

Final Proposal for Encoding the Mwangwego Script in the UCS

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

From: Oreen Yousuf; Daniel Yacob

Subject: Mwangwego

Date: 2025 February 28

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"
- [L2/24-241](#): "Proposal for Encoding the Mwangwego Script in the UCS"
- [L2/25-039](#): "Revised Proposal for Encoding the Mwangwego Script in the UCS"

This version differs from the most recent version, L2/25-039, due to the following reasons and updates:

- ISO 15924 code for the Mwangwego script.
- More images showing evidence of use of the script. A [Google Drive link](#) holds more than 100 images showing evidence of use, and PDFs compiling selected works.
- New formatting of images for SEWG convenience.
- Letter of endorsement to encode the Mwangwego script from a Malawian linguist is included in Section VIII.

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 (*tag*, 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 April 7, 1997 and launched to the public. The script has not changed significantly over time and is not related to any other script. In 2003 the script 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 (Dobrovolny 2010). The number of people who have learned the script since 2001 is between 2,500-3,000 and has been regarded positively by paleographers as "reach[ing] the rank of a small movement" (Kostelnik 2023). 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.

While there has only been 1 full book officially printed and published in the script, by the creator, as cost is a major obstacle for the majority of past and current learners, the script has taken on a life beyond the script creator and his social circle. Individuals regularly correspond in the Mwangwego script, producing letters, grocery lists, journal entries, business memos, manifestos, and more, in languages like Chichewa and Tumbuka. Script users own mobile phones and are keen to use the script in digital environments. The proposal authors have even introduced previously unknown script users to the creator. Every image of handwritten text in Section IX showing evidence of use comes from users other than the script creator. Language policy in Malawi has the government applying a limited top-down approach. Mwangwego persists and has grown instead by grassroots efforts where it has spread beyond the creator's home city and native language. Many of the images found in Section IX and the Google Drive come from Mzuzu, Lilongwe, and Blantyre. There are at least 4 fonts: one made by Tapiwanashe Sebastian Garikayi; one by Andrij Rovenchak; one by Enzo Bicudo Pepi (MetrikEnzyme); and one by Jana Reddemann and Jenna Leich, the latter of which is used in this proposal. Under consultation with the script community, 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>.

While the Malawian government endorses the Latin script for the languages mentioned above, there are no other scripts in competition among the Mwangwego script community, and the character repertoire has been stable for decades. There is also a current project to digitize Nolence Mwangwego's Chichewa language book "ᖃ ᖃᖃᖃ ᖃᖃᖃ?" (Latin transliteration: "A Malawi Tili Pati?"; English 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. The proposed ISO 15924 code for the Mwangwego script is "Mwgo".

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/, /ɛ/, /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 /ɛ/, /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 /ɛ/, /i/, /ɔ/, or /u/ is called a **Musiri**. All Musiri (i.e., the plural) is collectively called **Misiri**.

IPA	/a/	/ɛ/	/i/	/ɔ/	/u/
/vowel/	ᐃ	ᐤ	ᐦ	ᐣ	ᐡ
/b/	ᐅ	ᐇ	ᐩ	ᐭ	ᐮ
/tʃ/	ᐑ	ᐓ	ᐧ	ᐯ	ᐰ
/d/	ᐃ	ᐤ	ᐦ	ᐣ	ᐡ
/f/	ᐠ	ᐡ	ᐢ	ᐣ	ᐤ
/g/	ᐤ	ᐇ	ᐩ	ᐭ	ᐮ
/ɣ/	ᐦ	ᐨ	ᐬ	ᐰ	ᐱ
/h/	ᐧ	ᐩ	ᐫ	ᐭ	ᐮ
/dʒ/	ᐱ	ᐣ	ᐧ	ᐯ	ᐰ
/ʒ/	ᐅ	ᐇ	ᐩ	ᐭ	ᐮ
/k/	ᐠ	ᐡ	ᐢ	ᐣ	ᐤ
/l/	ᐣ	ᐥ	ᐨ	ᐣ	ᐤ
/m/	ᐱ	ᐣ	ᐧ	ᐯ	ᐰ
/n/	ᐢ	ᐣ	ᐨ	ᐣ	ᐤ
/ɲ/	ᐣ	ᐥ	ᐨ	ᐣ	ᐤ
/p/	ᐠ	ᐡ	ᐢ	ᐣ	ᐤ
/r/	ᐠ	ᐡ	ᐢ	ᐣ	ᐤ
/s/	ᐑ	ᐓ	ᐧ	ᐯ	ᐰ
/ʃ/	ᐑ	ᐓ	ᐧ	ᐯ	ᐰ
/t/	ᐑ	ᐓ	ᐧ	ᐯ	ᐰ
/ts/	ᐑ	ᐓ	ᐧ	ᐯ	ᐰ
/pʰ/	ᐠ	ᐡ	ᐢ	ᐣ	ᐤ
/v/	ᐠ	ᐡ	ᐢ	ᐣ	ᐤ
/w/	ᐠ	ᐡ	ᐢ	ᐣ	ᐤ
/j/	ᐠ	ᐡ	ᐢ	ᐣ	ᐤ
/z/	ᐑ	ᐓ	ᐧ	ᐯ	ᐰ
/dz/	ᐑ	ᐓ	ᐧ	ᐯ	ᐰ
/dʔ/	ᐑ	ᐓ	ᐧ	ᐯ	ᐰ
/t/	ᐑ	ᐓ	ᐧ	ᐯ	ᐰ
/ʔ/	ᐑ	ᐓ	ᐧ	ᐯ	ᐰ
/θ/	ᐑ	ᐓ	ᐧ	ᐯ	ᐰ

