomposed stacked version. 'ccmp' would be the most reliable across platforms. Therefore, we propose to only encode the standalone modifiers (i.e., Mutuyo). The set of combinations (i.e., Mituyo) is finite, as is the order in which combinations are combined. It is never correct (i.e., legible) to string them horizontally, and making them "ligatures" may easily fail in many rendering environments, which is unnecessary and undesirable. Readers do not parse the stacks per se, but read the whole cluster as a whole.

1. **MUTUYO** (spacing):

- 1.1 WAYA. - labializes consonants. There is a unique, non-spacing counterpart of Waya that appears under a letter instead of to the left; see Mutuyo 2.1 below.

Examples of use:

- (waya) + ʼ (ba) = ʼ (bwa) - (waya) + ʼ (ma) = ʼ (mwa)

Example words:

ʼ (bwato) ʼ (mwala)

- 1.2 NI. " is primarily used for homorganic palatalization (which may not be reflected in the transliterated romanization).

Examples of use:

" (ni) + ɹ (da) = "ɹ (nda) – tip of the tongue touches the front part of the palate

" (ni) + ʃ (ta) = "ʃ (nta)

" (ni) + ʒ (tsa) = "ʒ (ntsa)

" (ni) + ɸ (dza) = "ɸ (ndza)

" (ni) + ɰ (a) = "ɰ (ng'a/n'ga) – rear of the tongue touches the palate

" (ni) + ɕ (ga) = "ɕ (nga)

" (ni) + ɟ (cha) = "ɟ (ncha) – middle of the tongue touches the palate

" (ni) + ɥ (ja) = "ɥ (nja)

" (ni) + ɷ (sa) = "ɷ (nsa) – tongue slightly touches the palate

" (ni) + ɸ (sha) = "ɸ (nsha)

" (ni) + ɸ (fa) = "ɸ (mfa) – labiodentalization

" (ni) + ɸ (va) = "ɸ (mva)

Example words:

"ɹ (ndati), "ɰ (n'gona), "ɷ (nsapato), "ɟ (nchalo)

1.3 HI. " aspirates consonants. Its use may be limited to only a few consonants.

Examples of use:

· (hi) + ᠑ (cha) = ᠑ (tcha) , · (hi) + ᠎ (ka) = ᠎ (kha) , · (hi) + ᠋ (pa) = ᠋ (pha)
· (hi) + ʃ (ta) = ʃ (tha) · (hi) + ʈ (tsa) = ʈ (tsha)

Example words:

᠎ᠠᠰᠤ (khasu) ᠎ᠠᠮᠠ (khama) ᠎ᠠᠯᠠ (phala) ᠎ᠠᠨᠪᠠ (thobwa) ᠎ᠠᠴᠢᠮᠤ (tchimo)

1.4 MI. " pre-nasalizes labial consonants. It is described as "used when both lips meet heavily."
It is used with 2 Misiri (and of course their corresponding Misiri): ᠠ (/ba/) and ᠋ (/pa/).

Examples of use:

" (mi) + ᠠ (ba) = ᠠ (mba) " (mi) + ᠋ (pa) = ᠋ (mpa)

Example words:

ᠠᠮᠪᠠᠯᠠ (mbala) ᠠᠮᠪᠢᠷᠢ (mbiri) ᠠᠮᠪᠠᠲᠠ (mbatata) ᠋ᠮᠫᠠ (mpaka)

1.5 MYU. ' pre-nasalizes non-labial consonants. It is described as "used when pronouncing a word which involves a slight meeting of both lips." Myu occurs with many Misiri.

Examples of use:

' (myu) + ᠑ (cha) = ᠑ (mcha) ' (myu) + ᠎ (ka) = ᠎ (mka) ' (myu) + ᠋ (ma) = ᠋ (m'ma)
' (myu) + ʃ (ta) = ʃ (mta) ' (myu) + ʈ (dza) = ʈ (mdza)

Example words:

᠎ᠠᠬᠠ (mkaka) ᠎ᠠᠬᠠᠨᠳᠠ (mkanda) ᠎ᠠᠳᠢᠵᠢᠬᠤ (m'dziko) ᠎ᠠᠮᠣᠳᠢᠵᠢ (m'mudzi)

1.6 SISA. ' prefixes 's-' to consonants. Very few words use Sisa as it is mainly used for foreign loan words (e.g., English; see 7:16 of reference 3 in Section VII below).

Examples of use:

'(sisa) + ᠎ (ka) = ᠎ (ska) '(sisa) + ᠋ (ma) = ᠋ (sma) '(sisa) + ʃ (ta) = ʃ (sta)

Example words:

ᠰᠢᠲᠠ (stima) ᠰᠢᠲᠢ (sketi)

1.7 TUMBU. ' causes prenasalization. It is only used for Yao and Nyakyusa/Ngonde.

Examples of use:

' (tumbu) + ᠑ (da) = ᠑ (n'da)
' (tumbu) + ʏ (nya) = ʏ (n'nya)
' (tumbu) + ʘ (ya) = ʘ (n'ya) – in Yao
' (tumbu) + ɛ (wa) = ʘ (n'wa)

Example words:

ᠠᠨᠳᠤ, ᠠᠨᠵᠠᠵᠤ, ᠠᠨᠵᠠᠨᠵᠤ

2. **MUTUYO** (non-spacing):

- 2.1 WAYA-BELOW. ◌ adds a following y-glide (palatalization) to consonants. This is the non-spacing counterpart of WAYA in 1.1 above.

Examples of use:

ᄃ (da) + ◌ (waya) = ᄃᄃ (dya)

ᄆ (ma) + ◌ (waya) = ᄆᄃ (mya)

Example words:

ᄃᄃᄃ, ᄃᄃᄃ, ᄆᄃᄃ

- 2.2 MURA. ◌ adds a following r-glide to consonants. This Mutuyo is also used for foreign words (e.g., English).

Examples of use:

ᄃ (ba) + ◌ (mura) = ᄃᄃᄃ (bra)

ᄃᄃ (ka) + ◌ (mura) = ᄃᄃᄃᄃ (kra)

ᄃᄃᄃ (ta) + ◌ (mura) = ᄃᄃᄃᄃᄃ (tra)

Example words:

ᄃᄃᄃᄃ, ᄃᄃᄃᄃ

- 2.3 MULA. ◌ adds a following l-glide to consonants. This Mutuyo is also used for foreign words (e.g., English).

Examples of use:

ᄃ (ba) + ◌ (mula) = ᄃᄃᄃᄃ (bla)

ᄃᄃ (ka) + ◌ (mula) = ᄃᄃᄃᄃᄃ (kla)

ᄃᄃᄃ (ta) + ◌ (mula) = ᄃᄃᄃᄃᄃᄃ (tla)

Example word:

ᄃᄃᄃᄃᄃᄃ (translation: Blantyre)

- 2.4 PEWA. ◌ serves a variety of purposes, indicating affrication and other consonant modifications. It is particularly used a lot in Tumbuka, Kyangonde (a dialect of Nyakyusa; possibly other Nyakyusa dialects as well), and Yao.

Examples of use:

ᄃ (ba) + ◌ (pewa) = ᄃᄃᄃᄃ (Chichewa Latin transliteration is *w̃a*;

Tumbuka Latin transliteration is *ba*; IPA: /βa/)

ᄃᄃ (va) + ◌ (pewa) = ᄃᄃᄃᄃ (bva)

ᄃᄃᄃ (za) + ◌ (pewa) = ᄃᄃᄃᄃᄃ (bza)

ᄃᄃᄃᄃ (fa) + ◌ (pewa) = ᄃᄃᄃᄃᄃᄃ (pfa)

ᄃᄃᄃᄃᄃ (tha) + ◌ (pewa) = ᄃᄃᄃᄃᄃᄃ (IPA: /θa/) – in Lomwe

Example words:

ᄃᄃᄃᄃᄃ, ᄃᄃᄃᄃᄃ

2.5 KWANTHU. ́ marks high tone, at least on words which might otherwise be misread. It is very important in Chichewa because there are 2 tones (in contrast to a language like Tumbuka having no tones).

Examples of use:

ᑭᑭ (ndi) + ́ (kwanthu) = ́ᑭᑭ (ndi)

Example words:

ᑭᑭ (mtengo; translation: tree) to distinguish from ́ᑭᑭ (mtengo; translation: price)

3. MITUYO “stacks”:

As Mituyo is the plural of Mutuyo, any combination of 2 individual Mutuyo on a single grapheme can be considered a Mituyo combination. For example, “ᑭ and ́ᑭ both combine a spacing Mutuyo (NI “ and WAYA ᑭ, respectively) with a non-spacing Mutuyo (WAYA-BELOW ́ and PEWA ́, respectively). These are considered Mituyo combinations. However, it is worth specifically highlighting how the *spacing* Mutuyo (described in 1.1-1.7 above) can create spacing Mituyo “stacks” that are written on the left of a grapheme. There are 16 possible Mituyo stacks:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ᑭ	ᑭ	ᑭ	ᑭ	ᑭ	ᑭ	ᑭ	ᑭ	ᑭ	ᑭ	ᑭ	ᑭ	ᑭ	ᑭ	ᑭ	ᑭ
MYU NI	MYU HI	MYU WAYA	MI HI	MI WAYA	NI HI	NI WAYA	HI WAYA	SISA NI	TUMBU WAYA	MYU NI HI	MYU HI WAYA	MI HI WAYA	NI HI WAYA	SISA NI HI	MYU NI HI WAYA

Table 2. Inventory of the 16 spacing Mituyo “stacks”.

Similar to the (individual) Mutuyo, not all Mituyo are used for all languages. For example, the Mituyo stack TUMBU+WAYA (numbered 10 in Table 2) is only used in Nyakyusa/Ngonde.

3.1. MYU-NI. ́

Examples of use:

́ MYU-NI + 3 (da) = ́3 (mnda)

́ MYU-NI + ʔ (ka) = ́ʔ (mnka)

Example words:

́3ᑭ, ́3ᑭ

3.2. MYU-HI. ́

Examples of use:

́ MYU-HI + ᑭ (cha) = ́ᑭ (mchha)

́ MYU-HI + ʔ (ka) = ́ʔ (mkha)

Example words:

́ᑭᑭ, ́ᑭᑭ

3.3. MYU-WAYA. ́

Examples of use:

́ MYU-WAYA + ᑭ (ba) = ́ᑭ (mbwa)

́ MYU-WAYA + ᑭ (cha) = ́ᑭ (mchwa)

Example words:

́ᑭ, ́ᑭ, ́ᑭ

3.4. MI-HI. ᠮᠢᠬᠢ

Examples of use:

ᠮᠢᠬᠢ + ᠳ (pa) = ᠮᠳ (mpa)

Example words:

ᠮᠳᠠ, ᠮᠳᠤ

3.5. MI-WAYA. ᠮᠢᠠᠭᠠ

Examples of use:

ᠮᠢᠠᠭᠠ + ᠪᠠ (ba) = ᠮᠪᠠ (mbwa)

ᠮᠢᠠᠭᠠ + ᠳ (pa) = ᠮᠳᠠ (mpwa)

Example words:

ᠮᠪᠤ, ᠮᠪᠡ, ᠮᠪᠢ

3.6. HI-WAYA. ᠬᠢᠠᠭᠠ

Examples of use:

ᠬᠢᠠᠭᠠ + ᠲᠠ (ka) = ᠬᠲᠠ (khwa)

ᠬᠢᠠᠭᠠ + ᠰᠠ (ta) = ᠬᠰᠠ (thwa)

Example words:

ᠬᠲᠤ, ᠬᠲᠡ

3.7. NI-HI. ᠨᠢᠬᠢ

Examples of use:

ᠨᠢᠬᠢ + ᠵᠠ (cha) = ᠨᠵᠠ (nchha)

ᠨᠢᠬᠢ + ᠲᠠ (ka) = ᠨᠲᠠ (nkha)

Example words:

ᠨᠵᠤ, ᠨᠵᠡ, ᠨᠵᠢ

3.8. NI-WAYA. ᠨᠢᠠᠭᠠ

Examples of use:

ᠨᠢᠠᠭᠠ + ᠬᠠ (a) = ᠨᠬᠠ (nwa)

ᠨᠢᠠᠭᠠ + ᠳᠠ (da) = ᠨᠳᠠ (ndwa)

Example words:

ᠨᠬᠤ, ᠨᠬᠡ, ᠨᠬᠢ

3.9. SISA-NI. ᠰᠢᠰᠠᠨᠢ

Examples of use:

ᠰᠢᠰᠠᠨᠢ + ᠳᠠ (da) = ᠰᠳᠠ (snda)

ᠰᠢᠰᠠᠨᠢ + ᠳᠠ (ga) = ᠰᠳᠠ (snga)

Example words:

ᠰᠳᠤ

3.10. TUMBU-WAYA. ᵀ

Examples of use:

ᵀ TUMBU-WAYA + ᵑ (gha) = ᵑᵑ (n'ghwa) ᵀ TUMBU-WAYA + ᵒ (ha) = ᵑᵒ (n'hwa)

Example words:

ᵑᵑᵒ

3.11. MYU-NI-HI. ᵑᵑ

Examples of use:

ᵑᵑ MYU-NI-HI + ᵑ (ka) = ᵑᵑᵑ (mnkha) ᵑᵑ MYU-NI-HI + ᵑ (ta) = ᵑᵑᵑ (mntha)

Example words:

ᵑᵑᵑᵑ

3.12. MYU-HI-WAYA. ᵑᵑ

Example of use:

ᵑᵑ MYU-HI-WAYA + ᵑ (cha) = ᵑᵑᵑ (mchhwa)

Example words:

ᵑᵑᵑᵑ

3.13. MI-HI-WAYA. ᵑᵑ

Examples of use:

ᵑᵑ MI-HI-WAYA + ᵑ (pa) = ᵑᵑᵑ (mphwa)

Example words:

ᵑᵑᵑᵑ

3.14. NI-HI-WAYA. ᵑᵑ

Examples of use:

ᵑᵑ NI-HI-WAYA + ᵑ (cha) = ᵑᵑᵑ (nchhwa) ᵑᵑ NI-HI-WAYA + ᵑ (ka) = ᵑᵑᵑ (nkhwa)

Example words:

ᵑᵑᵑᵑ ᵑᵑᵑᵑ

3.15. SISA-NI-HI. ᵑᵑ

Examples of use:

ᵑᵑ SISA-NI-HI + ᵑ (ka) = ᵑᵑᵑ (snkha) ᵑᵑ SISA-NI-HI + ᵑ (ta) = ᵑᵑᵑ (sntha)

Example words:

ᵑᵑᵑᵑ

3.16. MYU-NI-HI-WAYA. 𑌶

Examples of use:

𑌶 MYU-NI-HI-WAYA + 𑌶 (ka) = 𑌶𑌶 (mnkhwa) 𑌶 MYU-NI-HI-WAYA + 𑌶 (ta) = 𑌶𑌶 (mnthwa)

Example words:

𑌶𑌶 𑌶𑌶

In summary, there are 32 Misisi (inherent /a/ vowel graphemes), 4 Masiri (vowel modifiers), 12 Mutuyo (11 consonant modifiers; 1 tone modifier), and 16 Mituyo (“stacks”) to encode.

- It is worth mentioning that the WAYA Mutuyo and the WAYA-BELOW Mutuyo *must* be encoded as two symbols and not only one. This is because if one were to process plain text (e.g., transliteration) one needs to be able to interpret the bytes as being “wa” (from WAYA) and “ya” (from WAYA-BELOW), which one couldn’t do with a single character point as position information is lost in plain text.

Punctuation and Numerals/Digits:

There are no script-specific digits in the script; Hindu-Arabic digits (i.e., 0123456789) are used. There are no script-specific punctuation marks. Words are separated using U+0020 SPACE .

IV Character Repertoire

Table 3 presents the character names for the 32 Mwanwego Misisi (singular Musisi; inherent -/a/ graphemes/letters), 4 Masiri (singular Siri; vowel marks), 12 Mutuyo (consonant/tone modifiers), and 16 Mituyo (complex Mutuyo combinations). The Chichewa language terms for the orthographic elements have been employed to clearly and distinctly identify the characters by their encoded names.

𑌶	U+1X000 MWANGWEGO MUSISI A
𑌷	U+1X001 MWANGWEGO MUSISI BA
𑌸	U+1X002 MWANGWEGO MUSISI CHA
𑌹	U+1X003 MWANGWEGO MUSISI DA
𑌺	U+1X004 MWANGWEGO MUSISI FA
𑌻	U+1X005 MWANGWEGO MUSISI GA
𑌼	U+1X006 MWANGWEGO MUSISI GHA
𑌽	U+1X007 MWANGWEGO MUSISI HA
𑌾	U+1X008 MWANGWEGO MUSISI JA
𑌿	U+1X009 MWANGWEGO MUSISI ZHA
𑍀	U+1X00A MWANGWEGO MUSISI KA
𑍁	U+1X00B MWANGWEGO MUSISI LA
𑍂	U+1X00C MWANGWEGO MUSISI MA
𑍃	U+1X00D MWANGWEGO MUSISI NA

Ÿ	U+1X00E MWANGWEGO MUSISI NYA
ɖ	U+1X00F MWANGWEGO MUSISI PA
ɗ	U+1X010 MWANGWEGO MUSISI RA
ḡ	U+1X011 MWANGWEGO MUSISI SA
ḥ	U+1X012 MWANGWEGO MUSISI SHA
ɣ	U+1X013 MWANGWEGO MUSISI TA
ɭ	U+1X014 MWANGWEGO MUSISI TSA
ɦ	U+1X015 MWANGWEGO MUSISI PSA
ɱ	U+1X016 MWANGWEGO MUSISI VA
ɛ	U+1X017 MWANGWEGO MUSISI WA
ɞ	U+1X018 MWANGWEGO MUSISI YA
ɟ	U+1X019 MWANGWEGO MUSISI ZA
ɸ	U+1X01A MWANGWEGO MUSISI DZA
ɠ	U+1X01B MWANGWEGO MUSISI DHLA
ɢ	U+1X01C MWANGWEGO MUSISI HLA
ɣ	U+1X01D MWANGWEGO MUSISI XA
ɤ	U+1X01E MWANGWEGO MUSISI QA
ɦ	U+1X01F MWANGWEGO MUSISI THA
◌̣	U+1X020 MWANGWEGO SIRI EMWA
◌̤	U+1X021 MWANGWEGO SIRI IMA
◌̥	U+1X022 MWANGWEGO SIRI OTA
◌̦	U+1X023 MWANGWEGO SIRI UYU
‘	U+1X024 MWANGWEGO MUTUYO MYU
“	U+1X025 MWANGWEGO MUTUYO MI
”	U+1X026 MWANGWEGO MUTUYO NI
..	U+1X027 MWANGWEGO MUTUYO HI
-	U+1X028 MWANGWEGO MUTUYO WAYA
◌̇	U+1X029 MWANGWEGO MUTUYO WAYA BELOW
’	U+1X02A MWANGWEGO MUTUYO SISA
◌̈	U+1X02B MWANGWEGO MUTUYO MURA
◌̉	U+1X02C MWANGWEGO MUTUYO MULA
◌̊	U+1X02D MWANGWEGO MUTUYO PEWA
’	U+1X02E MWANGWEGO MUTUYO TUMBA
◌̋	U+1X02F MWANGWEGO MUTUYO KWANTHU
ḡ	U+1X030 MWANGWEGO MITUYO MYU-NI

𐌲	U+1X031 MWANGWEGO MITUYO MYU-HI
𐌳	U+1X032 MWANGWEGO MITUYO MYU-WAYA
𐌴	U+1X033 MWANGWEGO MITUYO MI-HI
𐌵	U+1X034 MWANGWEGO MITUYO MI-WAYA
𐌶	U+1X035 MWANGWEGO MITUYO NI-HI
𐌷	U+1X036 MWANGWEGO MITUYO NI-WAYA
𐌸	U+1X037 MWANGWEGO MITUYO HI-WAYA
𐌹	U+1X038 MWANGWEGO MITUYO SISA-NI
𐌺	U+1X039 MWANGWEGO MITUYO TUMBA-WAYA
𐌻	U+1X03A MWANGWEGO MITUYO MYU-NI-HI
𐌼	U+1X03B MWANGWEGO MITUYO MYU-HI-WAYA
𐌽	U+1X03C MWANGWEGO MITUYO MI-HI-WAYA
𐌾	U+1X03D MWANGWEGO MITUYO NI-HI-WAYA
𐌿	U+1X03E MWANGWEGO MITUYO SISA-NI-HI
𐍀	U+1X03F MWANGWEGO MITUYO MYU-NI-HI-WAYA

Table 3: Character Names of the Mwangwego Orthography

	1X00	1X10	1X20	1X30
0	 1X000	 1X010	 1X020	 1X030
1	 1X001	 1X011	 1X021	 1X031
2	 1X002	 1X012	 1X022	 1X032
3	 1X003	 1X013	 1X023	 1X033
4	 1X004	 1X014	 1X024	 1X034
5	 1X005	 1X015	 1X025	 1X035
6	 1X006	 1X016	 1X026	 1X036
7	 1X007	 1X017	 1X027	 1X037
8	 1X008	 1X018	 1X028	 1X038
9	 1X009	 1X019	 1X029	 1X039
A	 1X00A	 1X01A	 1X02A	 1X03A
B	 1X00B	 1X01B	 1X02B	 1X03B
C	 1X00C	 1X01C	 1X02C	 1X03C
D	 1X00D	 1X01D	 1X02D	 1X03D
E	 1X00E	 1X01E	 1X02E	 1X03E
F	 1X00F	 1X01F	 1X02F	 1X03F

The Mwangwego script is used for the languages of Malawi, which include Chewa (nya), Lomwe (ngl), Sena (swk in Malawi, seh in Mozambican, bwg for the divergent Barwe dialect), Tonga (tog), Tumbuka (tum), Yao (yao), Nyakyusa (nyy).