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

Emwa: ◯ Example: ʊ (ba) + ◯ (-ε) = ʌ (be)

Ima: ◯_ Example: ʊ (ba) + ◯_ (-i) = ɪ (bi)

Ota: ◯◊ Example: ʊ(ba) + ◯◊ (-ɔ) = ɔ (bo)

Uyu: ◯_ Example: ʊ(ba) + ◯_ (-u) = ʊ (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) + ʊ (ba) = ʌ (bwa) - (waya) + ɔ (ma) = ɔ (mwa)

Example words:

-ʌ (bwato) -ɔ (mwala)

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

Examples of use:

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

" (ni) + ʃ (ta) = ʃ (nta)

" (ni) + ʃ (tsa) = ʃ (ntsa)

" (ni) + f (dza) = f (ndza)

" (ni) + ɰ (a) = ɰ (ng'a) – 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) + ɣ (ja) = ɣ (nja)

"(ni) + ʃ (sa) = "ʃ (nsa) – tongue slightly touches the palate
 "(ni) + ʃ (sha) = "ʃ (nsha)
 "(ni) + ɟ (fa) = "ɟ (mfa) – labiodentalization
 "(ni) + ʋ (va) = "ʋ (mva)

Example words:

"ʒ (ndati), "ɛɛ (ng'ona), "ʃɛɛ (nsapato), "ʃɛ (nchalo)

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

Examples of use:

ʰ (hi) + ʒ (cha) = ʰʒ (tcha), ʰ (hi) + ɽ (ka) = ʰɽ (kha), ʰ (hi) + ɗ (pa) = ʰɗ (pha)
 ʰ (hi) + ʃ (ta) = ʰʃ (tha) ʰ (hi) + ʈ (tsa) = ʰʈ (tsha)

Example words:

ʰɽɽ (khasu) ʰɽɽ (khama) ʰɗɗ (phala) ʰɽʊ (thobwa) ʰʒɽ (tchimo)

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

Examples of use:

ʱ (mi) + ʊ (ba) = ʱʊ (mba) ʱ (mi) + ɗ (pa) = ʱɗ (mpa)

Example words:

ʱʊɽ (mbala) ʱʊɽ (mbiri) ʱʊʃ (mbatata) ʱɗɽ (mpaka)

1.5 MYU. ʷ 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 Misi.

Examples of use:

ʷ (myu) + ʒ (cha) = ʷʒ (mcha) ʷ (myu) + ɽ (ka) = ʷɽ (mka) ʷ (myu) + ɗ (ma) = ʷɗ (m'ma)
 ʷ (myu) + ʃ (ta) = ʷʃ (mta) ʷ (myu) + ɗ (za) = ʷɗ (mdza)

Example words:

ʷɽɽ (mkaka) ʷɽɽ (mkanda) ʷɗɽ (m'dziko) ʷɗɽ (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) + ɽ (ka) = 'ɽ (ska) '(sisa) + ɗ (ma) = 'ɗ (sma) '(sisa) + ʃ (ta) = 'ʃ (sta)

Example words:

'ɗɽ (stima) 'ɽɽ (sketi)

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

Examples of use:

ʸ (tumbu) + ɗ (da) = ʸɗ (n'da)
 ʸ (tumbu) + ʏ (nya) = ʸʏ (n'nya)
 ʸ (tumbu) + ʏ (ya) = ʸʏ (n'ya) – in Yao

' (tumbu) + Ɛ (wa) = Ɔ (n'wa)

Example words:

ᵀᵀᵀ, ᵀᵀᵀᵀ, ᵀᵀᵀᵀᵀ

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

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

Examples of use:

ᵐ (da) + ɔ (waya) = ᵐᵐ (dya)

ᵐ (ma) + ɔ (waya) = ᵐᵐ (mya)

Example words:

ᵐᵐᵐᵐ, ᵐᵐᵐ, ᵐᵐᵐᵐ

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

Examples of use:

ᵐ (ba) + ɔ̃ (mura) = ᵐᵐ̃ (bra)

ᵐ (ka) + ɔ̃ (mura) = ᵐᵐ̃ (kra)

ᵐ (ta) + ɔ̃ (mura) = ᵐᵐ̃ (tra)

Example words:

ᵐᵐᵐᵐ, ᵐᵐᵐᵐ

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

Examples of use:

ᵐ (ba) + ɔ̌ (mula) = ᵐᵐ̌ (bla)

ᵐ (ka) + ɔ̌ (mula) = ᵐᵐ̌ (kla)

ᵐ (ta) + ɔ̌ (mula) = ᵐᵐ̌ (tla)

Example word:

ᵐᵐ̌ᵐ̌ (translation: Blantyre)

- 2.4 PEWA. ɔ̥ 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:

ᵐ (ba) + ɔ̥ (pewa) = ᵐᵐ̥ (Chichewa Latin transliteration is w̥a;

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

ᵐ (va) + ɔ̥ (pewa) = ᵐᵐ̥ (bva)

ᵐ (za) + ɔ̥ (pewa) = ᵐᵐ̥ (bza)

ᵐ (fa) + ɔ̥ (pewa) = ᵐᵐ̥ (pfa)

᠊ (tha) + ᠋ (pewa) = ᠋ (IPA: /θa/) – in Lomwe

Example words:

᠋᠋, ᠋᠋

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:

᠋ (di) + ᠋ (kwanthu) = ᠋ (ndi)

Example words:

᠋᠋ (mtengo; translation: tree) to distinguish from ᠋᠋ (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, “᠋ and ᠋ both combine a spacing Mutuyo (NI “ and WAYA “, 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
᠋	᠋	᠋	᠋	᠋	᠋	᠋	᠋	᠋	᠋	᠋	᠋	᠋	᠋	᠋	᠋
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) = ᠋ (mnda)

᠋ MYU-NI + ʔ (ka) = ᠋ (mnka)

Example words:

᠋᠋, ᠋᠋

3.2. MYU-HI. ᠋

Examples of use:

᠋ MYU-HI + ʒ (cha) = ᠋ (mchha)

᠋ MYU-HI + ʔ (ka) = ᠋ (mkha)

Example words:

᠋᠋, ᠋᠋

3.3. MYU-WAYA. ၵ

Examples of use:

ၵ MYU-WAYA + ၵ (ba) = ၵၵ (mbwa) ၵ MYU-WAYA + ၶ (cha) = ၵၶ (mchwa)

Example words:

ၵ, ၵၵ, ၵၶ

3.4. MI-HI. ၶ

Examples of use:

ၶ MI-HI + ၵ (pa) = ၶၵ (mphā)

Example words:

ၶၵ, ၶၵၵ

3.5. MI-WAYA. ၶ

Examples of use:

ၶ MI-WAYA + ၵ (ba) = ၶၵ (mbwa) ၶ MI-WAYA + ၵ (pa) = ၶၵ (mpwa)

Example words:

ၶၵ, ၶၵၵ, ၶၵၶ

3.6. HI-WAYA. ၶ

Examples of use:

ၶ HI-WAYA + ၵ (ka) = ၶၵ (khwa) ၶ HI-WAYA + ၶ (ta) = ၶၶ (thwa)

Example words:

ၶၵ, ၶၶ

3.7. NI-HI. ၶ

Examples of use:

ၶ NI-HI + ၶ (cha) = ၶၶ (nchha) ၶ NI-HI + ၵ (ka) = ၶၵ (nkha)

Example words:

ၶၶ, ၶၶၶ, ၶၶၶၶ

3.8. NI-WAYA. ၶ

Examples of use:

ၶ NI-WAYA + ၶ (a) = ၶၶ (nwa) ၶ NI-WAYA + ၶ (da) = ၶၶ (ndwa)

Example words:

ၶၶ, ၶၶၶ, ၶၶၶၶ

3.9. SISA-NI. ၶ

Examples of use:

ၶ HI-WAYA + ၶ (da) = ၶၶ (snda) ၶ HI-WAYA + ၶ (ga) = ၶၶ (snga)

Example words:

ᄃᆫ

3.10. TUMBU-WAYA. ᄃ

Examples of use:

ᄃ TUMBU-WAYA + ᄃ (gha) = ᄃᄃ (n'ghwa) ᄃ TUMBU-WAYA + ᄃ (ha) = ᄃᄃ (n'hwa)

Example words:

ᄃᆫ

3.11. MYU-NI-HI. ᄃ

Examples of use:

ᄃ MYU-NI-HI + ᄃ (ka) = ᄃᄃ (mnkha) ᄃ MYU-NI-HI + ᄃ (ta) = ᄃᄃ (mntha)

Example words:

ᄃᆫ

3.12. MYU-HI-WAYA. ᄃ

Example of use:

ᄃ MYU-HI-WAYA + ᄃ (cha) = ᄃᄃ (mchhwa)

Example words:

ᄃᆫ

3.13. MI-HI-WAYA. ᄃ

Examples of use:

ᄃ MI-HI-WAYA + ᄃ (pa) = ᄃᄃ (mphwa)

Example words:

ᄃᆫ

3.14. NI-HI-WAYA. ᄃ

Examples of use:

ᄃ NI-HI-WAYA + ᄃ (cha) = ᄃᄃ (nchhwa) ᄃ NI-HI-WAYA + ᄃ (ka) = ᄃᄃ (nkhwa)

Example words:

ᄃᆫ ᄃᆫ

3.15. SISA-NI-HI. ᄃ

Examples of use:

ᄃ SISA-NI-HI + ᄃ (ka) = ᄃᄃ (snkha) ᄃ SISA-NI-HI + ᄃ (ta) = ᄃᄃ (sntha)

Example words:

ᄃᆫ

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.

































































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𑌷	U+16E01 MWANGWEGO MUSISI BA
𑌸	U+16E02 MWANGWEGO MUSISI CHA
𑌹	U+16E03 MWANGWEGO MUSISI DA
𑌺	U+16E04 MWANGWEGO MUSISI FA
𑌻	U+16E05 MWANGWEGO MUSISI GA
𑌼	U+16E06 MWANGWEGO MUSISI GHA
𑌽	U+16E07 MWANGWEGO MUSISI HA
𑌾	U+16E08 MWANGWEGO MUSISI JA
𑌿	U+16E09 MWANGWEGO MUSISI ZHA
𑍀	U+16E0A MWANGWEGO MUSISI KA
𑍁	U+16E0B MWANGWEGO MUSISI LA
𑍂	U+16E0C MWANGWEGO MUSISI MA
𑍃	U+16E0D MWANGWEGO MUSISI NA