Various letters

1X000		MWANGWEGO MUSISI A
1X001		MWANGWEGO MUSISI BA
1X002		MWANGWEGO MUSISI CHA
1X003		MWANGWEGO MUSISI DA
1X004		MWANGWEGO MUSISI FA
1X005		MWANGWEGO MUSISI GA
1X006		MWANGWEGO MUSISI GHA
1X007		MWANGWEGO MUSISI HA
1X008		MWANGWEGO MUSISI JA
1X009		MWANGWEGO MUSISI ZHA
1X00A		MWANGWEGO MUSISI KA
1X00B		MWANGWEGO MUSISI LA
1X00C		MWANGWEGO MUSISI MA
1X00D		MWANGWEGO MUSISI NA
1X00E		MWANGWEGO MUSISI NYA
1X00F		MWANGWEGO MUSISI PA
1X010		MWANGWEGO MUSISI RA
1X011		MWANGWEGO MUSISI SA
1X012		MWANGWEGO MUSISI SHA
1X013		MWANGWEGO MUSISI TA
1X014		MWANGWEGO MUSISI TSA
1X015		MWANGWEGO MUSISI PSA
1X016		MWANGWEGO MUSISI VA
1X017		MWANGWEGO MUSISI WA
1X018		MWANGWEGO MUSISI YA
1X019		MWANGWEGO MUSISI ZA
1X01A		MWANGWEGO MUSISI DZA
1X01B		MWANGWEGO MUSISI DHLA
1X01C		MWANGWEGO MUSISI HLA
1X01D		MWANGWEGO MUSISI XA
1X01E		MWANGWEGO MUSISI QA
1X01F		MWANGWEGO MUSISI THA
1X020		MWANGWEGO SIRI EMWA
1X021		MWANGWEGO SIRI ITA
1X022		MWANGWEGO SIRI OTA
1X023		MWANGWEGO SIRI UYU
1X024		MWANGWEGO MUTUYO MYU
1X025		MWANGWEGO MUTUYO MI
1X026		MWANGWEGO MUTUYO NI
1X027		MWANGWEGO MUTUYO HI
1X028		MWANGWEGO MUTUYO WAYA
1X029		MWANGWEGO MUTUYO WAYA BELOW
1X02A		MWANGWEGO MUTUYO SISA
1X02B		MWANGWEGO MUTUYO MURA
1X02C		MWANGWEGO MUTUYO MULA
1X02D		MWANGWEGO MUTUYO PEWA
1X02E		MWANGWEGO MUTUYO TUMBA
1X02F		MWANGWEGO MUTUYO KWANTHU
1X030		MWANGWEGO MITUYO MYU-NI
1X031		MWANGWEGO MITUYO MYU-HI
1X032		MWANGWEGO MITUYO MYU-WAYA
1X033		MWANGWEGO MITUYO MI-HI
1X034		MWANGWEGO MITUYO MI-WAYA
1X035		MWANGWEGO MITUYO NI-HI
1X036		MWANGWEGO MITUYO NI-WAYA
1X037		MWANGWEGO MITUYO HI-WAYA
1X038		MWANGWEGO MITUYO SISA-NI
1X039		MWANGWEGO MITUYO TUMBA-WAYA
1X03A		MWANGWEGO MITUYO MYU-NI-HI
1X03B		MWANGWEGO MITUYO MYU-HI-WAYA
1X03C		MWANGWEGO MITUYO MI-HI-WAYA
1X03D		MWANGWEGO NI-HI-WAYA
1X03E		MWANGWEGO MITUYO SISA-NI-HI
1X03F		MWANGWEGO MITUYO MYU-NI-HI-WAYA

Additional information on characters

Phonetic value

The Mutuyo TUMBU ' is only used for Yao, and Nyakyusa/Ngonde. The Mutuyo PEWA ̂ is mostly used in Tumbuka, Kyangonde (a dialect of Nyakyusa; possibly other Nyakyusa dialects as well), and Yao.

Joining information

Masiri (e.g., Vowel modifiers; singular: Siri) are attached to base letters as described above, but letters themselves do not join at all like they do in Arabic.

For the MUSISI BA (U), and the Misiri counterparts (U, U, U, U), placement of the Mutuyo PEWA ̂ should be above the right-side vertical line (U U U U), instead of directly above the grapheme as it is for all other graphemes (e.g., A, A). See line 3 of Figure 42 in Section IX.

Note for typographers/font designers: the placement of the Mutuyo/Mituyo in relation to the graphemes (Misisi/Misiri) should be done the same as in Figures 10-31 and 42-50 in Section IX. These images should be the reference when making basic letterforms and relative position of most Mutuyo/Mituyo to the graphemes. The following are exceptions to this based on input by the user community:

- When Mutuyo/Mituyo that appear on the left of MUSISI PA d, MUSISI TA s, MUSISI TSA j, and MUSISI DHLA d, and their Misiri counterparts (), should make use of the empty space available for these graphemes. They should “fill up”/utilize the empty space. Again, this logic extends to the Misiri counterparts for these 4 graphemes.
 - See Figure 46 for MUSISI PA d. Same for Misiri d, d, d, d.
 - See Figures 49-50 for MUSISI TA s. Same for Misiri s, s, s, s.
 - See Figure 50 for MUSISI TSA j. Same for Misiri j, j, j, j.
 - See Figure 51 for MUSISI DHLA d. Same for Misiri d, d, d, d.
- The stacked Mituyo combinations on the left of graphemes should be perfectly symmetrical as requested by the user community:
 - Symmetrical examples: ̂ ̂ ̂ ̂ ̂ ̂ ̂ ̂ ̂ ̂ ̂ ̂
 - The font used in Figures 42-50 doesn't have some aspects of a Mituyo stack centered, such as Mutuyo MYU ̂. The examples above should be the reference for this aspect of the script/future fonts.

Punctuation

Latin punctuation is used in the script. This includes the “ASCII punctuation and symbols” subheading of Basic Latin Unicode Block (U+0020 to U+002F, U+003A to U+0040, U+005B to U+0060 and U+007B to U+007E) and the “Latin-1 punctuation and symbols” subheading of the Latin-1 Supplement Unicode Block (U+00A0 to U+00BF).

Numbers

Numbers are represented with Hindu-Arabic numerals: 0123456789.

V Properties

General Category and other properties

The Mwangwego inventory in this proposal includes the Misisi syllable bases as type Letter Other, their combining Masiri and Mutuyo diacritic marks.

1X000;MWANGWEGO	MUSISI	A;Lo;0;L; ; ; ;N; ; ; ;
1X001;MWANGWEGO	MUSISI	BA;Lo;0;L; ; ; ;N; ; ; ;
1X002;MWANGWEGO	MUSISI	CHA;Lo;0;L; ; ; ;N; ; ; ;
1X003;MWANGWEGO	MUSISI	DA;Lo;0;L; ; ; ;N; ; ; ;
1X004;MWANGWEGO	MUSISI	FA;Lo;0;L; ; ; ;N; ; ; ;
1X005;MWANGWEGO	MUSISI	GA;Lo;0;L; ; ; ;N; ; ; ;
1X006;MWANGWEGO	MUSISI	GHA;Lo;0;L; ; ; ;N; ; ; ;
1X007;MWANGWEGO	MUSISI	HA;Lo;0;L; ; ; ;N; ; ; ;
1X008;MWANGWEGO	MUSISI	JA;Lo;0;L; ; ; ;N; ; ; ;
1X009;MWANGWEGO	MUSISI	ZHA;Lo;0;L; ; ; ;N; ; ; ;
1X00A;MWANGWEGO	MUSISI	KA;Lo;0;L; ; ; ;N; ; ; ;
1X00B;MWANGWEGO	MUSISI	LA;Lo;0;L; ; ; ;N; ; ; ;
1X00C;MWANGWEGO	MUSISI	MA;Lo;0;L; ; ; ;N; ; ; ;
1X00D;MWANGWEGO	MUSISI	NA;Lo;0;L; ; ; ;N; ; ; ;
1X00E;MWANGWEGO	MUSISI	NYA;Lo;0;L; ; ; ;N; ; ; ;
1X00F;MWANGWEGO	MUSISI	PA;Lo;0;L; ; ; ;N; ; ; ;
1X010;MWANGWEGO	MUSISI	RA;Lo;0;L; ; ; ;N; ; ; ;
1X011;MWANGWEGO	MUSISI	SA;Lo;0;L; ; ; ;N; ; ; ;
1X012;MWANGWEGO	MUSISI	SHA;Lo;0;L; ; ; ;N; ; ; ;
1X013;MWANGWEGO	MUSISI	TA;Lo;0;L; ; ; ;N; ; ; ;
1X014;MWANGWEGO	MUSISI	TSA;Lo;0;L; ; ; ;N; ; ; ;
1X015;MWANGWEGO	MUSISI	PSA;Lo;0;L; ; ; ;N; ; ; ;
1X016;MWANGWEGO	MUSISI	VA;Lo;0;L; ; ; ;N; ; ; ;
1X017;MWANGWEGO	MUSISI	WA;Lo;0;L; ; ; ;N; ; ; ;
1X018;MWANGWEGO	MUSISI	YA;Lo;0;L; ; ; ;N; ; ; ;
1X019;MWANGWEGO	MUSISI	ZA;Lo;0;L; ; ; ;N; ; ; ;
1X01A;MWANGWEGO	MUSISI	DZA;Lo;0;L; ; ; ;N; ; ; ;
1X01B;MWANGWEGO	MUSISI	DHLA;Lo;0;L; ; ; ;N; ; ; ;
1X01C;MWANGWEGO	MUSISI	HLA;Lo;0;L; ; ; ;N; ; ; ;
1X01D;MWANGWEGO	MUSISI	XA;Lo;0;L; ; ; ;N; ; ; ;
1X01E;MWANGWEGO	MUSISI	QA;Lo;0;L; ; ; ;N; ; ; ;
1X01F;MWANGWEGO	MUSISI	THA;Lo;0;L; ; ; ;N; ; ; ;
1X020;MWANGWEGO	SIRI	EMWA;Mc;204;L; ; ; ;N; ; ; ;
1X021;MWANGWEGO	SIRI	IMA;Mc;204;L; ; ; ;N; ; ; ;
1X022;MWANGWEGO	SIRI	OTA;Mc;204;L; ; ; ;N; ; ; ;
1X023;MWANGWEGO	SIRI	UYU;Mc;204;L; ; ; ;N; ; ; ;
1X024;MWANGWEGO	MUTUYO	MYU;Lo;224;ON; ; ; ;N; ; ; ;
1X025;MWANGWEGO	MUTUYO	MI;Lo;224;ON; ; ; ;N; ; ; ;
1X026;MWANGWEGO	MUTUYO	NI;Lo;224;ON; ; ; ;N; ; ; ;
1X027;MWANGWEGO	MUTUYO	HI;Lo;224;ON; ; ; ;N; ; ; ;
1X028;MWANGWEGO	MUTUYO	WAYA;Lo;224;ON; ; ; ;N; ; ; ;
1X029;MWANGWEGO	MUTUYO	WAYA BELOW;Mc;220;ON; ; ; ;N; ; ; ;
1X02A;MWANGWEGO	MUTUYO	SISA;Lo;224;ON; ; ; ;N; ; ; ;
1X02B;MWANGWEGO	MUTUYO	MURA;Mc;230;ON; ; ; ;N; ; ; ;
1X02C;MWANGWEGO	MUTUYO	MULA;Mc;224;ON; ; ; ;N; ; ; ;
1X02D;MWANGWEGO	MUTUYO	PEWA;Mc;230;ON; ; ; ;N; ; ; ;
1X02E;MWANGWEGO	MUTUYO	TUMBA;Lo;224;ON; ; ; ;N; ; ; ;
1X02F;MWANGWEGO	MUTUYO	KWANTHU;Mc;230;ON; ; ; ;N; ; ; ;

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1X030;MWANGWEGO MITUYO MYU-NI;Mc;204;L;N;
1X033;MWANGWEGO MITUYO MYU-HI;Mc;204;L;N;
1X035;MWANGWEGO MITUYO MYU-WAYA;Lo;224;ON;N;
1X036;MWANGWEGO MITUYO MI-HI;Lo;224;ON;N;
1X028;MWANGWEGO MITUYO MI-WAYA;Lo;224;ON;N;
1X029;MWANGWEGO MITUYO NI-HI;Mc;220;ON;N;
1X02B;MWANGWEGO MITUYO NI-WAYA;Mc;230;ON;N;
1X02C;MWANGWEGO MITUYO HI-WAYA;Mc;224;ON;N;
1X02D;MWANGWEGO MITUYO SISA-NI;Mc;230;ON;N;
1X02F;MWANGWEGO MITUYO TUMBA-WAYA;Mc;230;ON;N;
1X031;MWANGWEGO MITUYO MYU-NI-HI;Mc;204;L;N;
1X034;MWANGWEGO MITUYO MYU-HI-WAYA;Lo;224;ON;N;
1X027;MWANGWEGO MITUYO MI-HI-WAYA;Lo;224;ON;N;
1X02A;MWANGWEGO MITUYO NI-HI-WAYA;Lo;224;ON;N;
1X02E;MWANGWEGO MITUYO SISA-NI-HI;Lo;224;ON;N;
1X032;MWANGWEGO MITUYO MYU-NI-HI-WAYA;Mc;204;L;N;

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Line breaking information

Line Breaking rules for the Mwangwego script are as follows:

- Words are separated with U+0020 SPACE. There are no other word separators in historical documents.
- Line breaks only occur at word boundaries.
- There is not a special mode found that allows line breaks within words at select positions, such as using a hyphen sign (U+002D HYPHEN-MINUS) that other scripts apply.
- Line breaks cannot occur within numbers. Numbers must always be kept together.
- There are no restrictions explicitly stated on line breaking before or after certain punctuation characters.

The Mwangwego script is likely to occur with the Latin script.

VI Collation

Misisi/Musiri

The sorting order of the basic syllabic graphemes of the script follows the ordering used in education and is shown in Table 1, starting with 𞞀, 𞞁, 𞞂, 𞞃, 𞞄, then 𞞅, 𞞆, 𞞇, 𞞈, 𞞉, ..., all the way to 𞞊, 𞞋, 𞞌, 𞞍, 𞞎.

However, attaching Mutuyo/Mituyo to Misisi/Musiri significantly influences the ordering of said Misisi/Musiri; see directly below.

Mutuyo

When Mutuyo (i.e., a single modifying mark as defined in Section III) are attached to Misisi/Musiri the collation adheres to the following order:

2-part Mituyo

Below are all 19 linguistically possible 2-part Mituyo combinations. This is also their order (from left to right):

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺

Table 4. Order of all 2-part Mituyo.

For convenience, the order of individual Mutuyo is: MYU ' < MI " < NI " < HI " < WAYA - < WAYA BELOW 𐌺 < SISA ' < MURA 𐌺 < MULA 𐌺 < PEWA 𐌺 < TUMBU ' < KWANTHU 𐌺.

Therefore, we can see in Table 4 that all 2-part Mituyo that contain a MYU ' are ordered first before 2-part Mituyo that "start with" a MI ", etc.

Furthermore, as we can see in Table 4, the 2-part Mituyo combinations that are labeled as 1, 2, and 3 are all "stacks" that would appear on the left side of a grapheme. Stacks 1, 2, and 3 all have a MYU ' at the top of their stacks. The ordering of these 3 stacks is determined by parsing the stacks' Mutuyo components from top to bottom. They each start with MYU ', which can be ignored. The second Mutuyo in stacks 1, 2, and 3 are NI ", HI ", and WAYA -, respectively. As NI " comes before HI " and WAYA - in the Mutuyo ordering, 𐌺 is ordered before 𐌺 and 𐌺. Then, as HI " comes before WAYA - in the Mutuyo ordering, 𐌺 is ordered before 𐌺.

Another example are the 2-part Mituyo combinations labeled under 14, 15, and 16 in Table 4 (𐌺, 𐌺, and 𐌺). They have top-left, top-left, and top-bottom configurations around a grapheme, respectively. They each begin with a PEWA 𐌺. Their order is also determined by looking at the second Mutuyo in the Mituyo combination. Combination 14 has a NI ", 15 has a WAYA -, and 16 has a WAYA BELOW 𐌺 as their second Mutuyo (according to the order of reading their respective configurations). As NI " comes before WAYA - in the Mutuyo ordering, and WAYA - comes before WAYA BELOW 𐌺, their order as 𐌺 < 𐌺 < 𐌺.

3-part Mituyo

Below are the 7 linguistically possible 3-part Mituyo combinations. This is also their order (from left to right):

1	2	3	4	5	6	7
𐌺	𐌺	𐌺	𐌺	𐌺	𐌺	𐌺

Table 5. Order of all 3-part Mituyo

The exact same logic applies to 3-part Mituyo.

4-part Mituyo

There is only one linguistically possible 4-part Mituyo combination. It is ordered after 3-part Mituyo combinations.

1
ᵐ

Table 6. The sole 4-part Mituyo combination.

The exact same logic applies to 4-part Mituyo.

Complete collation example

1. A basic grapheme (Misisi) is ordered first.
 - a. Example: ᵐ /ka/
2. Then all valid Mutuyo for that basic grapheme are ordered.
 - a. Example: ᵐ ᵐ ᵐ ᵐ ᵐ ᵐ ᵐ ᵐ
3. Then all valid 2-part Mituyo for that basic grapheme are ordered.
 - a. Example: ᵐ ᵐ ᵐ ᵐ ᵐ ᵐ ᵐ ᵐ ᵐ ᵐ
4. Then all valid 3-part Mituyo for that basic grapheme are ordered.
 - a. Example: ᵐ ᵐ ᵐ ᵐ ᵐ ᵐ ᵐ ᵐ
5. Then all valid 4-part Mituo for that basic grapheme are ordered.
 - a. Example: ᵐ
6. Then the next vocalization for that basic grapheme is ordered.
 - a. Example: 2 /ke/
7. Then the ordering continues for all the same Mutuyo, and 2/3/4-part Mituyo for that new vocalized grapheme.
8. Then the next basic grapheme (Misisi) continues the entire cycle.

Section X shows every possible Mutuyo/Mituyo combination attached to the Misisi (i.e., all inherent /a/ syllabic graphemes).

VII References

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6. <https://www.facebook.com/groups/455153627868133/permalink/7667291373320953/>

VIII Acknowledgements

We would like to humbly thank Nolence Mwangwego and the Mwangwego script user community that have immensely helped us understand the nuances of this script.

This project was made possible in part by a grant from the Mellon Foundation to the Script Encoding Initiative at the University of California, Berkeley.

[illegible]

Figure 1. Handwritten material from a Malawian user.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847. 848. 849. 850. 851. 852. 853. 854. 855. 856. 857. 858. 859. 860. 861. 862. 863. 864. 865. 866. 867. 868. 869. 870. 871. 872. 873. 874. 875. 876. 877. 878. 879. 880. 881. 882. 883. 884. 885. 886. 887. 888. 889. 890. 891. 892. 893. 894. 895. 896. 897. 898. 899. 900. 901. 902. 903. 904. 905. 906. 907. 908. 909. 910. 911. 912. 913. 914. 915. 916. 917. 918. 919. 920. 921. 922. 923. 924. 925. 926. 927. 928. 929. 930. 931. 932. 933. 934. 935. 936. 937. 938. 939. 940. 941. 942. 943. 944. 945. 946. 947. 948. 949. 950. 951. 952. 953. 954. 955. 956. 957. 958. 959. 960. 961. 962. 963. 964. 965. 966. 967. 968. 969. 970. 971. 972. 973. 974. 975. 976. 977. 978. 979. 980. 981. 982. 983. 984. 985. 986. 987. 988. 989. 990. 991. 992. 993. 994. 995. 996. 997. 998. 999. 1000.

Figure 2. Handwritten material from a Malawian user.