Ƴ	U+16E0E MWANGWEGO MUSISI NYA
ɔ	U+16E0F MWANGWEGO MUSISI PA
ɐ	U+16E10 MWANGWEGO MUSISI RA
ḡ	U+16E11 MWANGWEGO MUSISI SA
ḥ	U+16E12 MWANGWEGO MUSISI SHA
ɿ	U+16E13 MWANGWEGO MUSISI TA
ɿ	U+16E14 MWANGWEGO MUSISI TSA
ɦ	U+16E15 MWANGWEGO MUSISI PSA
ɦ	U+16E16 MWANGWEGO MUSISI VA
ɛ	U+16E17 MWANGWEGO MUSISI WA
ɔ	U+16E18 MWANGWEGO MUSISI YA
ɿ	U+16E19 MWANGWEGO MUSISI ZA
ɸ	U+16E1A MWANGWEGO MUSISI DZA
ɸ	U+16E1B MWANGWEGO MUSISI DHLA
ɸ	U+16E1C MWANGWEGO MUSISI HLA
ɸ	U+16E1D MWANGWEGO MUSISI XA
ɸ	U+16E1E MWANGWEGO MUSISI QA
ɸ	U+16E1F MWANGWEGO MUSISI THA
◌̣	U+16E20 MWANGWEGO SIRI EMWA
◌̣	U+16E21 MWANGWEGO SIRI IMA
◌̣	U+16E22 MWANGWEGO SIRI OTA
◌̣	U+16E23 MWANGWEGO SIRI UYU
‘	U+16E24 MWANGWEGO MUTUYO MYU
“	U+16E25 MWANGWEGO MUTUYO MI
"	U+16E26 MWANGWEGO MUTUYO NI
..	U+16E27 MWANGWEGO MUTUYO HI
-	U+16E28 MWANGWEGO MUTUYO WAYA
◌̣	U+16E29 MWANGWEGO MUTUYO WAYA BELOW
’	U+16E2A MWANGWEGO MUTUYO SISA
◌̣	U+16E2B MWANGWEGO MUTUYO MURA
◌̣	U+16E2C MWANGWEGO MUTUYO MULA
◌̣	U+16E2D MWANGWEGO MUTUYO PEWA
’	U+16E2E MWANGWEGO MUTUYO TUMBU
◌̣	U+16E2F MWANGWEGO MUTUYO KWANTHU
ḥ	U+16E30 MWANGWEGO MITUYO MYU-NI

































𐌲	U+16E31 MWANGWEGO MITUYO MYU-HI
𐌳	U+16E32 MWANGWEGO MITUYO MYU-WAYA
𐌴	U+16E33 MWANGWEGO MITUYO MI-HI
𐌵	U+16E34 MWANGWEGO MITUYO MI-WAYA
𐌶	U+16E35 MWANGWEGO MITUYO NI-HI
𐌷	U+16E36 MWANGWEGO MITUYO NI-WAYA
𐌸	U+16E37 MWANGWEGO MITUYO HI-WAYA
𐌹	U+16E38 MWANGWEGO MITUYO SISA-NI
𐌺	U+16E39 MWANGWEGO MITUYO TUMBU-WAYA
𐌻	U+16E3A MWANGWEGO MITUYO MYU-NI-HI
𐌼	U+16E3B MWANGWEGO MITUYO MYU-HI-WAYA
𐌽	U+16E3C MWANGWEGO MITUYO MI-HI-WAYA
𐌾	U+16E3D MWANGWEGO MITUYO NI-HI-WAYA
𐌿	U+16E3E MWANGWEGO MITUYO SISA-NI-HI
𐍀	U+16E3F MWANGWEGO MITUYO MYU-NI-HI-WAYA

Table 3. Character Names of the Mwangwego Orthography





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*).

	16E0	16E1	16E2	16E3
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				













Musisi

16E00		MWANGWEGO MUSISI A
16E01		MWANGWEGO MUSISI BA
16E02		MWANGWEGO MUSISI CHA
16E03		MWANGWEGO MUSISI DA
16E04		MWANGWEGO MUSISI FA
16E05		MWANGWEGO MUSISI GA
16E06		MWANGWEGO MUSISI GHA
16E07		MWANGWEGO MUSISI HA
16E08		MWANGWEGO MUSISI JA
16E09		MWANGWEGO MUSISI ZHA
16E0A		MWANGWEGO MUSISI KA
16E0B		MWANGWEGO MUSISI LA
16E0C		MWANGWEGO MUSISI MA
16E0D		MWANGWEGO MUSISI NA
16E0E		MWANGWEGO MUSISI NYA
16E0F		MWANGWEGO MUSISI PA
16E10		MWANGWEGO MUSISI RA
16E11		MWANGWEGO MUSISI SA
16E12		MWANGWEGO MUSISI SHA
16E13		MWANGWEGO MUSISI TA
16E14		MWANGWEGO MUSISI TSA
16E15		MWANGWEGO MUSISI PSA
16E16		MWANGWEGO MUSISI VA
16E17		MWANGWEGO MUSISI WA
16E18		MWANGWEGO MUSISI YA
16E19		MWANGWEGO MUSISI ZA
16E1A		MWANGWEGO MUSISI DZA
16E1B		MWANGWEGO MUSISI DHLA
16E1C		MWANGWEGO MUSISI HLA
16E1D		MWANGWEGO MUSISI XA
16E1E		MWANGWEGO MUSISI QA
16E1F		MWANGWEGO MUSISI THA

