[illegible]

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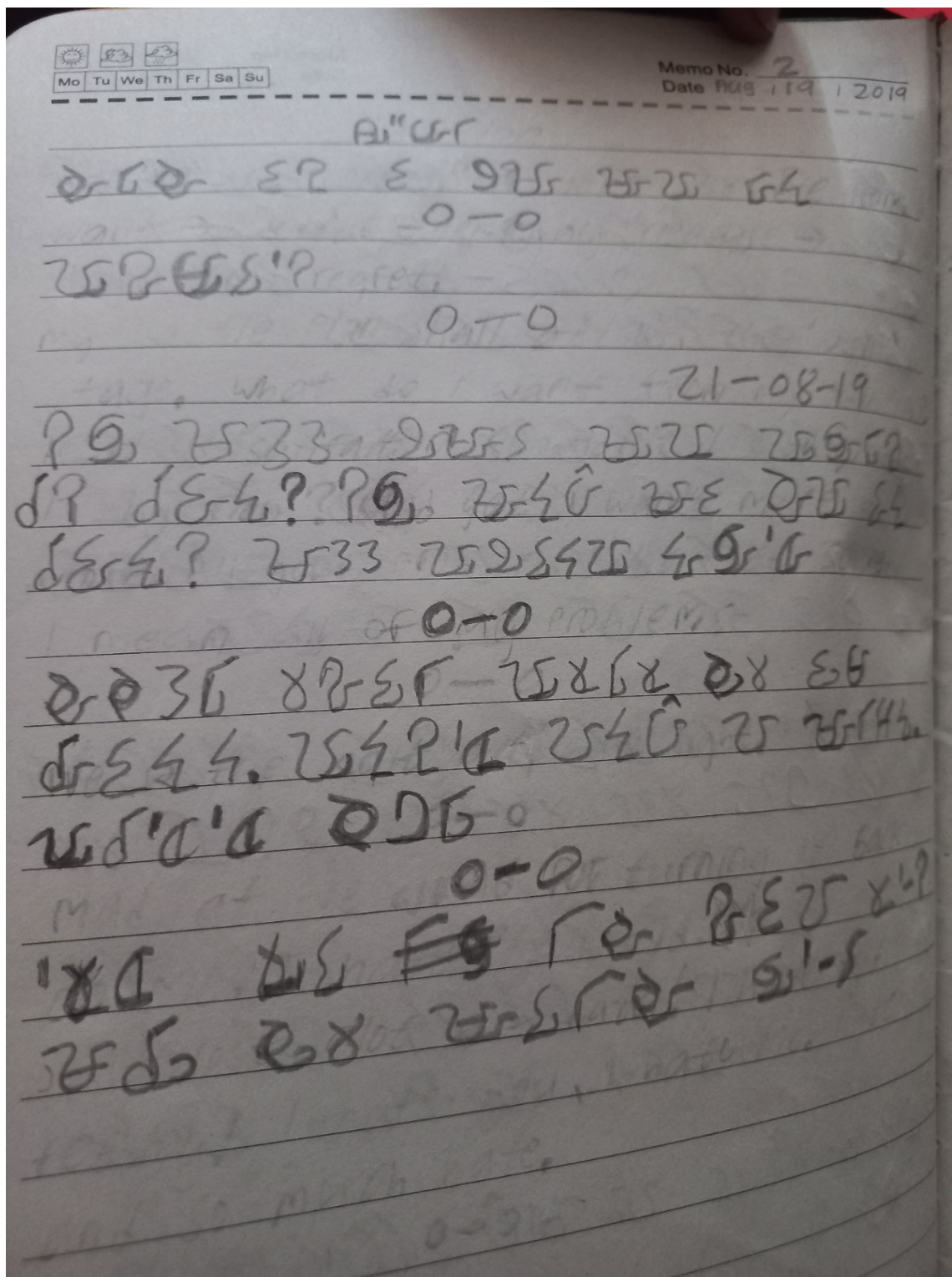


Figure 4. August 19, 2019 Tumbuka-language journal entry from a Malawian user.

Please note, the last word on this image, $\text{ḡ}'$, has the Mituyo stack deconstructed, with the Tumbu Mutuyo incorrectly written on the left of the Waya Mutuyo, instead of properly placing it on top of the latter. This is an error the student made, which is part of the learning curve. There are several instances of the user *correctly* constructing this same Mituyo in these journal entries in Figure 4.6 (twice in paragraph 3; again in paragraph 4).

Mo Tu We Th Fr Sa Su

Memo No. _____
Date / /

၁၈ င...?၇ ဖု၇၇ နှံ ၃၆၀
 ဖု၇၇ နှံ ၆၆၇ ဖု၇၇ -၇၇
 ၇-၇၇၇ ၇၇၇"၇ ၇၇၇၇
 ၇၇ ၇ ၇၇၇

၇၇ ၇၇၇ ၇၇၇ ၇၇၇၇ ၇၇၇၇
 ၇၇၇၇ ၇၇၇၇ ၇၇၇၇ ၇၇၇၇
 ၇၇၇ ၇၇၇ ၇၇၇၇-၇၇
 ၇၇ ၇၇၇ ၇၇၇၇ ၇၇၇၇

၇၇၇ ၇၇၇၇ ၇၇၇၇ ၇၇
 ၇၇၇၇ ၇၇၇ ၇၇၇ ၇၇
 ၇၇၇၇ ၇၇၇၇ ၇၇

၇၇၇၇ ၇၇၇၇ ၇၇၇၇
 ၇၇၇ ၇၇၇၇ ၇၇၇၇
 ၇၇၇၇ ၇၇၇၇ ၇၇၇၇
 ၇၇၇၇ ၇၇၇၇ ၇၇၇၇

Figure 5. Tumbuka-language journal entry from a Malawian user.

Please note, the Mituyo sequence of TUMBU 'HI', as seen in paragraphs 2 and 4 in Figure 4.1, is *not* possible. This was a mistake by the learner.

| | | | | | | | | | | |
|----|----|----|----|----|----|----|--|--|--|--|
| | | | | | | | | | | |
| Mo | Tu | We | Th | Fr | Sa | Su | | | | |

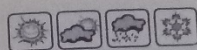
Memo No. _____
Date / / .

፩፻፺፭ ጥቅምት ፳፯
 ሕገ መንግሥት ስር ፻፶፯-፳፻፲፱
 ህጋዊ - ፖለቲካ ጥያቄ

፩፻፺፭ ጥቅምት ፳፯
 ሕገ መንግሥት ስር ፻፶፯-፳፻፲፱
 ህጋዊ ጥያቄ ፖለቲካ

-፩፻፺፭ ጥቅምት ፳፯
 ሕገ መንግሥት ስር ፻፶፯-፳፻፲፱

Figure 6. Tumbuka-language journal entry from a Malawian user.



Mo Tu We Th Fr Sa Su

Memo No. _____

Date / /

ᄀᄀᄀ ᄀᄀᄀ ᄀᄀᄀ ᄀᄀᄀ
'ᄀᄀ ᄀᄀᄀ 'ᄀᄀ ᄀᄀ ᄀᄀᄀ
ᄀᄀᄀ-ᄀ ᄀ ᄀᄀᄀ

ᄀᄀ ᄀᄀ 'ᄀᄀᄀ ᄀᄀᄀ
ᄀᄀᄀ ᄀᄀ ᄀᄀᄀᄀ.

ᄀᄀᄀ ᄀᄀᄀ ᄀᄀᄀᄀ ᄀᄀᄀᄀᄀ
ᄀᄀᄀ ᄀ ᄀᄀ ᄀᄀ ᄀᄀᄀᄀᄀ
ᄀᄀ ᄀᄀᄀᄀ.

'ᄀᄀ ᄀᄀᄀ ᄀᄀᄀ ᄀᄀᄀᄀ
ᄀᄀᄀᄀᄀᄀ.

ᄀᄀᄀ ᄀᄀᄀ ᄀᄀᄀᄀᄀᄀ
ᄀᄀᄀᄀ.

Figure 8. Tumbuka-language journal entry from a Malawian user.

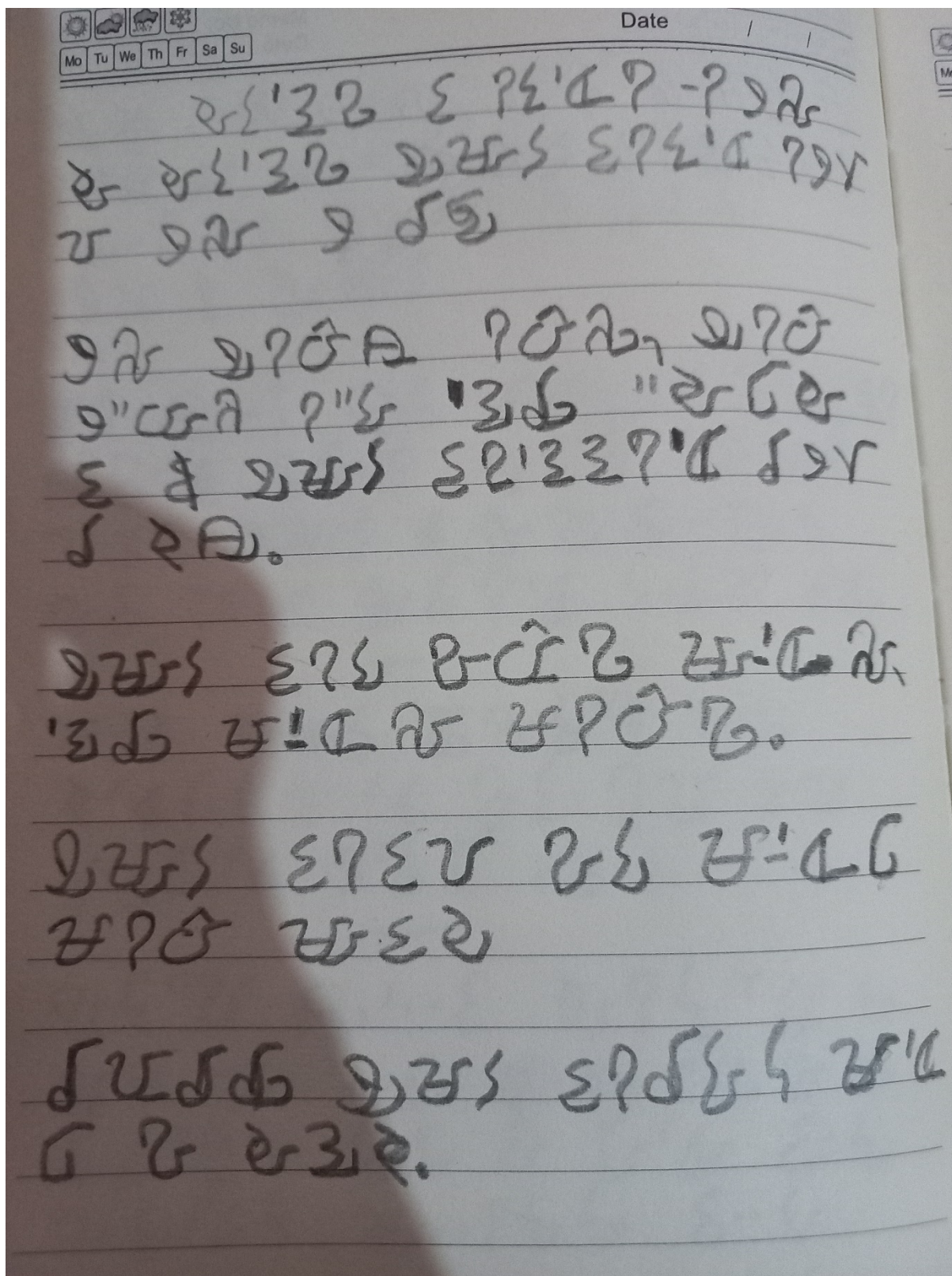


Figure 9. Tumbuka-language journal entry from a Malawian user.

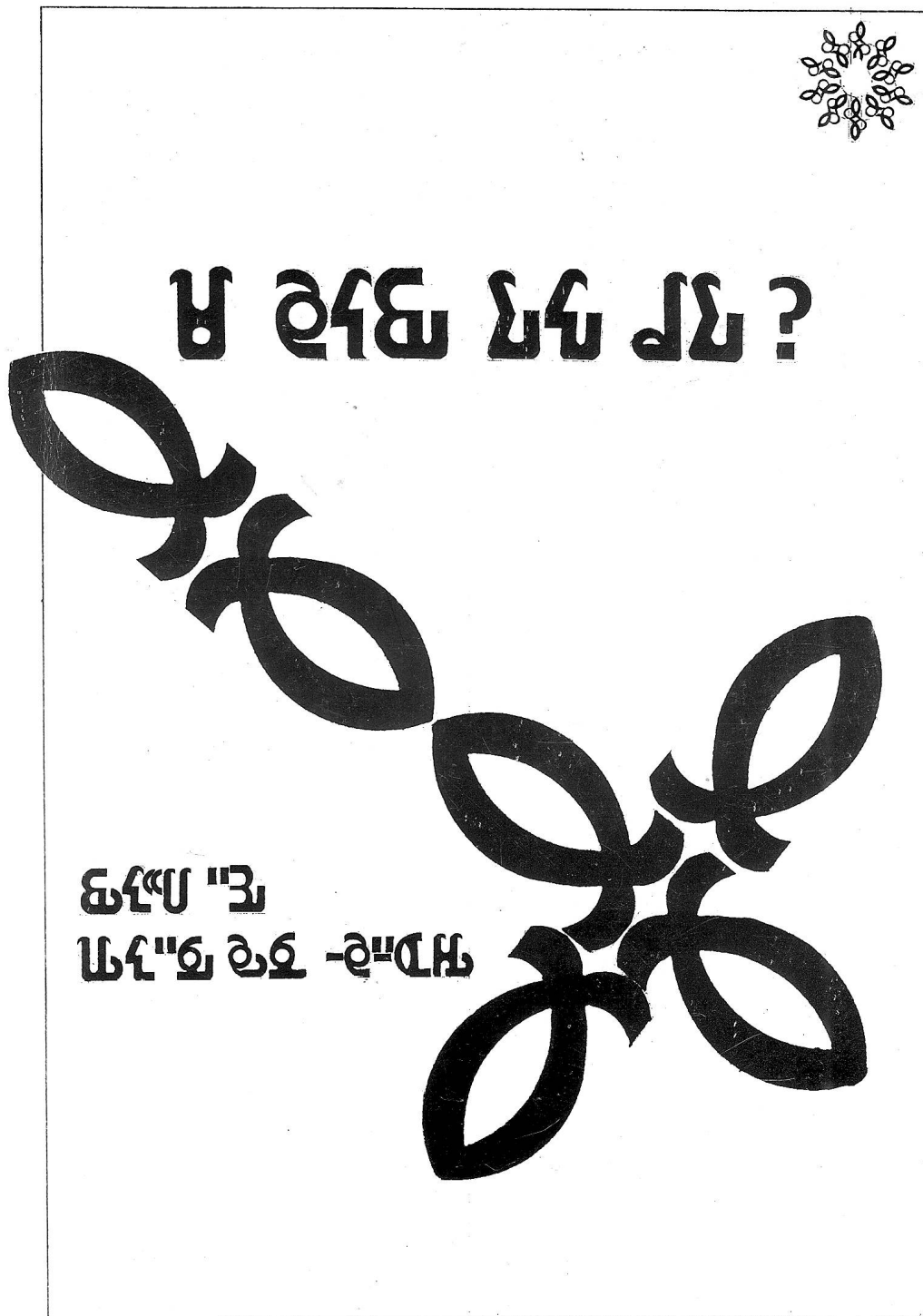


Figure 10. Cover page of the Chichewa language book “*ᖃ ᑲᑦᑲᑦ ᑲᑦᑲᑦ*” (transliteration: “*A Malawi Tili Pati*”; translation: “*Malawians, where are we?*”)

ᐱᐃᐃᐃᐃ

-ᐅ ᐃᐃ ᐃᐃ "ᐃ ᐃᐃᐃᐃᐃᐃ ᐃᐃᐃ ᐃᐃᐃ-3
ᐅᐃᐃ ᐃᐃᐃ, ᐅᐃᐃᐃ ᐃᐃᐃᐃᐃ ᐃᐃᐃ ᐃᐃᐃᐃ
-ᐅ ᐃᐃᐃ ᐃᐃᐃᐃᐃ ᐃᐃᐃᐃᐃ ᐃᐃᐃᐃᐃᐃ.

"ᐃᐃᐃᐃᐃᐃᐃ ᐃᐃᐃ-ᐅ ᐅ ᐃᐃ ᐃᐃᐃ, ᐃᐃᐃᐃ
ᐃᐃ "ᐃ ᐃᐃᐃᐃᐃᐃ -ᐃᐃᐃ ᐃᐃᐃᐃᐃᐃᐃ ᐃᐃ
ᐃᐃᐃ ᐃᐃᐃᐃ.

"ᐃᐃᐃᐃᐃᐃᐃ ᐃᐃ -ᐃᐃᐃᐃ ᐃᐃᐃᐃᐃ ᐅᐃᐃ
ᐅᐃ ᐃᐃᐃᐃ "ᐃᐃ ᐃᐃᐃᐃᐃᐃ ᐃᐃᐃ ᐃᐃᐃᐃᐃ
ᐃᐃ ᐅᐃᐃ. "ᐃᐃᐃᐃᐃᐃᐃᐃ ᐃᐃᐃᐃᐃ ᐃᐃᐃᐃᐃ
ᐃᐃ ᐃᐃᐃᐃ ᐃᐃᐃ ᐃᐃᐃᐃᐃᐃᐃ "ᐃᐃᐃ.
ᐃᐃᐃᐃ -ᐅᐃᐃᐃᐃ.

"ᐃᐃᐃ -ᐃᐃᐃᐃ ᐃᐃᐃᐃᐃ

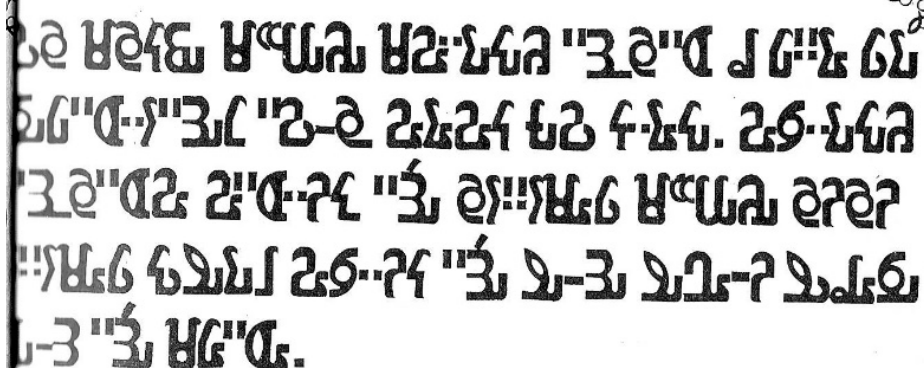
| <div> <div>ገጽ</div> <div>ጽሑፍ</div> <div>ገጽ</div> </div> | | |
|---|--------------|----|
| 1 | ፪፻፳፻፱ | 1 |
| 2 | ዘ፻፲፱፻፲፱ | 10 |
| 3 | "፲፱"፻፲፱፻፲፱ | 18 |
| 4 | ፲፱፻፲፱፻፲፱ | 21 |
| 5 | ፲፱፻፲፱፻፲፱ | 23 |
| 6 | ፲፱፻፲፱፻፲፱ | 25 |
| 7 | ዘ፻፲፱፻፲፱ | 34 |
| 8 | ፲፱፻፲፱፻፲፱ | 35 |
| 9 | ፲፱፻፲፱፻፲፱ | 37 |
| 10 | ፲፱፻፲፱፻፲፱-3 | 39 |
| 11 | ፲፱፻፲፱፻፲፱ | 40 |
| 12 | ፲፱፻፲፱፻፲፱ | 54 |
| 13 | ዘ፻፲፱፻፲፱፻፲፱-3 | 55 |
| 14 | ዘ፻፲፱፻፲፱፻፲፱ | 59 |
| 15 | ዘ፻፲፱፻፲፱፻፲፱ | 61 |
| 16 | ፲፱፻፲፱፻፲፱ | 63 |
| 17 | ፲፱፻፲፱፻፲፱ | 66 |

Figure 12. Table of contents of "ዘ ፲፱፻፲፱፻፲፱", page iv.

V

Page 33 of 94

[illegible]

[illegible][illegible]



ᐅᐃ ᐅᐃᐅ ᐃᐅᐅ ᐅᐅᐅ, ᐅᐅᐅᐅ ᐃ ᐅᐅᐅᐅ, ᐅᐅᐅᐅ
 "ᐅᐅ ᐅᐅᐅ ᐅᐅᐅᐅ / ᐅᐅᐅᐅ. ᐅᐅᐅ, "ᐅᐅᐅ ᐅᐅᐅ,
 ᐅᐅᐅ ᐅᐅᐅᐅᐅ.

ᐅᐅᐅ ᐅᐅᐅ ᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅ ᐅᐅᐅᐅᐅ ᐅᐅ
 ᐅᐅᐅᐅ ᐅᐅ ᐅᐅᐅ, ᐅᐅᐅᐅᐅ "ᐅᐅ ᐅᐅᐅ ᐅᐅᐅᐅ
 ᐅᐅᐅᐅ ᐅᐅᐅᐅᐅ ᐅᐅᐅ (1875. ᐅᐅᐅᐅ ᐅᐅᐅᐅᐅ
 ᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅᐅ ᐅᐅᐅᐅ - ᐅᐅ ᐅᐅᐅᐅ.