Siri

16E20		MWANGWEGO SIRI EMWA
16E21		MWANGWEGO SIRI ITA
16E22		MWANGWEGO SIRI OTA
16E23		MWANGWEGO SIRI UYU

Mutuyo

16E24		MWANGWEGO MUTUYO MYU
16E25		MWANGWEGO MUTUYO MI
16E26		MWANGWEGO MUTUYO NI
16E27		MWANGWEGO MUTUYO HI
16E28		MWANGWEGO MUTUYO WAYA
16E29		MWANGWEGO MUTUYO WAYA BELOW
16E2A		MWANGWEGO MUTUYO SISA
16E2B		MWANGWEGO MUTUYO MURA
16E2C		MWANGWEGO MUTUYO MULA
16E2D		MWANGWEGO MUTUYO PEWA
16E2E		MWANGWEGO MUTUYO TUMBU
16E2F		MWANGWEGO MUTUYO KWANTHU

Mituyo

16E30		MWANGWEGO MITUYO MYU-NI
16E31		MWANGWEGO MITUYO MYU-HI
16E32		MWANGWEGO MITUYO MYU-WAYA
16E33		MWANGWEGO MITUYO MI-HI
16E34		MWANGWEGO MITUYO MI-WAYA
16E35		MWANGWEGO MITUYO NI-HI
16E36		MWANGWEGO MITUYO NI-WAYA
16E37		MWANGWEGO MITUYO HI-WAYA
16E38		MWANGWEGO MITUYO SISA-NI
16E39		MWANGWEGO MITUYO TUMBU-WAYA
16E3A		MWANGWEGO MITUYO MYU-NI-HI
16E3B		MWANGWEGO MITUYO MYU-HI-WAYA
16E3C		MWANGWEGO MITUYO MI-HI-WAYA
16E3D		MWANGWEGO MITUYO NI-HI-WAYA
16E3E		MWANGWEGO MITUYO SISA-NI-HI
16E3F		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 10.1 in the Google Drive in Section IX.

Note for typographers/font designers: the placement of the Mutuyo/Mituyo in relation to the graphemes (Misiri/Misiri) should be done the same as in Figures 3.1-3.22 and 10.1-10.9 in the Google Drive. 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 ɗ, MUSISI TA ʃ, MUSISI TSA ʃ, and MUSISI DHLA ɗ, 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 10.5 in the Google Drive for MUSISI PA ɗ. Same for Misiri ɗ, ɗ, ɗ, ɗ.
 - See Figures 10.6-10.7 in the Google Drive for MUSISI TA ʃ. Same for Misiri ʃ, ʃ, ʃ, ʃ.
 - See Figure 10.7 in the Google Drive for MUSISI TSA ʃ. Same for Misiri ʃ, ʃ, ʃ, ʃ.
 - See Figure 10.8 in the Google Drive for MUSISI DHLA ɗ. Same for Misiri ɗ, ɗ, ɗ, ɗ.
- The stacked Mituyo combinations on the left of graphemes should be perfectly symmetrical as requested by the user community:
 - Symmetrical examples: ʃ ʃ ʃ ʃ ʃ ʃ ʃ ʃ ʃ ʃ ʃ ʃ
 - The font used in Figures 10.1-10.9 in the Google Drive doesn't have some aspects of a Mituyo stack centered, such as Mutuyo MYU ʃ. The examples above should be the reference for this aspect of the script/future fonts.

Punctuation

There are no script-specific punctuation marks. Latin punctuation is used.

Numbers

There are no script-specific numerals/digits. Hindu-Arabic numerals/digits (0123456789) are used.

Mutuyo glyph uniqueness:

Many Mutuyo glyphs are visually similar to existing diacritical marks presently in the Unicode inventory. The authors have considered utilization of the graphically similar marks with the Mwangwego letters and determined that doing so is not in the best interests of the user community. While the marks are graphically similar, the abstract characters that the graphs are referents for are distinctly different; which in turn would lead to cognition difficulties in their Mwangwego utilization. A discussion and comparison of the diacritic and Mutuyo marks is given in the following.

The Chichewa and other languages of Malawi use a Latin-based orthography that includes “ŵ” to denote the voiced bilabial fricative /β/. Accordingly, the user community is already familiar with the shape of the mark and its phonetical augmentation to /w/. Circumflex applied to letters of the Mwangwego script would *not* signal the *same* phonetic change. Not only might this inconsistency in the use of the symbol be confusing to users, but visually the Latin circumflex is not optimal for publishing in Mwangwego script. The visual difference between the symbols is depicted in the following tables:

Reference Typeface	Ŵ ŵ	ŵ̂ ŵ̂̂
Sans Serif Typeface	Ŵ ŵ	ŵ̂ ŵ̂̂

Table 4. Comparison of Chichewa Latin Circumflex on Ŵ to Mutuyo Pewa.

Reference Typeface	Ū Â	Ū̂ Â̂
Sans Serif Typeface	Ū Â	Ū̂ Â̂

Table 5. Comparison of Circumflex to Mutuyo Pewa applied to similarly shaped base letters.

Visible differences between the shapes of Circumflex and Pewa in the above examples include: stroke weight, stroke taper, inner angle, top angle, and mark positioning.

It can be expected that materials, particularly educational, will be produced that render Malawi languages in both orthographies. For these readers we believe that not conflating Circumflex and Pewa, for example, would better facilitate reading comprehension and the visual quality of publications. Maintaining the visual distinction between the symbols is also advantageous in any pain text context.

Unlike the practice with Latin diacritic, the combining Mutuyo do not change the phonetic value of a consonant letter (e.g. n + ̂ → ñ, phonetically /n/ → /ɲ/). Rather, they either append or prefix a phoneme to the consonant (note that with a single exception, the *non*-combining Mutuyo will prefix a phoneme).