ᐅᐅ ᐅᐅᐅ ᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅ, "ᐅᐅ
 ᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅ ᐅᐅᐅᐅ, "ᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅ
 - ᐅ ᐅᐅᐅ ᐅᐅᐅ. ᐅᐅᐅ, ᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅᐅᐅ
 "ᐅᐅ ᐅᐅᐅᐅᐅ ᐅᐅ ᐅᐅᐅ ᐅᐅᐅᐅᐅ - ᐅᐅᐅ ᐅᐅ
 ᐅᐅ ᐅᐅᐅ ᐅᐅᐅᐅ "ᐅᐅ ᐅᐅᐅᐅ "ᐅᐅ ᐅᐅᐅᐅ, ᐅᐅᐅ
 ᐅᐅᐅ ᐅᐅᐅᐅᐅᐅ ᐅᐅᐅ ᐅᐅ ᐅᐅᐅᐅᐅ ᐅᐅᐅ ᐅᐅ
 ᐅᐅ ᐅᐅᐅᐅᐅᐅᐅ ᐅᐅᐅ / ᐅᐅᐅᐅᐅ - ᐅᐅᐅᐅ.

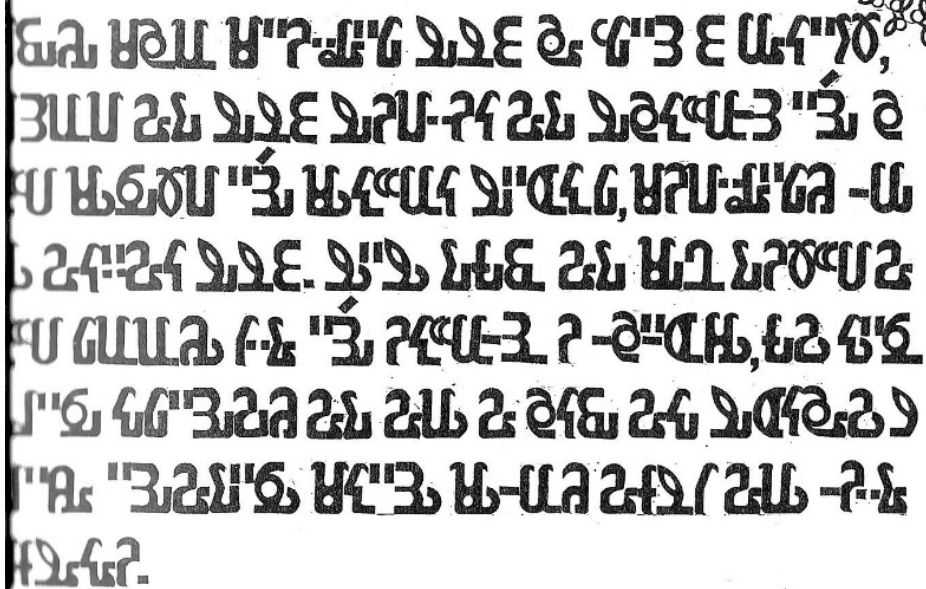
ᐅᐅ ᐅᐅᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅᐅᐅᐅ ᐅᐅᐅᐅ
 "ᐅᐅ ᐅᐅ ᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅᐅᐅ
 ᐅᐅ. ᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅᐅ ᐅᐅᐅᐅ, ᐅᐅᐅ ᐅᐅᐅᐅ
 ᐅᐅᐅᐅ ᐅᐅᐅ ᐅᐅᐅᐅ, ᐅᐅᐅ ᐅᐅᐅ ᐅᐅᐅᐅ, ᐅᐅᐅ ᐅᐅ
 ᐅᐅᐅ, ᐅᐅᐅ ᐅᐅᐅ, ᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅᐅᐅ ᐅᐅᐅ

Figure 17. Page 4 of "ᐅᐅᐅ ᐅᐅᐅ ᐅᐅᐅ"



62 4046 44 "3 12 6-2 44 "3 "11"34,
 44, 61112, "342, "34, "34 242. 6"26
 2 61 -2 6"2 6211 12732 "11 66"3222 1-2.
 204"24 222, 122222222 "32 1 62 44"2?
 11 "3222 22 44 2-2 4211 12222222
 2"2 "3222 22 44 2-2 2211 4-2 4211
 12222222 12222 2-2"22 22222 2-2 2-
 2-2 1-2.

[illegible]

[illegible]

22

THE

25

[illegible]

Figure 23. Page 10 of “**ዘ ቅጥፍ ስሩ ፈረ?**”



𐌸𐌹𐌸 𐌸𐌺𐌹𐌸 𐌸𐌺𐌹𐌸, 𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸
 "𐌺𐌹𐌸 𐌺𐌹𐌸 - 𐌺𐌹𐌸. 𐌸𐌹𐌸 - 𐌺𐌹𐌸 𐌺𐌹𐌸 "𐌺𐌹𐌸 - 𐌺𐌹𐌸
 𐌺𐌹𐌸 𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸. 𐌹𐌸 𐌺𐌹𐌸 𐌸
 𐌺𐌹𐌸 𐌸𐌹𐌸 𐌺𐌹𐌸 𐌸𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸
 "𐌺𐌹𐌸 𐌸𐌹𐌸 𐌸𐌹𐌸. 𐌹𐌸 𐌺𐌹𐌸 𐌸𐌹𐌸 "𐌺𐌹𐌸
 𐌺𐌹𐌸 𐌸𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸 "𐌺𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸
 𐌺𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸. 𐌺𐌹𐌸 𐌺𐌹𐌸
 𐌺𐌹𐌸 𐌺𐌹𐌸 𐌺𐌹𐌸 "𐌺𐌹𐌸 𐌺𐌹𐌸 "𐌺𐌹𐌸

[illegible]

ԽՖՖՆԸ Ե՛ Ե՛ԶԿ Ե՛ԾԽԵԾԽԵ ԽՖՖՆԸ (Ի՛ՆՈ ՏԻԸՎԵՅԻ, ԽՖՖՆԸ՝Ը Ե՛ԶԽԸ՝-ԻԻ Ե՛ Ի՛ՎՈՐՈ՝ՅԻ Ե՛ԾԽԸ՝ Խ՛Ի՛ Ե՛Զ Դ՛Խ, "ՅԻ Խ՛ Խ՛ Ե՛ԾԽԸ՝-ՅԻ՝՝Խ՛ Ե՛՛Խ՛. Ե՛ԶԽԸ՝Ե՛ Ե՛ Խ՛ Խ՛՝՝՝ Խ՛Խ՛Խ՛ Ե՛ԶԽԸ՝-ԻԻ-Ի՛ Ի՛ԸՎԵՅԻ. Ե՛ԶԽԸ՝ Խ՛Խ՛Խ՛-ՅԻ. Ի՛ԶԽԸ՝ Խ՛, Խ՛ "ՅԵԵ՝ՅԵ՛Խ՛-Ի՛ՎՈՐՈ՝ՅԻ.

൧-3 ൧൪-2 ൧൧-1 ൧൧-2 ൧൧-3 ൧൧-4 ൧൧-5 ൧൧-6 ൧൧-7 ൧൧-8 ൧൧-9 ൧൧-10 ൧൧-11 ൧൧-12 ൧൧-13 ൧൧-14 ൧൧-15 ൧൧-16 ൧൧-17 ൧൧-18 ൧൧-19 ൧൧-20 ൧൧-21 ൧൧-22 ൧൧-23 ൧൧-24 ൧൧-25 ൧൧-26 ൧൧-27 ൧൧-28 ൧൧-29 ൧൧-30 ൧൧-31 ൧൧-32 ൧൧-33 ൧൧-34 ൧൧-35 ൧൧-36 ൧൧-37 ൧൧-38 ൧൧-39 ൧൧-40 ൧൧-41 ൧൧-42 ൧൧-43 ൧൧-44 ൧൧-45 ൧൧-46 ൧൧-47 ൧൧-48 ൧൧-49 ൧൧-50 ൧൧-51 ൧൧-52 ൧൧-53 ൧൧-54 ൧൧-55 ൧൧-56 ൧൧-57 ൧൧-58 ൧൧-59 ൧൧-60 ൧൧-61 ൧൧-62 ൧൧-63 ൧൧-64 ൧൧-65 ൧൧-66 ൧൧-67 ൧൧-68 ൧൧-69 ൧൧-70 ൧൧-71 ൧൧-72 ൧൧-73 ൧൧-74 ൧൧-75 ൧൧-76 ൧൧-77 ൧൧-78 ൧൧-79 ൧൧-80 ൧൧-81 ൧൧-82 ൧൧-83 ൧൧-84 ൧൧-85 ൧൧-86 ൧൧-87 ൧൧-88 ൧൧-89 ൧൧-90 ൧൧-91 ൧൧-92 ൧൧-93 ൧൧-94 ൧൧-95 ൧൧-96 ൧൧-97 ൧൧-98 ൧൧-99 ൧൧-100 ൧൧-101 ൧൧-102 ൧൧-103 ൧൧-104 ൧൧-105 ൧൧-106 ൧൧-107 ൧൧-108 ൧൧-109 ൧൧-110 ൧൧-111 ൧൧-112 ൧൧-113 ൧൧-114 ൧൧-115 ൧൧-116 ൧൧-117 ൧൧-118 ൧൧-119 ൧൧-120 ൧൧-121 ൧൧-122 ൧൧-123 ൧൧-124 ൧൧-125 ൧൧-126 ൧൧-127 ൧൧-128 ൧൧-129 ൧൧-130 ൧൧-131 ൧൧-132 ൧൧-133 ൧൧-134 ൧൧-135 ൧൧-136 ൧൧-137 ൧൧-138 ൧൧-139 ൧൧-140 ൧൧-141 ൧൧-142 ൧൧-143 ൧൧-144 ൧൧-145 ൧൧-146 ൧൧-147 ൧൧-148 ൧൧-149 ൧൧-150 ൧൧-151 ൧൧-152 ൧൧-153 ൧൧-154 ൧൧-155 ൧൧-156 ൧൧-157 ൧൧-158 ൧൧-159 ൧൧-160 ൧൧-161 ൧൧-162 ൧൧-163 ൧൧-164 ൧൧-165 ൧൧-166 ൧൧-167 ൧൧-168 ൧൧-169 ൧൧-170 ൧൧-171 ൧൧-172 ൧൧-173 ൧൧-174 ൧൧-175 ൧൧-176 ൧൧-177 ൧൧-178 ൧൧-179 ൧൧-180 ൧൧-181 ൧൧-182 ൧൧-183 ൧൧-184 ൧൧-185 ൧൧-186 ൧൧-187 ൧൧-188 ൧൧-189 ൧൧-190 ൧൧-191 ൧൧-192 ൧൧-193 ൧൧-194 ൧൧-195 ൧൧-196 ൧൧-197 ൧൧-198 ൧൧-199 ൧൧-200 ൧൧-201 ൧൧-202 ൧൧-203 ൧൧-204 ൧൧-205 ൧൧-206 ൧൧-207 ൧൧-208 ൧൧-209 ൧൧-210 ൧൧-211 ൧൧-212 ൧൧-213 ൧൧-214 ൧൧-215 ൧൧-216 ൧൧-217 ൧൧-218 ൧൧-219 ൧൧-220 ൧൧-221 ൧൧-222 ൧൧-223 ൧൧-224 ൧൧-225 ൧൧-226 ൧൧-227 ൧൧-228 ൧൧-229 ൧൧-230 ൧൧-231 ൧൧-232 ൧൧-233 ൧൧-234 ൧൧-235 ൧൧-236 ൧൧-237 ൧൧-238 ൧൧-239 ൧൧-240 ൧൧-241 ൧൧-242 ൧൧-243 ൧൧-244 ൧൧-245 ൧൧-246 ൧൧-247 ൧൧-248 ൧൧-249 ൧൧-250 ൧൧-251 ൧൧-252 ൧൧-253 ൧൧-254 ൧൧-255 ൧൧-256 ൧൧-257 ൧൧-258 ൧൧-259 ൧൧-260 ൧൧-261 ൧൧-262 ൧൧-263 ൧൧-264 ൧൧-265 ൧൧-266 ൧൧-267 ൧൧-268 ൧൧-269 ൧൧-270 ൧൧-271 ൧൧-272 ൧൧-273 ൧൧-274 ൧൧-275 ൧൧-276 ൧൧-277 ൧൧-278 ൧൧-

Figure 25. Page 12 of “*မိမိတို့၏ နှစ်ချိန်*”

ጋ"ገሌ ጋህ ዘፀፍዎ ዘ"ጣ"ጣ ሓፋ"ጋ ዘፍ"ጣ. ፊደ
ፊደ"ጥ ጋህ ግህ-ጌድ "ጌ ግህ"ጌ ጋህ ጋህ ጋህ
-ጌ. ግህ"ጌ?

ዘህ ዘህ ጋህ"ጌ ዘፀፍዎ ዘግህ"ጌ ዘህ
"ግ ግህ-ጌ-ፀ"ጣ ግህ ጋህ"ጌ ግህ ጋህ
-ጌ "ጌ ግህ-ጌ ጋህ. ዘግ ግህ ጋህ"ጌ
ዘፀፍዎ ዘግህ.

ዘህ ዘፀፍዎ ዘግህ, ግህ ጋህ"ጌ ግህ
ጋህ ዘፀፍዎ ዘፀ ጋህ ጋህ ጋህ ጋህ ጋህ ጋህ
"ጌ ግህ"ጌ ግህ ጋህ. ዘህ ጋህ-ፀ"ጌ ጋህ
ጋህ ጋህ-ጌ ጋህ ጋህ ጋህ ጋህ "ጌ ግህ"ጌ
ጋህ ጋህ ጋህ"ጌ ዘግ ጋህ "ጌ ዘፀፍዎ ዘግ
"ጌ ግህ ጋህ.

ዘግ ግህ"ጌ ጋህ"ጌ ዘግ ጋህ ዘፀፍዎ
"ገሌ. ዘፀፍዎ ጋህ ጋህ"ጌ ዘፀፍዎ ዘፀ-ጌ
"ገሌ ግህ ግህ ጋህ ጋህ"ጌ ዘፀፍዎ
ጋህ ጋህ ጋህ ጋህ ጋህ. ጋህ ጋህ ጋህ ጋህ
-ጌ ጋህ ጋህ"ጌ ጋህ ጋህ"ጌ ጋህ ጋህ. ጋህ ዘግ
ዘፀፍዎ ጋህ"ጌ ዘግ ጋህ ዘፀፍዎ ጋህ "ገሌ

Figure 28. Page 15 of "ዘ ፀፍዎ ጋህ ጋህ"

ዘይከላ ደህንነትና ልማት -ሀህ-ገገ "ኋላ" ደህንነት ዘይከላ
ደህንነትና ልማት ደህንነት ዘይከላ "ገገ" ደህንነት.

ደህንነትና ልማት ደህንነት "ኋላ" ደህንነት ደህንነት ደህንነት
ደህንነትና ልማት ደህንነት "ኋላ" ደህንነት ደህንነት ደህንነት
ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት
ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት

ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት
ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት
ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት
ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት

ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት
ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት
ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት
ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት

ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት
ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት
ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት
ደህንነትና ልማት ደህንነት ደህንነት ደህንነት ደህንነት ደህንነት

ԿԵՆԱ ԿԵՐԵ ԶՆ ԿԱ "ՅԱ ԸՆԾ ԿԶԼԸ
 Գ-Դ ԵԾ Գ ԸԳԵ. ԿԵՆԱ"Ճ ԿԵՐԵ ԶՆ ԿԵ"Ճ Կ
 ԾՄԱԾ ԶԶԿԱՅԱ-Ը ԴՅԼԼԼ ՉԱ-Դ ՉԱ-ԸԿ
 ԱՂ ԿԸՆԶՆ ԸԿ "Յ" "ԸԸ. ԿԵՆԱ ԿԵՐԵ Զ
 Ն "ԸԸ ՈԱ ԸԾ ԸԶԱՅԱ ԸՄԱՆ Կ-ԱՅԱ "Յ"Ճ
 "Զ"Յ Բ-ԱՅԱ ՆԵԶԿՆ ԸԾԾ Ծ Կ"Ն "Յ ԶԿԱՅ
 ԳԾԿ ՉԱԶԾ Զ Կ"Յ ԿԵԿՃ.

ԿՅՈՅԱ ԶԼԾԳ-ԴԱ, ԿՅՈՅԱ "ԸԸ ՈԱ, ԿՅ
 ՈՅ Ն"Ճ Ն-ԶԻ ԿԱ ՆԸԱ ՆԶԿԱՂ ԶՆ Կ"ՈԱ
 ԿՆԶԾԿՈԱ. ԿՅՈՅԱ ԶԶԱՅՈՆ-ԴԱ ՉԱ-Դ Չ
 Ը"ՄԱ ԿՍԿ Վ "ՅԾ ԾԵԶԿԵԾ Գ-ԿԿ. ԿՄ Ս ԴԸԴԴ
 Ը-ԴԳ ԿԵՐԵ ԿԸԸԸԸԸ ԴՄԱՆ "ՅԱ"Ճ ԿՅԿ
 Ա-Յ "ՆԸ Ն"Ճ Ը ԸԾԾ ՈԱ Ծ ԱԶ "Յ ԱԶ.

ԿԱԿՈԱ Զ-ՄՈՆ "ՅԾ ԾԶԱՅՈՆԾ "Մ-ԴԸ Ը
 ՆՎ ԸՈԱ. ԸԾ"ԸՂ Կ"Ն ԿԸԱ ԿԶԱՅԱ ՆԵՂԱ
 "Յ ԶԼԾԳ-ԴԱ. ԸԾԿԸԸ ԶՆ Կ"Ն ԿԱԿՈՆ "Յ
 Կ"Ծ"Կ "ՆԸ Ն"Ճ. Վ"ՄԱ Չ-ԸՄ ԶՆ ԸԿԸԱ Ա
 "Ճ ԿԱ ԿԼԾԳ. Դ"ՅՈՅԱ ԸՄԱՆ ԶՆ ԸԿԸ
 "ԿՈ ԾԿՄԱՅՈՆ ԿԸԿ ԸԱ.

Exercise 1: Misi words

- | | |
|---------------|--------------|
| 1. aba = | 17. makata = |
| 2. adafa = | 18. mazaza = |
| 3. ajawa = | 19. namata = |
| 4. akana = | 20. nyama = |
| 5. bacha = | 21. paja = |
| 6. balaka = | 22. sabata = |
| 7. chada = | 23. sakala = |
| 8. chagada = | 24. tadana = |
| 9. fatsa = | 25. zafala = |
| 10. jama = | |
| 11. jana = | |
| 12. kadacha = | |
| 13. kalata = | |
| 14. kanafa = | |
| 15. madala = | |
| 16. magawa = | |

Figure 32. Exercise material of Misi words for students to transliterate into the Mwangwego script.

Exercise 2: Misiri words

- | | |
|------------------|------------------|
| 1. bekete = | 17. malamulo = |
| 2. beseni = | 18. masewera = |
| 3. bokosi = | 19. musiyeni = |
| 4. chasowadi = | 20. namadzi = |
| 5. chidani = | 21. petulo = |
| 6. chikoka = | 22. sekani = |
| 7. chilole = | 23. sizikukoma = |
| 8. chimenechi = | 24. timalima = |
| 9. chipatala = | 25. tisamalire = |
| 10. chuma = | |
| 11. galimoto = | |
| 12. ganizani = | |
| 13. kenaka = | |
| 14. kulakatula = | |
| 15. litsiro = | |
| 16. madzi = | |

Figure 33. Exercise material of Misiri words for students to transliterate into the Mwangwego script.

Exercise 3: Mituyo words

- | | |
|-----------------|--------------------|
| 1. atwimisya = | 17. nsabwe = |
| 2. bwanthu = | 18. ntcheu = |
| 3. bwanje = | 19. sitiloledwa = |
| 4. bwenkha = | 20. tidzalandira = |
| 5. chakudya = | 21. tikambe = |
| 6. chakufwa = | 22. tinkhani = |
| 7. chingale = | 23. usandiyambe = |
| 8. khondowe = | 24. zinthu = |
| 9. kwazizila = | 25. zithumwa = |
| 10. mankhwala = | |
| 11. munthu = | |
| 12. ndalama = | |
| 13. njolomole = | |
| 14. nkhalango = | |
| 15. nsomba = | |

Figure 34. Exercise material of Mituyo words for students to transliterate into the Mwangwego script.

B) Same more examples of the uses of Mituyo

How to use Hi (ʰ), Ni (ɲ), Mi (ɱ) and Myu (ɸ)

(1) Ni (ɲ) is used in the following cases

a) When the tip of the tongue touches the front part of the palate.

Nda "ɲ" Nta "ɲ" Ntsa "ɲ" Ndza "ɲ"

b) When the rear part of the tongue touches the palate.

Nga "ŋ" Ng'a "ŋ"

c) When the middle part of the tongue touches the palate.

Ncha "ɲ" Nja "ɲ"

d) When the tongue slightly touches the palate.

Nsa "ɲ" Nsha "ɲ"

e) When teeth of the upper jaw touch the lower lip:

Mfa "ɲ" Mva "ɲ"

(2) Mi (ɱ) is used when both lips meet "heavily"

Mba "ɱ" Mpa "ɱ"

(3) Myu (ɸ) is used when pronouncing a word which involves slight meeting of both lips.

Mkaka Mtima Mkanda Mchenga.
'ɲɲ 'ɲɲ 'ɲɲ 'ɲɲ

* Although NYA (ɣ) has got its own symbol originally, it can also be written ("ɲ") in some languages.

Figure 35. More exercise material for students to learn how to transliterate Mituyo words into the Mwangwego script.

MWANGWECO SCRIPT

LESSON 1

MISISI

| | | | |
|---|------|---|-----|
| Ɔ | a | Y | nya |
| U | ba | J | pa |
| Ɔ | cha | Ɔ | ra |
| 3 | da | Ɔ | sa |
| Ɔ | fa | 6 | sha |
| Ɔ | ga | > | ta |
| H | gha | J | tɔa |
| Ɔ | ha | h | psa |
| U | ja | A | va |
| Ɔ | ja * | E | wa |
| Ɔ | ka | Y | ya |
| 4 | la | / | za |
| Ɔ | ma | + | dza |
| U | na | | |

* ja pronounced like in measure, or treasure

Figure 36. Educational material for Misisi (lesson 1).

| MISIRI | | LESSON 2 | |
|-----------|---------------------|-----------|---------------------|
| Ɑ Ɱ Ɐ Ɒ ⱱ | a e i o u | Ṛ Ṛ Ṛ Ṛ Ṛ | ra re ri ro ru |
| Ṳ ṳ Ṵ ṵ Ṷ | ba be bi bo bu | Ṡ ṡ Ṣ ṣ Ṥ | sa se si so su |
| Ṹ ṹ Ṻ ṻ Ṽ | cha chechi cho chu | Ṧ ṧ Ṩ ṩ Ṫ | sha she shi sho shu |
| Ṽ ṽ Ṽ ṽ Ṽ | da de di do du | Ṭ ṭ Ṭ ṭ Ṭ | ta te ti to tu |
| Ṽ ṽ Ṽ ṽ Ṽ | fa fe fi fo fu | Ṭ ṭ Ṭ ṭ Ṭ | tṣa tṣe tṣi tṣo tṣu |
| Ṽ ṽ Ṽ ṽ Ṽ | ga ge gi go gu | Ḥ ḥ Ḥ ḥ Ḥ | psa pse psi pso psu |
| Ḥ Ḥ Ḥ Ḥ Ḥ | gha ghe ghi gho ghu | Ḃ Ḃ Ḃ Ḃ Ḃ | va ve vi vo vu |
| Ḥ Ḥ Ḥ Ḥ Ḥ | ha he hi ho hu | Ḕ ḕ Ḗ ḗ Ḙ | wa we wi wo wu |
| Ḥ Ḥ Ḥ Ḥ Ḥ | ja je ji jo ju | Ḕ ḕ Ḗ ḗ Ḙ | ya ye yi yo yu |
| Ḥ Ḥ Ḥ Ḥ Ḥ | ja je ji jo ju * | Ḕ ḕ Ḗ ḗ Ḙ | za ze zi zo zu |
| Ḕ ḕ Ḗ ḗ Ḙ | ka ke ki ko ku | Ḕ ḕ Ḗ ḗ Ḙ | dza dze dzi dzo dzu |
| Ḕ ḕ Ḗ ḗ Ḙ | la le li lo lu | | |
| Ḕ ḕ Ḗ ḗ Ḙ | ma me mi mo mu | | |
| Ḕ ḕ Ḗ ḗ Ḙ | na ne ni no nu | | |
| Ḕ ḕ Ḗ ḗ Ḙ | nya nye nyi nyo nyu | | |
| Ḕ ḕ Ḗ ḗ Ḙ | pa pe pi po pu | | |

* ja pronounced like in measure or treasure

Figure 37. Educational material for Misiri (lesson 2).

LESSON 3

A) Mituyo and their uses

| SYMBOL / NAME | | USE | |
|---------------|----------|--------------------------------------|-----------------------|
| - | WAYA | bwato -vɔ | mwala -ɛɛ |
| | | myala ɛɛ | kudya ɛɛ |
| H | Ni | Ndati "ɔɔ | ng'ona
-n-gona "ɛɛ |
| | | nsapato "ɛɛ | Nchalo "ɛɛ |
| " | Hi | khasu ɛɛ | khama ɛɛ phala ɛɛ |
| | | thobwa ɛɛ-U | tchimo ɛɛ |
| " | Mi | mbala ɛɛ | mbiri ɛɛ |
| | | mbatata ɛɛ | mpaka ɛɛ |
| C | Myu | mkaka ɛɛ | mkanda ɛɛ ɛɛ |
| | | m'dziko ɛɛ | m'mudzi ɛɛ |
|) | Sisa | sma ɛɛ | sketi ɛɛ |
| | | stima ɛɛ | |
| ɔ | Mura | bra ɔ kra ɔ tra ɔ | |
| ˘ | Mula | Blantyre ɔ˘kla ɔ˘tla ɔ˘ | |
| ^ | Pewa | ba ɔ (Tumbuka) ɔ˘wa ɔ˘ (Chichewa) | |
| | | bva ɔ˘ bza ɔ˘ pfa ɔ˘ *tha ɔ˘ | |
| ˘ | Tumbu | n'da ˘ n'nya ˘ n'ya ˘ n'wa ˘ | |
| ˘ | Kwanthua | mtengo ˘" (tree) ; mtengo ˘" (price) | |

*Pronounced like the English "th" in "thatch" (for Lomwe)

Figure 38. Educational material for Mituyo (lesson 3).

3

| | | | | |
|--------|-------|-------|-------|--------|
| tcha ㄸ | kha ㄲ | pha ㅍ | tha ㅈ | thsa ㅊ |
|--------|-------|-------|-------|--------|

(i) nkha [#]ṛ khwa [#]ṛ nkhoa [#]ṛ nkya [#]ṛ khya [#]ṛ nkhyā [#]ṛ

(ii) mka^h mka^h mkwa^h mka^h mnkwa^h

(iii) mbwa 𐌚𐌚𐌚 mbya 𐌚𐌚𐌚 mpha 𐌚𐌚𐌚 mpwa 𐌚𐌚𐌚 phwa 𐌚𐌚𐌚
 mphwa 𐌚𐌚𐌚 phya 𐌚𐌚𐌚 mphyā 𐌚𐌚𐌚

(iv) snkha နိဗ္ဗာန်

NOTE: Waya (-) cannot be used with ξ and η . It can however be used with " η " like in " η " (ng'wa).

ዓ ፩፻፱ ገጽ ፳፻፱

[illegible][illegible]

Figure 39. More educational material for Mituyo (lesson 3) and a reinforcement reading exercise.

[illegible]

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| MWANGWEGO SCRIPT | | | | | | | | | |
|------------------|---|---|---|---|---|---|---|---|---|
| 𐑀 | 𐑁 | 𐑂 | 𐑃 | 𐑄 | 𐑅 | 𐑆 | 𐑇 | 𐑈 | 𐑉 |
| 𐑊 | 𐑋 | 𐑌 | 𐑍 | 𐑎 | 𐑏 | 𐑐 | 𐑑 | 𐑒 | 𐑓 |
| 𐑕 | 𐑖 | 𐑗 | 𐑘 | 𐑙 | 𐑚 | 𐑛 | 𐑜 | 𐑝 | 𐑞 |
| 𐑠 | 𐑡 | 𐑢 | 𐑣 | 𐑤 | 𐑥 | 𐑦 | 𐑧 | 𐑨 | 𐑩 |
| 𐑫 | 𐑬 | 𐑭 | 𐑮 | 𐑯 | 𐑰 | 𐑱 | 𐑲 | 𐑳 | 𐑴 |
| 𐑶 | 𐑷 | 𐑸 | 𐑹 | 𐑺 | 𐑻 | 𐑼 | 𐑽 | 𐑾 | 𐑿 |
| 𐓀 | 𐓁 | 𐓂 | 𐓃 | 𐓄 | 𐓅 | 𐓆 | 𐓇 | 𐓈 | 𐓉 |
| 𐓊 | 𐓋 | 𐓌 | 𐓍 | 𐓎 | 𐓏 | 𐓐 | 𐓑 | 𐓒 | 𐓓 |
| 𐓕 | 𐓖 | 𐓗 | 𐓘 | 𐓙 | 𐓚 | 𐓛 | 𐓜 | 𐓝 | 𐓞 |
| 𐓠 | 𐓡 | 𐓢 | 𐓣 | 𐓤 | 𐓥 | 𐓦 | 𐓧 | 𐓨 | 𐓩 |
| 𐓫 | 𐓬 | 𐓭 | 𐓮 | 𐓯 | 𐓰 | 𐓱 | 𐓲 | 𐓳 | 𐓴 |
| 𐓶 | 𐓷 | 𐓸 | 𐓹 | 𐓺 | 𐓻 | 𐓼 | 𐓽 | 𐓾 | 𐓿 |
| 𐔀 | 𐔁 | 𐔂 | 𐔃 | 𐔄 | 𐔅 | 𐔆 | 𐔇 | 𐔈 | 𐔉 |
| 𐔊 | 𐔋 | 𐔌 | 𐔍 | 𐔎 | 𐔏 | 𐔐 | 𐔑 | 𐔒 | 𐔓 |
| 𐔕 | 𐔖 | 𐔗 | 𐔘 | 𐔙 | 𐔚 | 𐔛 | 𐔜 | 𐔝 | 𐔞 |
| 𐔠 | 𐔡 | 𐔢 | 𐔣 | 𐔤 | 𐔥 | 𐔦 | 𐔧 | 𐔨 | 𐔩 |
| 𐔫 | 𐔬 | 𐔭 | 𐔮 | 𐔯 | 𐔰 | 𐔱 | 𐔲 | 𐔳 | 𐔴 |
| 𐔶 | 𐔷 | 𐔸 | 𐔹 | 𐔺 | 𐔻 | 𐔼 | 𐔽 | 𐔾 | 𐔿 |
| 𐕀 | 𐕁 | 𐕂 | 𐕃 | 𐕄 | 𐕅 | 𐕆 | 𐕇 | 𐕈 | 𐕉 |
| 𐕊 | 𐕋 | 𐕌 | 𐕍 | 𐕎 | 𐕏 | 𐕐 | 𐕑 | 𐕒 | 𐕓 |
| 𐕕 | 𐕖 | 𐕗 | 𐕘 | 𐕙 | 𐕚 | 𐕛 | 𐕜 | 𐕝 | 𐕞 |
| 𐕠 | 𐕡 | 𐕢 | 𐕣 | 𐕤 | 𐕥 | 𐕦 | 𐕧 | 𐕨 | 𐕩 |
| 𐕫 | 𐕬 | 𐕭 | 𐕮 | 𐕯 | 𐕰 | 𐕱 | 𐕲 | 𐕳 | 𐕴 |
| 𐕶 | 𐕷 | 𐕸 | 𐕹 | 𐕺 | 𐕻 | 𐕼 | 𐕽 | 𐕾 | 𐕿 |
| 𐖀 | 𐖁 | 𐖂 | 𐖃 | 𐖄 | 𐖅 | 𐖆 | 𐖇 | 𐖈 | 𐖉 |
| 𐖊 | 𐖋 | 𐖌 | 𐖍 | 𐖎 | 𐖏 | 𐖐 | 𐖑 | 𐖒 | 𐖓 |
| 𐖕 | 𐖖 | 𐖗 | 𐖘 | 𐖙 | 𐖚 | 𐖛 | 𐖜 | 𐖝 | 𐖞 |
| 𐖠 | 𐖡 | 𐖢 | 𐖣 | 𐖤 | 𐖥 | 𐖦 | 𐖧 | 𐖨 | 𐖩 |
| 𐖫 | 𐖬 | 𐖭 | 𐖮 | 𐖯 | 𐖰 | 𐖱 | 𐖲 | 𐖳 | 𐖴 |
| 𐖶 | 𐖷 | 𐖸 | 𐖹 | 𐖺 | 𐖻 | 𐖼 | 𐖽 | 𐖾 | 𐖿 |
| 𐗀 | 𐗁 | 𐗂 | 𐗃 | 𐗄 | 𐗅 | 𐗆 | 𐗇 | 𐗈 | 𐗉 |
| 𐗊 | 𐗋 | 𐗌 | 𐗍 | 𐗎 | 𐗏 | 𐗐 | 𐗑 | 𐗒 | 𐗓 |
| 𐗕 | 𐗖 | 𐗗 | 𐗘 | 𐗙 | 𐗚 | 𐗛 | 𐗜 | 𐗝 | 𐗞 |
| 𐗠 | 𐗡 | 𐗢 | 𐗣 | 𐗤 | 𐗥 | 𐗦 | 𐗧 | 𐗨 | 𐗩 |
| 𐗫 | 𐗬 | 𐗭 | 𐗮 | 𐗯 | 𐗰 | 𐗱 | 𐗲 | 𐗳 | 𐗴 |
| 𐗶 | 𐗷 | 𐗸 | 𐗹 | 𐗺 | 𐗻 | 𐗼 | 𐗽 | 𐗾 | 𐗿 |
| 𐘀 | 𐘁 | 𐘂 | 𐘃 | 𐘄 | 𐘅 | 𐘆 | 𐘇 | 𐘈 | 𐘉 |
| 𐘊 | 𐘋 | 𐘌 | 𐘍 | 𐘎 | 𐘏 | 𐘐 | 𐘑 | 𐘒 | 𐘓 |
| 𐘕 | 𐘖 | 𐘗 | 𐘘 | 𐘙 | 𐘚 | 𐘛 | 𐘜 | 𐘝 | 𐘞 |
| 𐘠 | 𐘡 | 𐘢 | 𐘣 | 𐘤 | 𐘥 | 𐘦 | 𐘧 | 𐘨 | 𐘩 |
| 𐘫 | 𐘬 | 𐘭 | 𐘮 | 𐘯 | 𐘰 | 𐘱 | 𐘲 | 𐘳 | 𐘴 |
| 𐘶 | 𐘷 | 𐘸 | 𐘹 | 𐘺 | 𐘻 | 𐘼 | 𐘽 | 𐘾 | 𐘿 |
| 𐙀 | 𐙁 | 𐙂 | 𐙃 | 𐙄 | 𐙅 | 𐙆 | | | |

Figure 41. Educational material used to teach the basic syllabic graphemes of the Mwangwego script.



Figure 42. Most of the possible Mutuyo & Mituyo attachments onto Misisi (not according to collation/ordering).

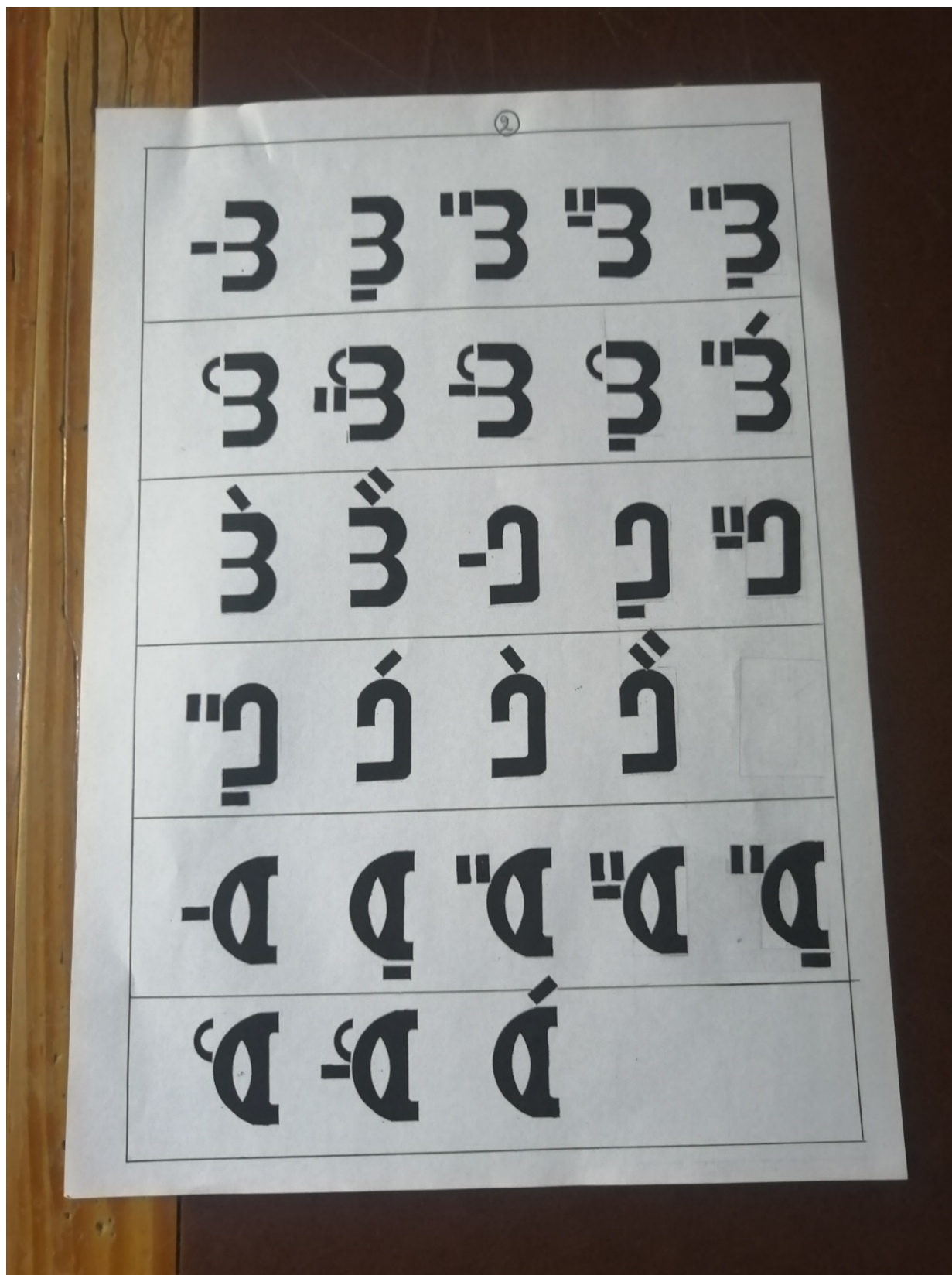


Figure 43. Most of the possible Mutuyo & Mituyo attachments onto Misisi (not according to collation/ordering).

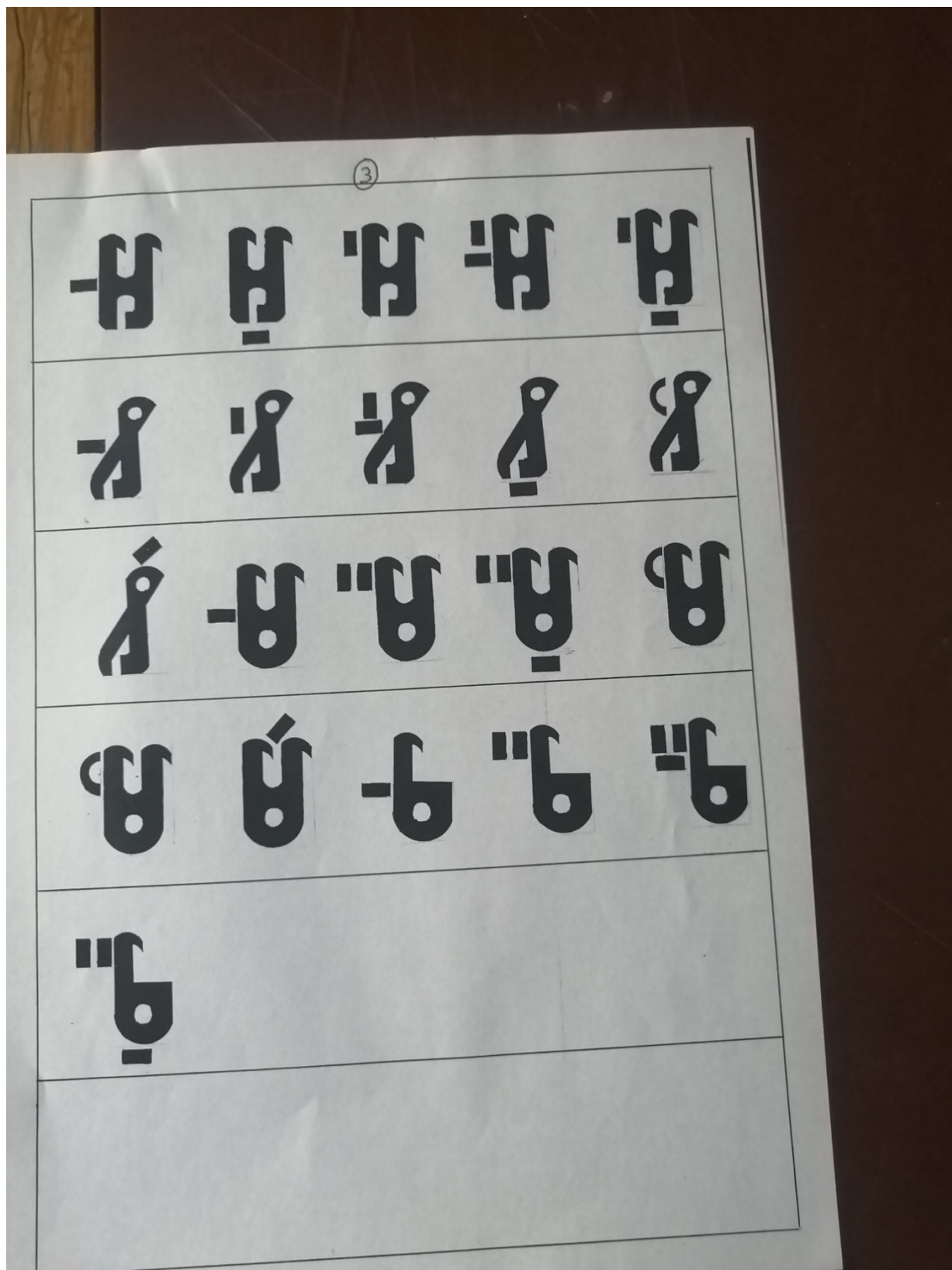


Figure 44. Most of the possible Mutuyo & Mituyo attachments onto Misisi (not according to collation/ordering). 'Ų' is accidentally repeated twice here.