For example:

- Ƀ (da) vs Ƀ̣ (dya)
- Ʉ (ba) vs Ʉ̣ (bra)
- Ɂ (ka) vs Ɂ̣ (kla)
- Ɇ (za) vs Ɇ̣ (bza)
- ɉ (di) vs ɉ̣ (ndi)

A noteworthy distinction between the application of the combining Mutuyo, that is unprecedented for the diacritical marks, appears in the last example above. The Mutuyo mark is the third glyph in the composition sequence. In keeping with the handwritten practices, the Mutuyo is written *after* the Masiri vowel mark while it visually appears above the consonant glyph -no different than when a Masiri is not present. Thus, the combining Mutuyo may be either the 2nd or 3rd codepoint in composed character (e.g. <C><M> or <C><V><M>). This is believed to be a different combining behavior than that exhibited by comparable diacritical marks which will always be the 2nd codepoint in a composition sequence (unless combining with another combinable mark).

This last point helps highlight that Latin based combining marks may be inherently unsuitable for Mwangwego script which, being an Abugida script, is not sufficiently *Latin-like*. Review of the Unicode Character Database's "NormalizationTest.txt" finds the comparable marks applied only to the more closely related scripts Latin, Greek, and Cyrillic. Applying the marks outside of this family may also be problematic for existing text processors that make the assumption that the marks are erroneously applied when found elsewhere.

A degree of internal similarity to the Mutuyo mark is readily observed. For example: ˘ (MYU) with ˘˘ (MI), ˘˘ (TUMBU) with ˘˘˘ (NI), and ˘˘˘ (MULA) with ˘˘˘˘ (MURA). Discussion with the user community and educators we find that users embody a phonological understanding of the glyphs and do not apply the visual similarity in any practical way. For example, MI (˘˘) is not perceived as a "Double MYU" (˘) which is not logical phonetically. Education of the marks also does not follow what would logically be the "stroke order" of the glyphs (˘ NI precedes ˘˘ TUMBU, ˘˘˘ MURA precedes ˘˘˘˘ MULA). Thus, we have proposed encoding the marks distinctly in keeping with the user community's perception and practices. Doing so also avoids entirely the inevitable problem of text editing where during a "copy & paste" operation, one mark is selected and pasted but not the other, or a deletion is incomplete, or a second keystroke missed in their composition.

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.

16E00;MWANGWEGO	MUSISI	A;Lo;0;L; ; ; ;N; ; ; ;
16E01;MWANGWEGO	MUSISI	BA;Lo;0;L; ; ; ;N; ; ; ;
16E02;MWANGWEGO	MUSISI	CHA;Lo;0;L; ; ; ;N; ; ; ;
16E03;MWANGWEGO	MUSISI	DA;Lo;0;L; ; ; ;N; ; ; ;
16E04;MWANGWEGO	MUSISI	FA;Lo;0;L; ; ; ;N; ; ; ;
16E05;MWANGWEGO	MUSISI	GA;Lo;0;L; ; ; ;N; ; ; ;
16E06;MWANGWEGO	MUSISI	GHA;Lo;0;L; ; ; ;N; ; ; ;
16E07;MWANGWEGO	MUSISI	HA;Lo;0;L; ; ; ;N; ; ; ;
16E08;MWANGWEGO	MUSISI	JA;Lo;0;L; ; ; ;N; ; ; ;
16E09;MWANGWEGO	MUSISI	ZHA;Lo;0;L; ; ; ;N; ; ; ;
16E0A;MWANGWEGO	MUSISI	KA;Lo;0;L; ; ; ;N; ; ; ;
16E0B;MWANGWEGO	MUSISI	LA;Lo;0;L; ; ; ;N; ; ; ;
16E0C;MWANGWEGO	MUSISI	MA;Lo;0;L; ; ; ;N; ; ; ;
16E0D;MWANGWEGO	MUSISI	NA;Lo;0;L; ; ; ;N; ; ; ;
16E0E;MWANGWEGO	MUSISI	NYA;Lo;0;L; ; ; ;N; ; ; ;
16E0F;MWANGWEGO	MUSISI	PA;Lo;0;L; ; ; ;N; ; ; ;
16E10;MWANGWEGO	MUSISI	RA;Lo;0;L; ; ; ;N; ; ; ;
16E11;MWANGWEGO	MUSISI	SA;Lo;0;L; ; ; ;N; ; ; ;
16E12;MWANGWEGO	MUSISI	SHA;Lo;0;L; ; ; ;N; ; ; ;
16E13;MWANGWEGO	MUSISI	TA;Lo;0;L; ; ; ;N; ; ; ;
16E14;MWANGWEGO	MUSISI	TSA;Lo;0;L; ; ; ;N; ; ; ;
16E15;MWANGWEGO	MUSISI	PSA;Lo;0;L; ; ; ;N; ; ; ;
16E16;MWANGWEGO	MUSISI	VA;Lo;0;L; ; ; ;N; ; ; ;
16E17;MWANGWEGO	MUSISI	WA;Lo;0;L; ; ; ;N; ; ; ;
16E18;MWANGWEGO	MUSISI	YA;Lo;0;L; ; ; ;N; ; ; ;
16E19;MWANGWEGO	MUSISI	ZA;Lo;0;L; ; ; ;N; ; ; ;
16E1A;MWANGWEGO	MUSISI	DZA;Lo;0;L; ; ; ;N; ; ; ;
16E1B;MWANGWEGO	MUSISI	DHLA;Lo;0;L; ; ; ;N; ; ; ;
16E1C;MWANGWEGO	MUSISI	HLA;Lo;0;L; ; ; ;N; ; ; ;
16E1D;MWANGWEGO	MUSISI	XA;Lo;0;L; ; ; ;N; ; ; ;
16E1E;MWANGWEGO	MUSISI	QA;Lo;0;L; ; ; ;N; ; ; ;
16E1F;MWANGWEGO	MUSISI	THA;Lo;0;L; ; ; ;N; ; ; ;
16E20;MWANGWEGO	SIRI	EMWA;Mc;204;L; ; ; ;N; ; ; ;
16E21;MWANGWEGO	SIRI	IMA;Mc;204;L; ; ; ;N; ; ; ;
16E22;MWANGWEGO	SIRI	OTA;Mc;204;L; ; ; ;N; ; ; ;
16E23;MWANGWEGO	SIRI	UYU;Mc;204;L; ; ; ;N; ; ; ;
16E24;MWANGWEGO	MUTUYO	MYU;Lm;0;L; ; ; ;N; ; ; ;
16E25;MWANGWEGO	MUTUYO	MI;Lm;0;L; ; ; ;N; ; ; ;
16E26;MWANGWEGO	MUTUYO	NI;Lm;0;L; ; ; ;N; ; ; ;
16E27;MWANGWEGO	MUTUYO	HI;Lm;0;L; ; ; ;N; ; ; ;
16E28;MWANGWEGO	MUTUYO	WAYA;Lm;0;L; ; ; ;N; ; ; ;
16E29;MWANGWEGO	MUTUYO	WAYA BELOW;Mn;220;NSM; ; ; ;N; ; ; ;
16E2A;MWANGWEGO	MUTUYO	SISA;Lm;0;L; ; ; ;N; ; ; ;
16E2B;MWANGWEGO	MUTUYO	MURA;Mn;230;NSM; ; ; ;N; ; ; ;
16E2C;MWANGWEGO	MUTUYO	MULA;Mn;230;NSM; ; ; ;N; ; ; ;
16E2D;MWANGWEGO	MUTUYO	PEWA;Mn;230;NSM; ; ; ;N; ; ; ;
16E2E;MWANGWEGO	MUTUYO	TUMBU;Lm;0;L; ; ; ;N; ; ; ;

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16E2F;MWANGWEGO MUTUYO KWANTHU;Mn;230;NSM;;;N;;;
16E30;MWANGWEGO MITUYO MYU-NI;Lm;0;L;;;N;;;
16E31;MWANGWEGO MITUYO MYU-HI;Lm;0;L;;;N;;;
16E32;MWANGWEGO MITUYO MYU-WAYA;Lm;0;L;;;N;;;
16E33;MWANGWEGO MITUYO MI-HI;Lm;0;L;;;N;;;
16E34;MWANGWEGO MITUYO MI-WAYA;Lm;0;L;;;N;;;
16E35;MWANGWEGO MITUYO NI-HI;Lm;0;L;;;N;;;
16E36;MWANGWEGO MITUYO NI-WAYA;Lm;0;L;;;N;;;
16E37;MWANGWEGO MITUYO HI-WAYA;Lm;0;L;;;N;;;
16E38;MWANGWEGO MITUYO SISA-NI;Lm;0;L;;;N;;;
16E39;MWANGWEGO MITUYO TUMBU-WAYA;Lm;0;L;;;N;;;
16E3A;MWANGWEGO MITUYO MYU-NI-HI;Lm;0;L;;;N;;;
16E3B;MWANGWEGO MITUYO MYU-HI-WAYA;Lm;0;L;;;N;;;
16E3C;MWANGWEGO MITUYO MI-HI-WAYA;Lm;0;L;;;N;;;
16E3D;MWANGWEGO MITUYO NI-HI-WAYA;Lm;0;L;;;N;;;
16E3E;MWANGWEGO MITUYO SISA-NI-HI;Lm;0;L;;;N;;;
16E3F;MWANGWEGO MITUYO MYU-NI-HI-WAYA;Lm;0;L;;;N;;;

```

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 Ƴ, Ʒ, ƹ, ƺ, ƻ, then Ƽ, ƽ, ƿ, ƾ, ƿ, ..., all the way to ƿ, ƿ, ƿ, ƿ.

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:

MYU ' < MI " < NI " < HI " < WAYA - < WAYA BELOW ̣ < SISA ' < MURA ̣̣ < MULA ̣̣ < PEWA ̣̣ < TUMBU ' < KWANTHU ̣̣.

As previously mentioned, not all Mutuyo/Mituyo attach to all Misisi/Musiri as some letter+modifier combinations are not linguistically attested. For example, the valid Mutuyo for the Misisi \hat{a} /ka/ are MYU \hat{a} , NI \hat{a} , HI \hat{a} , WAYA \hat{a} , WAYA BELOW \hat{a} , SISA \hat{a} , and KWANTHU \hat{a} . See Section X for all valid Misisi and Mutuyo/Mituyo combinations.

As an example, if one is given the Musisi ꞑ /ka/ and the Musiri ꞑ /kɛ/, and all valid Mutuyo attachments for ꞑ, which are ꞑ̂, ꞑ̃, ꞑ̄, ꞑ̅, ꞑ̆, and ꞑ̇ the order of these characters would be as follows:

2, '2, "2, ..2, -2, 2, '2, 2, 2, 2

The basic Musisi ʔ /ka/ is ordered first, then each base-ʔ letter is ordered according to the Mutuyo order mentioned above. Only after all letters of the same base (ʔ in this example) are ordered, can the next vocalized letter (i.e., ɛ /kɛ/) be ordered.

To provide another example: if one is given the Musisi \mathcal{U} /ba/ and the Misiri \mathcal{U} /bɛ/, \mathcal{U} /bi/, \mathcal{U} /bɔ/, and \mathcal{U} /bu/. The valid Mutuyo for \mathcal{U} /ba/ (which are also ***always*** valid for the Misiri counterparts) are MYU ' , MI " , WAYA ˘ , WAYA BELOW ˘˘ , MURA ˘˘˘ , MULA ˘˘˘˘ , and PEWA ˘˘˘˘˘ (see Section X). If you attach all Mutuyo to Musisi \mathcal{U} /ba/ and all Misiri, the ordering of all of these characters, including the base Musisi and Misiri, would be as follows:

[illegible]

Mituyo

Graphemes with only one Mutuyo are ordered before any instances of a grapheme with Mituyo (i.e., multiple Mutuyo).

There are only three ways to configure a Mituyo combination around a Musisi/letter:

1. **Left** and Bottom (example: " \hat{l} ")
2. **Top** and Left (example: " \hat{t} ")
3. **Top** and Bottom (example: " \hat{b} ")

You cannot have a Mituyo configuration where all three positions (top, left, and bottom) are occupied by a Mutuyo (i.e., it is linguistically impossible for these languages). The Mutuyo that is written first, and therefore considered first when ordering is in **bold** above for each of the three configurations.