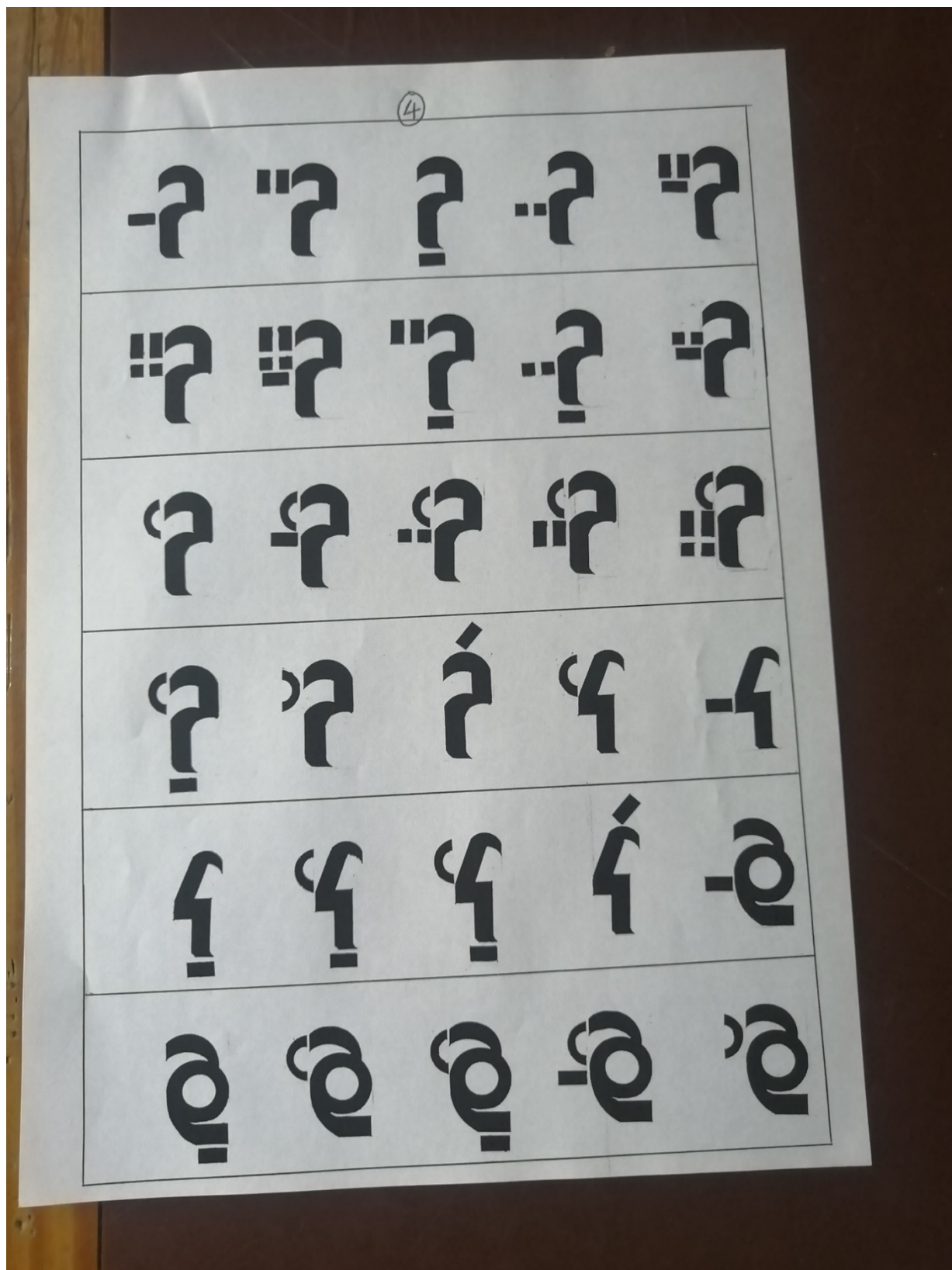


Figure 45. Most of the possible Mutuyo & Mituyo attachments onto Misisi (not according to collation/ordering). '𐌲' is accidentally repeated twice here.

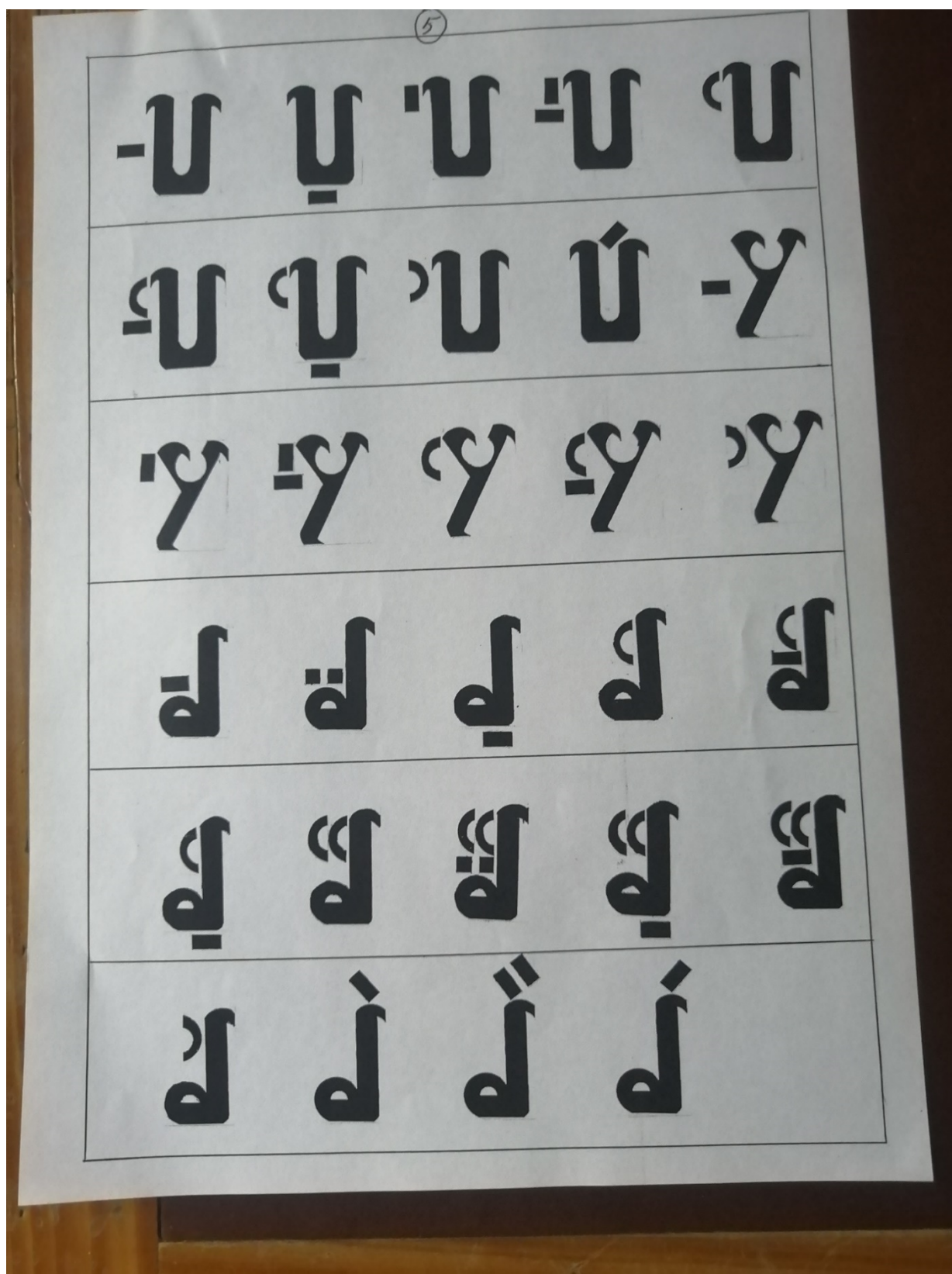


Figure 46. Most of the possible Mutuyo & Mituyo attachments onto Misisi (not according to collation/ordering).

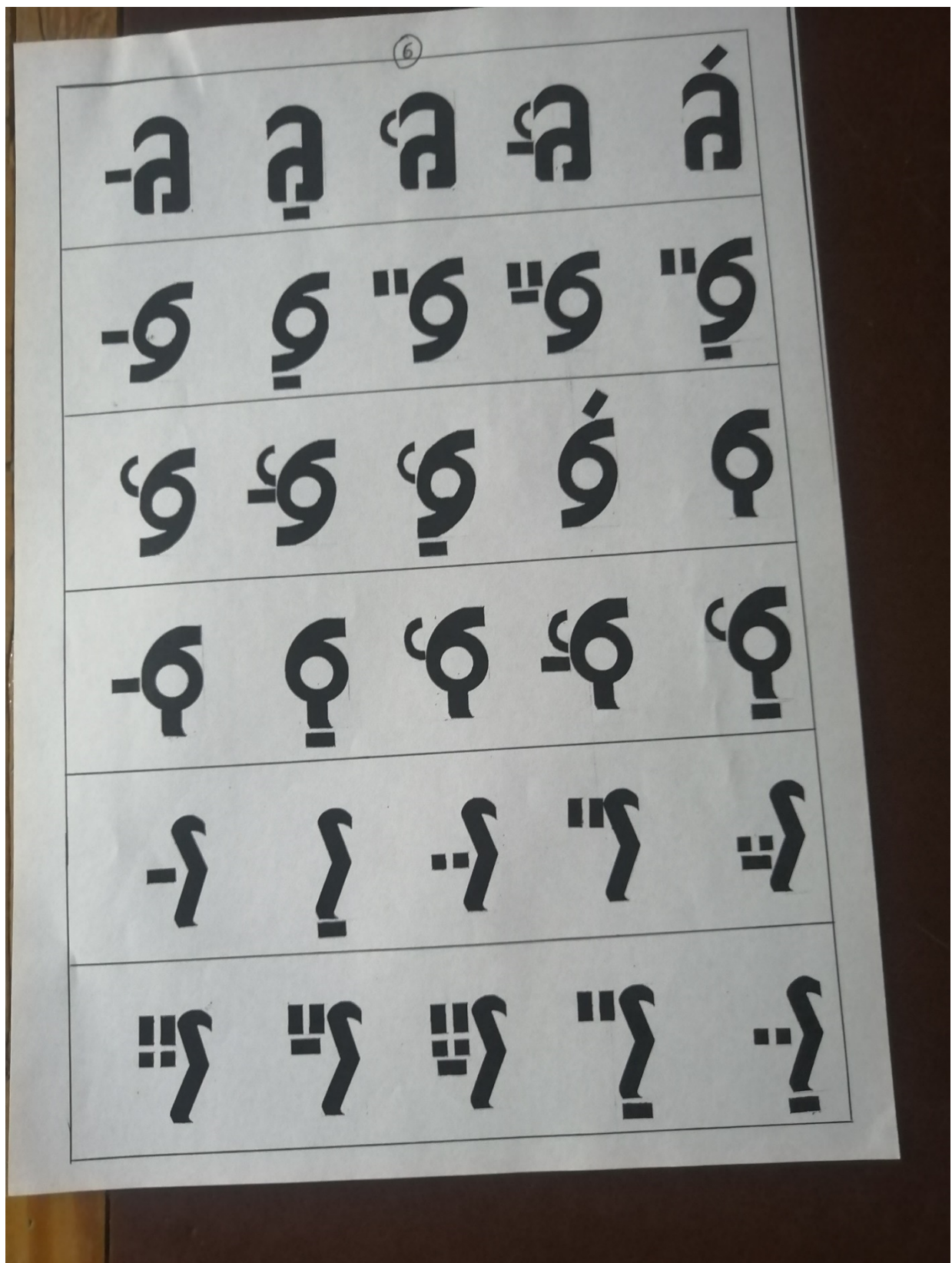


Figure 47. Most of the possible Mutuyo & Mituyo attachments onto Misisi (not according to collation/ordering). A lone ḡ Musisi was accidentally typed in this picture.

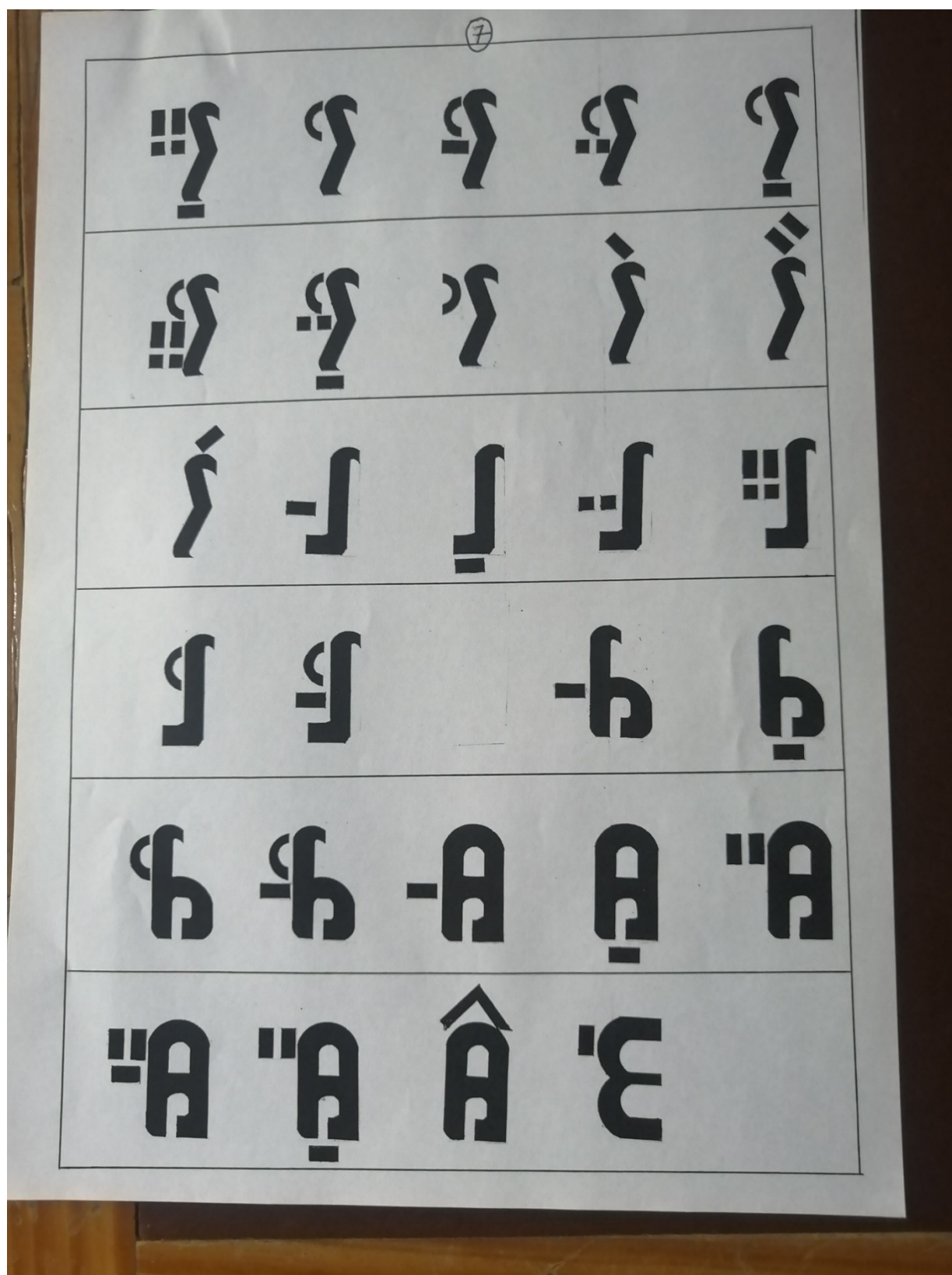


Figure 48. Most of the possible Mutuyo & Mituyo attachments onto Misisi (not according to collation/ordering).

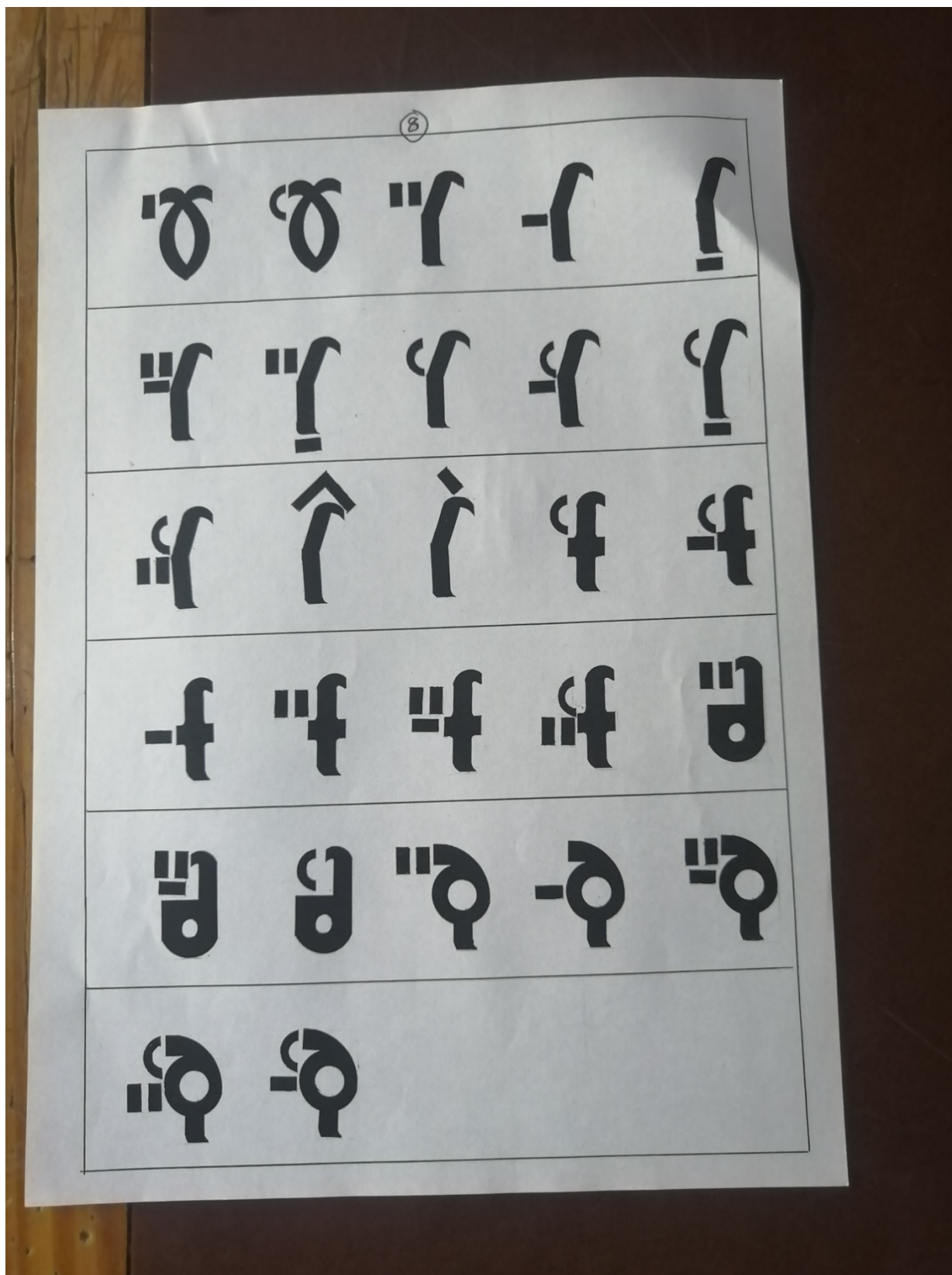


Figure 49. Most of the possible Mutuyo & Mituyo attachments onto Misisi (not according to collation/ordering).

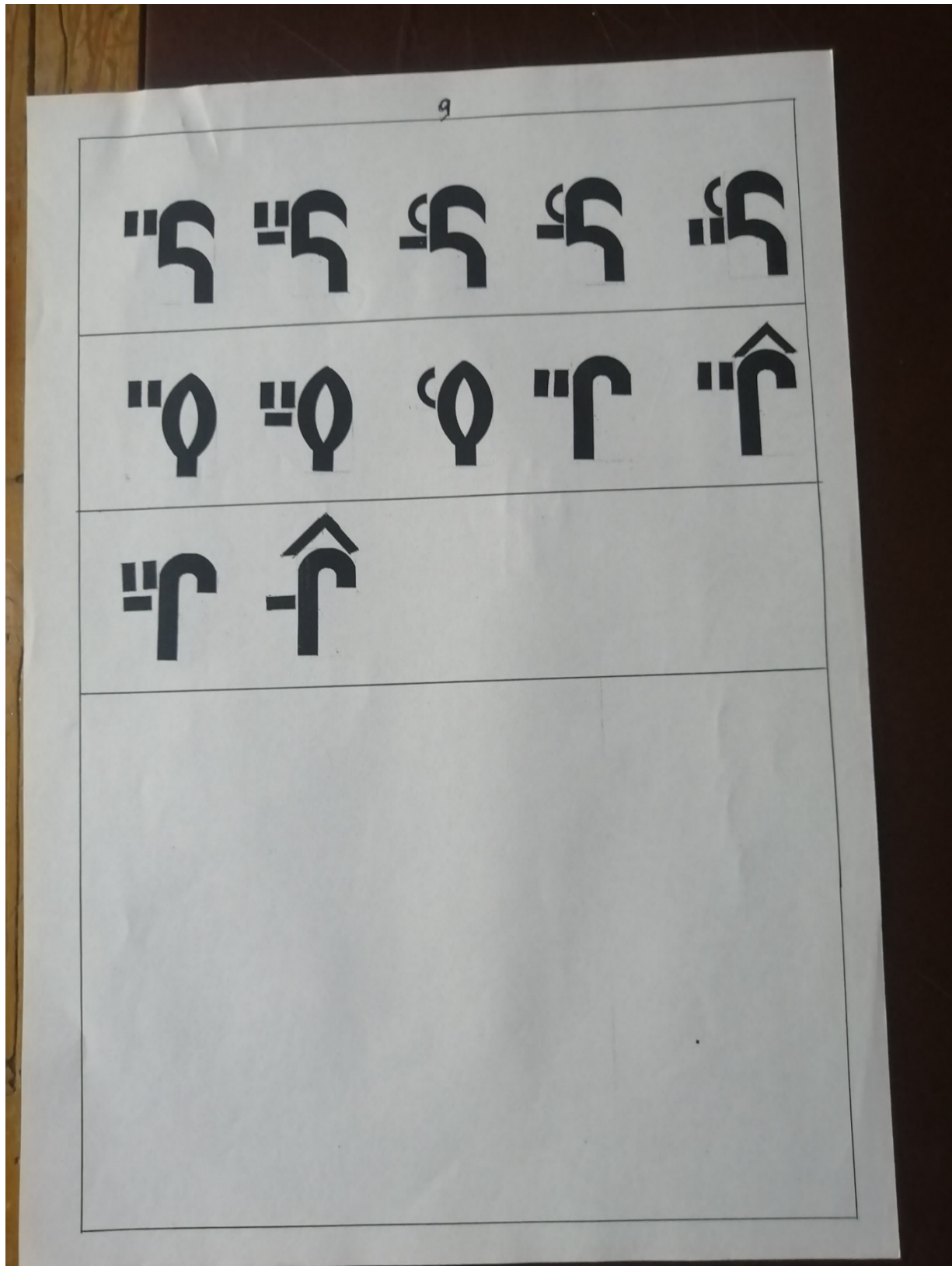


Figure 50. Most of the possible Mutuyo & Mituyo attachments onto Misisi (not according to collation/ordering). 𐌺 is accidentally repeated twice here.

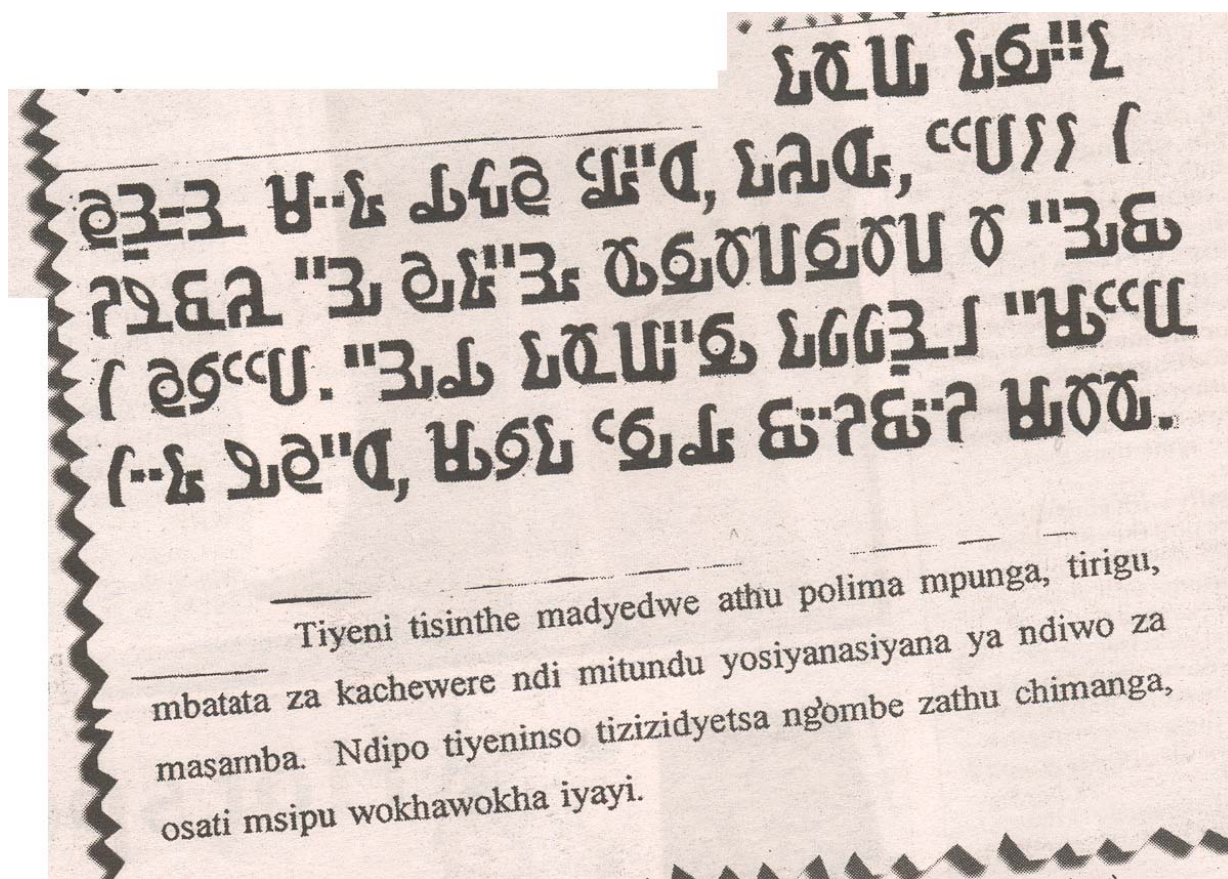


Figure 51. Typed material with Latin transliteration below. English translation: "Let's diversify our diet by growing rice, wheat, Irish potatoes and different types of vegetables. Let us feed our cattle with grains as well, not just fodder."



Figure 52. Nolerance Mwangwego teaching the Mwangwego script (center); a student (right); book cover of "Ի ԵԿՆ ԵԿ ԴՅ" (left).

1' 36" wheelbarrow #4 (2 1/2" wheel)
 2' 25.25 2 1/2" 8 "H-7 10/26

Quotation 7 Panels 25 d"3 1/4 10 Panels 2
 MDO -2914" d Panel 291-P30 MDO -2913 d
 3 Panel 7 -2918 291-P30 3 Panel 10
 3x2" 1 Trip 250 3x2" 1
 Bridgeway Wire 5 -2935 291-P30 3x2" 1
 1 60mm Pipe (6m) -2935-2910 1 60mm Pipe
 10 Cement bags -2912.5 13 Cement bags
 "H-7 1 Trip -2912.5 "H-7 1 Trip
 11/20 2 Cement

| | | |
|---------|-----------|----------|
| 1 Trip | 3x2" 5 | 50 |
| 5 Roll | Bridgeway | 3.50 |
| 10 Bags | Cement | 12.50 |
| 1 Trip | "H-7 | 12.50.00 |
| | MDO | 98.00 |

Figure 54. Chichewa-language handwriting by a Malawian user. This image showcases intralinear English words in the Latin script (important to typographers).

Os CAMPONES
15 Peru - 208
06 Gggg d Lister - 2020
06 GZ"37 34 321"3 - 203
06 "y"3 E d Campo - 2010 PA
0 Wages Dave !!221 - 2020

Figure 56. Chichewa-language handwriting by a Malawian user. This image showcases intralinear English words in the Latin script (important to typographers).

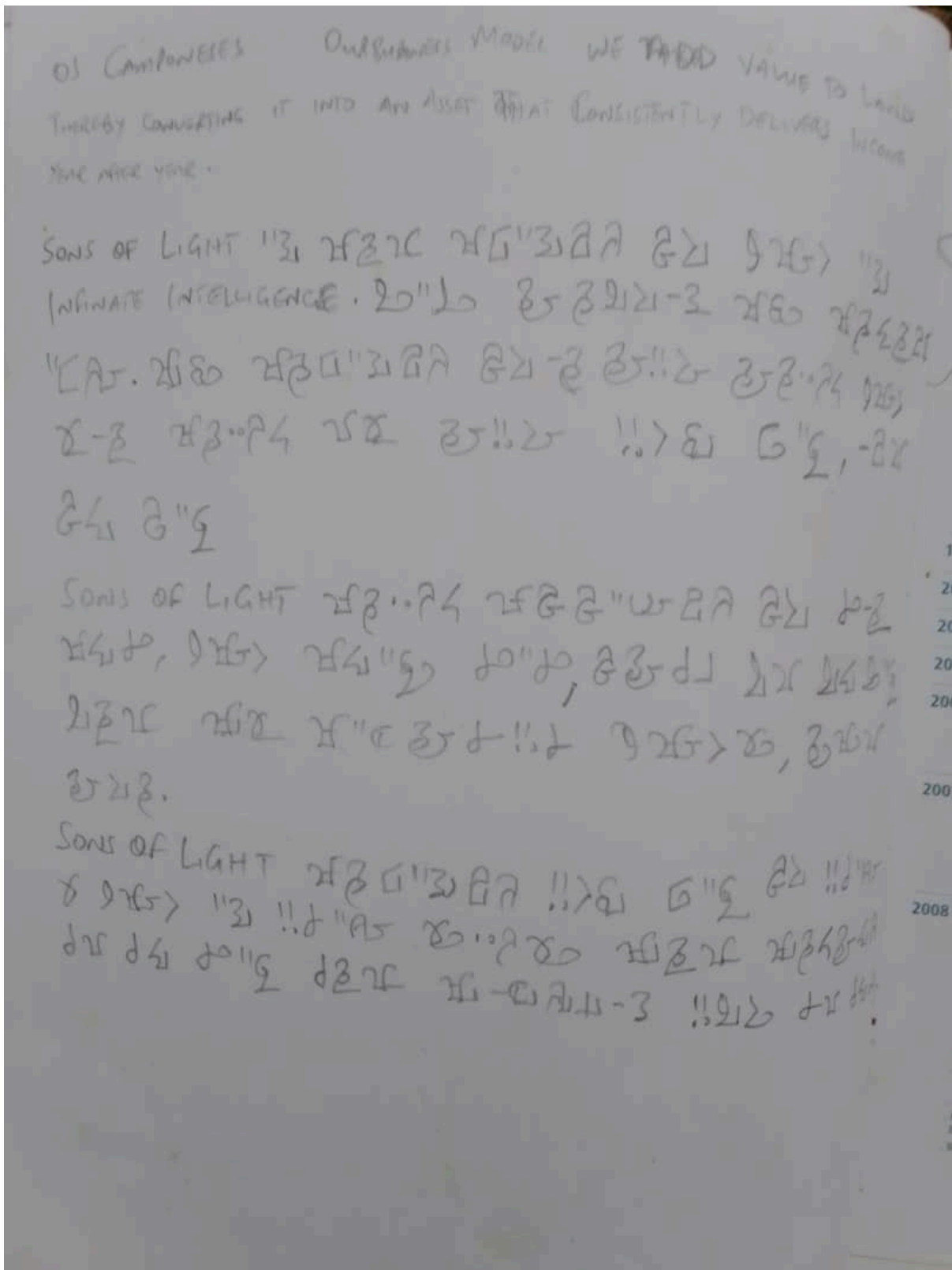


Figure 58. Chichewa-language handwriting by a Malawian user. This image showcases a few intralinear English phrases and words in the Latin script (important to typographers).

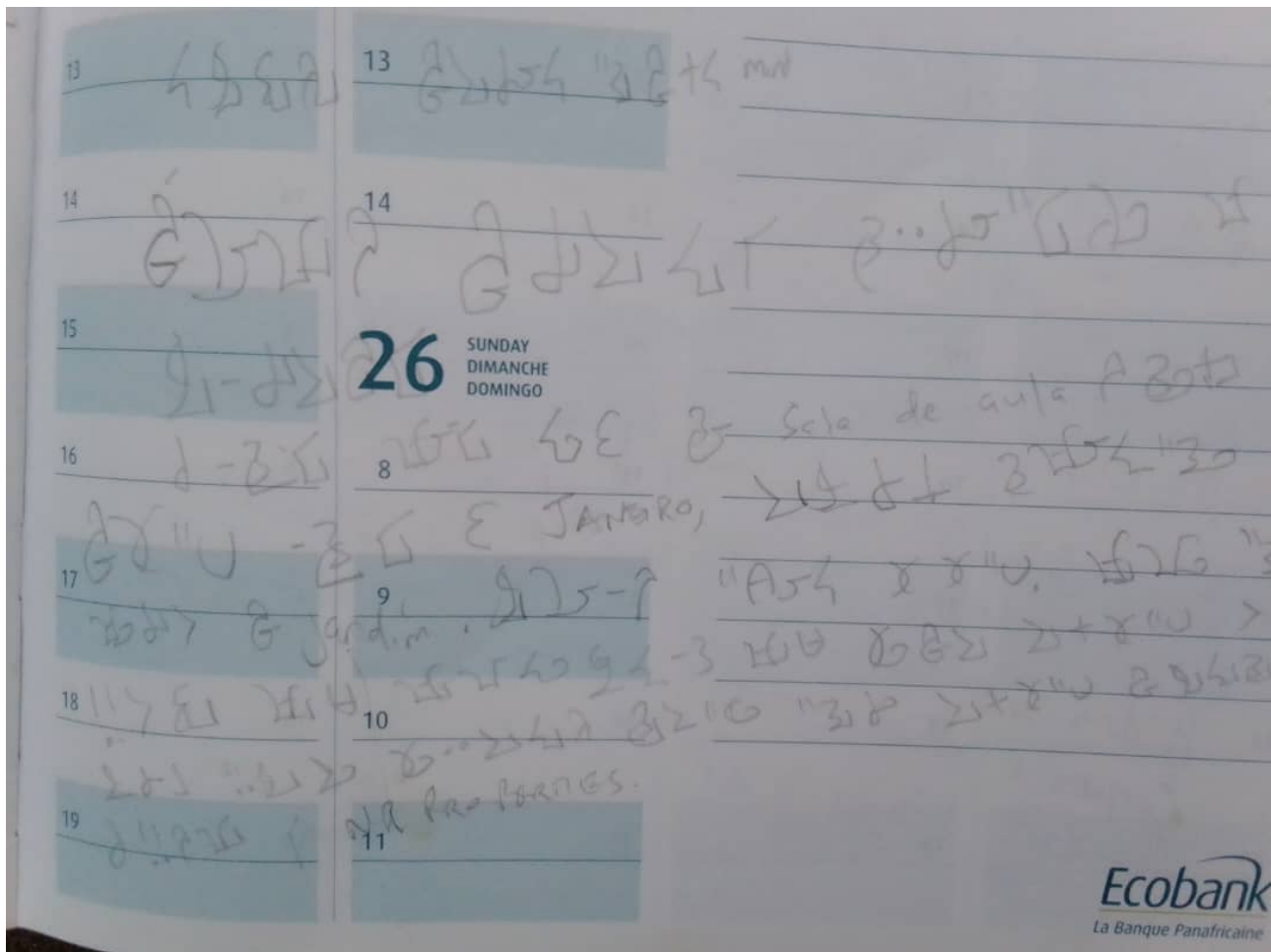


Figure 59. Chichewa-language handwriting by a Malawian user. This image showcases a couple intralinear Portuguese words in the Latin script (important to typographers).

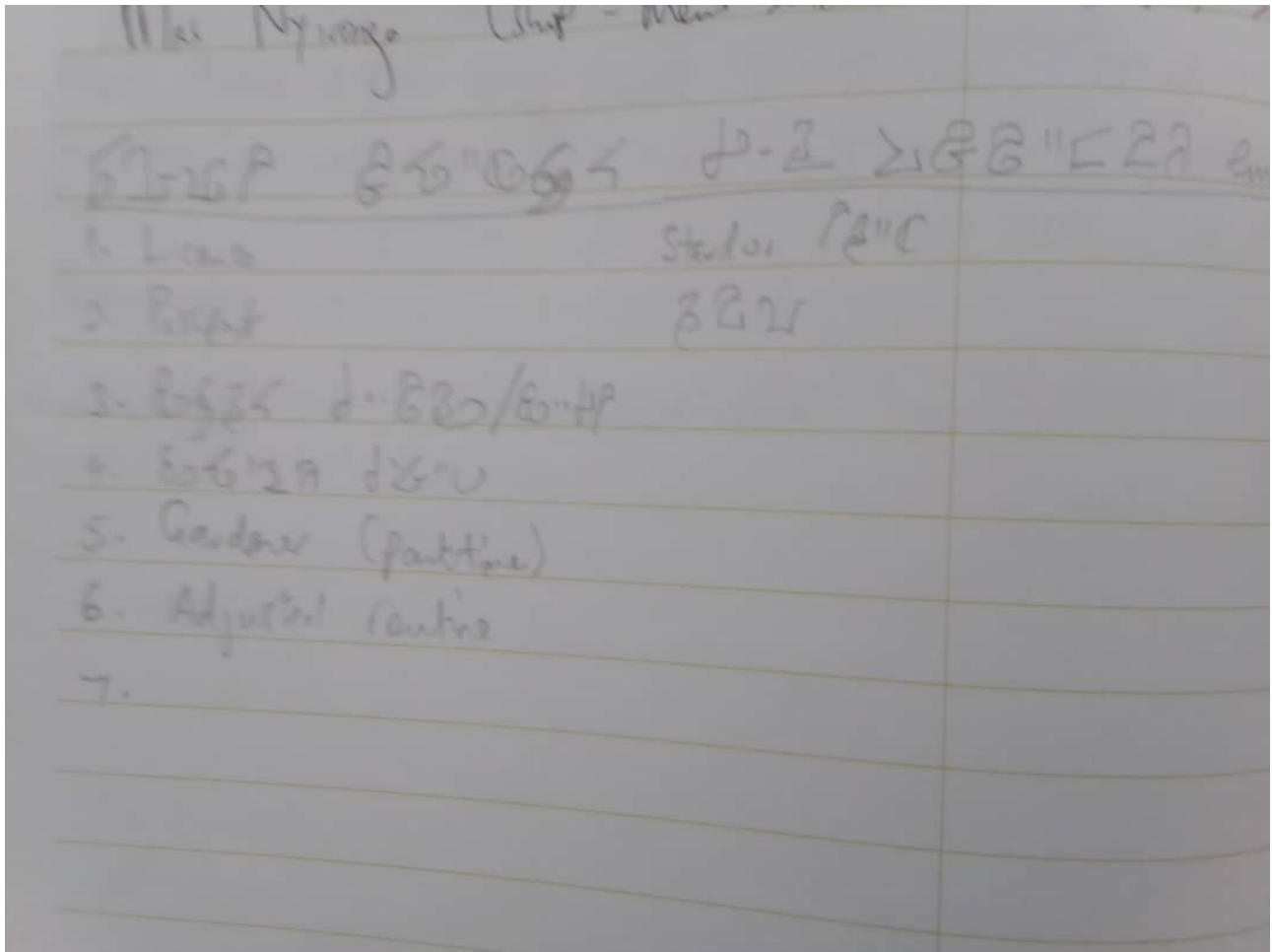


Figure 61. Chichewa-language handwriting by a Malawian user. This image showcases intralinear English in the Latin script (important to typographers).

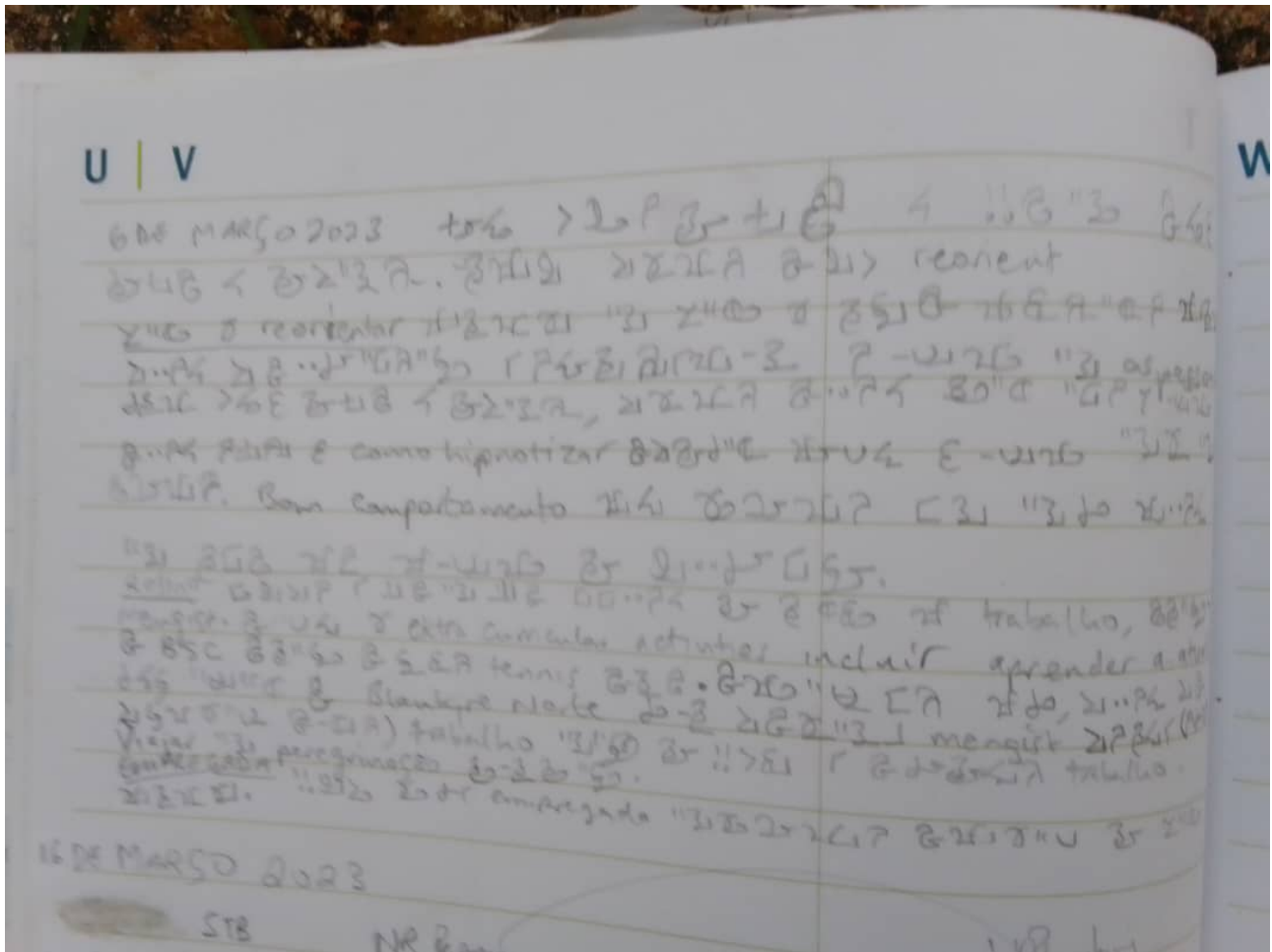


Figure 62. Chichewa-language handwriting by a Malawian user. These images showcases a couple intralinear Portuguese words in the Latin script (important to typographers).

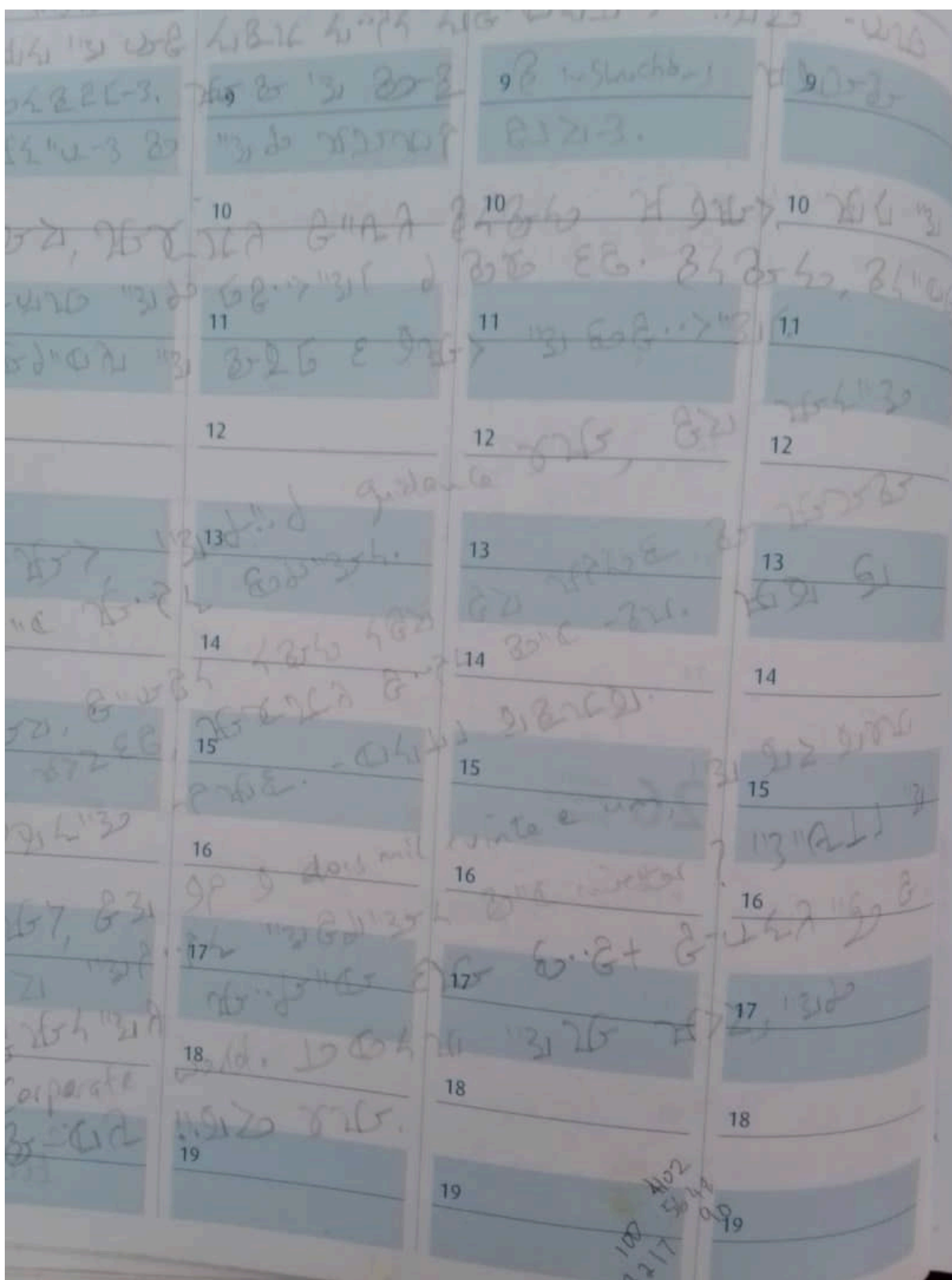


Figure 63. Chichewa-language handwriting by a Malawian user. This image showcases a couple intralinear Portuguese words in the Latin script (important to typographers).

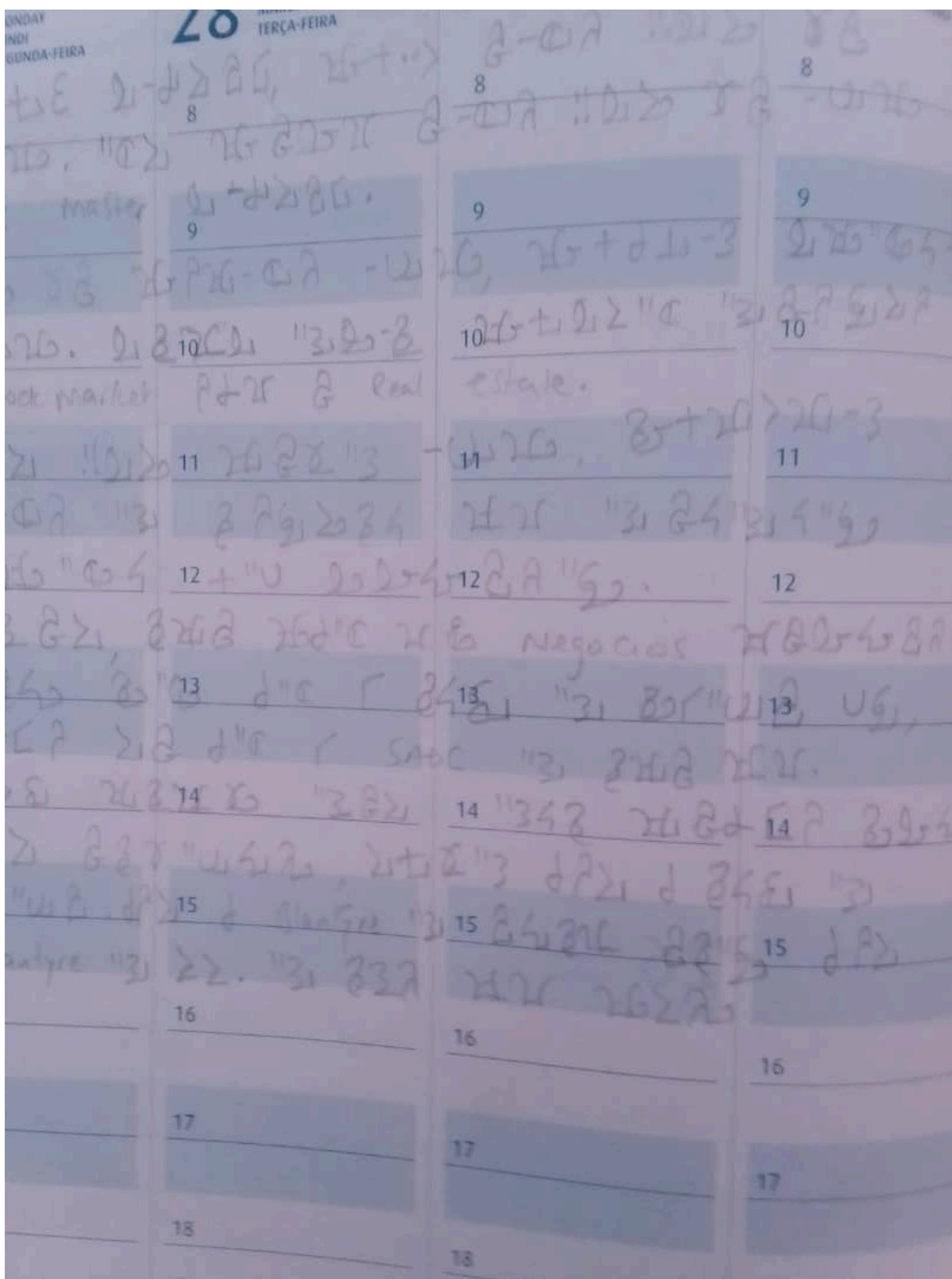


Figure 64. Chichewa-language handwriting by a Malawian user. This image showcases a couple intralinear Portuguese words in the Latin script (important to typographers).

18 2 04 JUL S
 18 1 STB ✓ 876 -7943 office furniture Shepherd 0884533
 18 1 18510 ✓ 1000 of payment office furniture
 18 1 18510 ✓ Transport of "H" -7
 18 1 18510 ✓ 84518151 Refaid 876 45161
 18 1 18510 ✓ 8210 GA4: 67124E 896, 71261127
 18 1 18510 ✓ Quote of STB25, NICO286, TMM10: 704 -724 Cal
 18 1 18510 ✓ Mutual Funds, 8210 update email address of MF 834
 18 1 18510 ✓ Documents of -86
 07 APR S E X T A
 18 1 18510 ✓ Remunera Co-er
 18 1 18510 ✓ 8864 PUA d-7 Lester -7226 Incl transport
 18 2 05 JUL T E R S A
 18 1 18510 ✓ 871128 -7113
 18 1 18510 ✓ 38 -731 0985 653381
 18 1 18510 ✓ Recharge System update: Reference 1082107
 18 1 18510 ✓ 1.5 8811 704 0999 701135
 18 1 18510 ✓ 8210 update source
 18 1 18510 ✓ 8210
 08 APR 23 S A B A D
 18 1 18510 ✓ 8210

Figure 65. Chichewa-language handwriting by a Malawian user. This image showcases intralinear English words in the Latin script (important to typographers) as the user is a businessman that conducts international business in English.

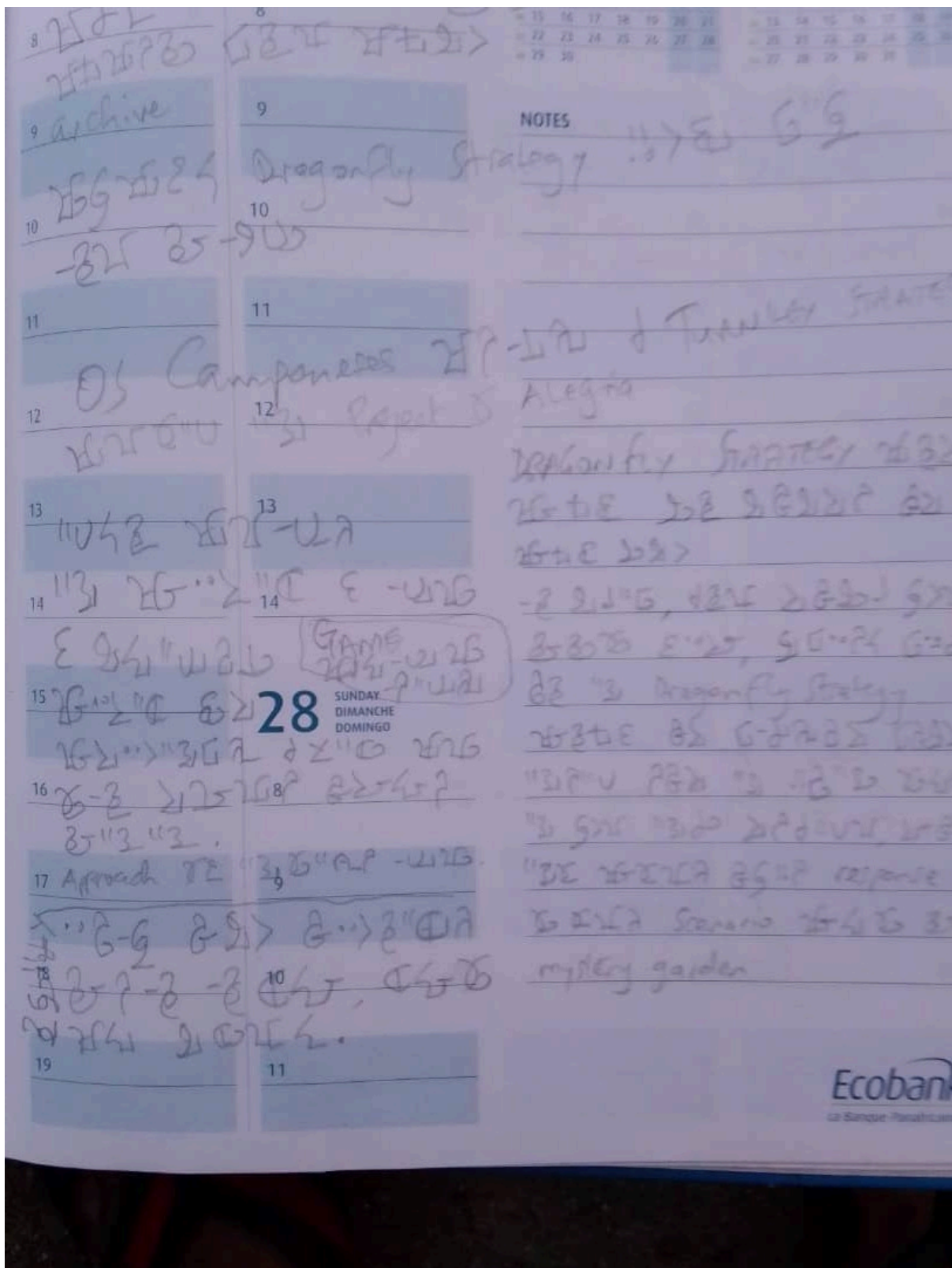


Figure 66. Chichewa-language handwriting by a Malawian user. This image showcases a few intralinear English words in the Latin script (important to typographers).



Figure 68. Nolence Mwangwego teaching a classroom the Mwangwego script sometime before late-2010.

X Linguistically Realized Mutuyo and Mituyo Stack Pairings with Misisi

The following table presents the Mutuyo and Mituyo stack pairings with the Misi letters as found in the primary languages of Malawi. The table is equally valid when any of the Masiri are present. The table is offered as a reference for developers working on lexical projects such as spelling validation and input methods.

[illegible]

[illegible]

XI ISO Proposal Summary Forms

ISO/IEC JTC 1/SC 2/WG 2

PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS

FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646¹

Please fill all the sections A, B and C below.

Please read Principles and Procedures Document (P & P) from <http://std.dkuug.dk/JTC1/SC2/WG2/docs/principles.html> for guidelines and details before filling this form.

Please ensure you are using the latest Form from <http://std.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html>.

See also <http://std.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html> for latest *Roadmaps*.

A. Administrative

| | | |
|--|--|--|
| 1. Title: | <i>Proposal for Encoding the Mwangwego Script in the UCS</i> | |
| 2. Requester's name: | <i>Oreen Yousuf, Daniel Jacob</i> | |
| 3. Requester type (Member body/Liaison/Individual contribution): | <i>Individual Contribution</i> | |
| 4. Submission date: | <i>2024-09-13</i> | |
| 5. Requester's reference (if applicable): | | |
| 6. Choose one of the following: | | |
| This is a complete proposal: | <i>Yes</i> | |
| (or) More information will be provided later: | | |

B. Technical – General

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| 1. Choose one of the following: | | |
| a. This proposal is for a new script (set of characters): | <i>Yes</i> | |
| Proposed name of script: | <i>Mwangwego</i> | |

¹ Form number: N4502-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03, 2008-05, 2009-11, 2011-03, 2012-01)

b. The proposal is for addition of character(s) to an existing block:

Name of the existing block:

2. Number of characters in proposal:

64

3. Proposed category (select one from below - see section 2.2 of P&P document):

A-Contemporary

X

B.1-Specialized (small collection)

B.2-Specialized (large collection)

C-Major extinct

D-Attested extinct

E-Minor extinct

F-Archaic Hieroglyphic or Ideographic

G-Obscure or questionable usage symbols

4. Is a repertoire including character names provided?

Yes

a. If YES, are the names in accordance with the "character naming guidelines"

in Annex L of P&P document?

b. Are the character shapes attached in a legible form suitable for review?

Yes

5. Fonts related:

a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?

The Ge'ez Frontier Foundation

b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.):

The Ge'ez Frontier Foundation, yacob@geez.org, <https://github.com/athinkra/mwangwego-book>

6. References:

a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?

Yes

b. Are published examples of use (such as samples from newspapers, magazines, or other sources)

of proposed characters attached?

Yes

7. Special encoding issues:

Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?

Yes

A sorting description is enclosed.

8. Additional Information:

Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at <http://www.unicode.org> for such information on other scripts. Also see Unicode Character Database (<http://www.unicode.org/reports/tr44/>) and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

C. Technical - Justification

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

Yes

If YES explain

Latest proposal L2/12-311

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

Yes

If YES, with whom?

Script creator, script users

If YES, available relevant documents:

Enclosed in the proposal

3. Information on the user community for the proposed characters (for example:

size, demographics, information technology use, or publishing use) is included?

Yes

Reference:

Enclosed in the proposal

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

Rare

Reference:

Enclosed in the proposal

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

Yes

If YES, where? Reference:

Malawi

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| 6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely | |
| in the BMP? | No |
| If YES, is a rationale provided? | |
| If YES, reference: | |
| 7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)? | |
| | Yes |
| 8. Can any of the proposed characters be considered a presentation form of an existing | |
| character or character sequence? | No |
| If YES, is a rationale for its inclusion provided? | |
| If YES, reference: | |
| 9. Can any of the proposed characters be encoded using a composed character sequence of either | |
| existing characters or other proposed characters? | No |
| If YES, is a rationale for its inclusion provided? | |
| If YES, reference: | |
| 10. Can any of the proposed character(s) be considered to be similar (in appearance or function) | |
| to, or could be confused with, an existing character? | Yes |
| If YES, is a rationale for its inclusion provided? | |
| If YES, reference: | Enclosed in the proposal |
| 11. Does the proposal include use of combining characters and/or use of composite sequences? | |
| | No |
| If YES, is a rationale for such use provided? | |
| If YES, reference: | |
| Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided? | |
| If YES, reference: | |

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| 12. Does the proposal contain characters with any special properties such as | |
| control function or similar semantics? | No |
| If YES, describe in detail (include attachment if necessary) | |
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| 13. Does the proposal contain any Ideographic compatibility characters? | |
| No | |
| If YES, are the equivalent corresponding unified ideographic characters identified? | |
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| If YES, reference: | |
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