Furthermore, if there are multiple Mutuyo stacked on the left of a grapheme (e.g., 𐎶𐎶𐎶) ordering of the left stack is decided by reading the individual Mutuyo from the top of the stack (first) to the bottom of the stack(second), and adhering to the general ordering of individual Mutuyo

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
𐄀	𐄁	𐄂	𐄃	𐄄	𐄅	𐄆	𐄇	𐄈	𐄉	𐄊	𐄋	𐄌	𐄍	𐄎	𐄏	𐄐	𐄑	𐄒

Table 6. Order of all 2-part Mituyo.

For convenience, the order of individual Mutuyo is: MYU ' < MI " < NI " < HI ˘ < WAYA - < WAYA BELOW 𐄃 < SISA ' < MURA 𐄏 < MULA 𐄐 < PEWA 𐄑 < TUMBU ' < KWANTHU 𐄒.

Therefore, we can see in Table 6 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 6, 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, 𐄀 is ordered before 𐄁 and 𐄂. Then, as HI ˘ comes before WAYA - in the Mutuyo ordering, 𐄁 is ordered before 𐄂.

Another example are the 2-part Mituyo combinations labeled under 14, 15, and 16 in Table 6 (𐄍, 𐄎, and 𐄏). They have top-left, top-left, and top-bottom configurations around a grapheme, respectively. They each begin with a PEWA 𐄑. 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 𐄃 as their second Mutuyo (according to the order of reading their respective configurations). As NI " comes before WAYA - in the Mituyo ordering, and WAYA - comes before WAYA BELOW 𐄃, their order as 𐄍 < 𐄎 < 𐄏.

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
𐄀	𐄁	𐄂	𐄃	𐄄	𐄅	𐄆

Table 7. 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
$\begin{matrix} \circ \\ \\ \cdot \\ \cdot \\ \cdot \end{matrix}$

Table 8. 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: ᵀ /ka/
2. Then all valid Mutuyo for that basic grapheme are ordered.
 - a. Example: ᵀ ᵀᵀ ᵀᵀᵀ ᵀᵀᵀᵀ ᵀᵀᵀᵀᵀ
3. Then all valid 2-part Mutuyo for that basic grapheme are ordered.
 - a. Example: ᵀᵀᵀ ᵀᵀᵀᵀ ᵀᵀᵀᵀᵀ ᵀᵀᵀᵀᵀᵀ ᵀᵀᵀᵀᵀᵀᵀ ᵀᵀᵀᵀᵀᵀᵀᵀ
4. Then all valid 3-part Mituyo for that basic grapheme are ordered.
 - a. Example: ᵀᵀᵀᵀᵀ ᵀᵀᵀᵀᵀᵀᵀ ᵀᵀᵀᵀᵀᵀᵀᵀᵀ ᵀᵀᵀᵀᵀᵀᵀᵀᵀᵀ
5. Then all valid 4-part Mituo for that basic grapheme are ordered.
 - a. Example: ᵀᵀᵀᵀᵀᵀᵀ
6. Then the next vocalization for that basic grapheme is ordered.
 - a. Example: ᵀᵀᵀᵀᵀᵀᵀᵀ
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 Misi (i.e., all inherent /a/ syllabic graphemes).

VII References

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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.

An endorsement letter for the encoding of the Mwangwego script written by a University of Malawi linguist is attached/included on the next page.

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.

Endorsement/Recommendation for the Mwangwego script

I, the undersigned, would like to recommend the Mangwego script to be included into the Unicode and eventually be displayed on all digital devices.

When the Mwangwego script was launched in the late 90s, I happened to be one of its first learners.

The script is so easy to learn and to use and I wholeheartedly endorse its inclusion in the Unicode.

M.Chimasula

Mazunzo Prince Chimasula

Lecturer of French at University of Malawi
princechimasula@gmail.com

The views expressed herein do not represent my employer. They are expressed in personal capacity as a student of the script.

IX Examples

ᄃᄃᄃᄃ ᄃ ᄃᄃᄃᄃ -ᄃ ᄃᄃᄃᄃ

[illegible]

Figure 1. Excerpt of Genesis 1 from a Tumbuka Bible. A Latin orthography transliteration can be found in the Google Drive.

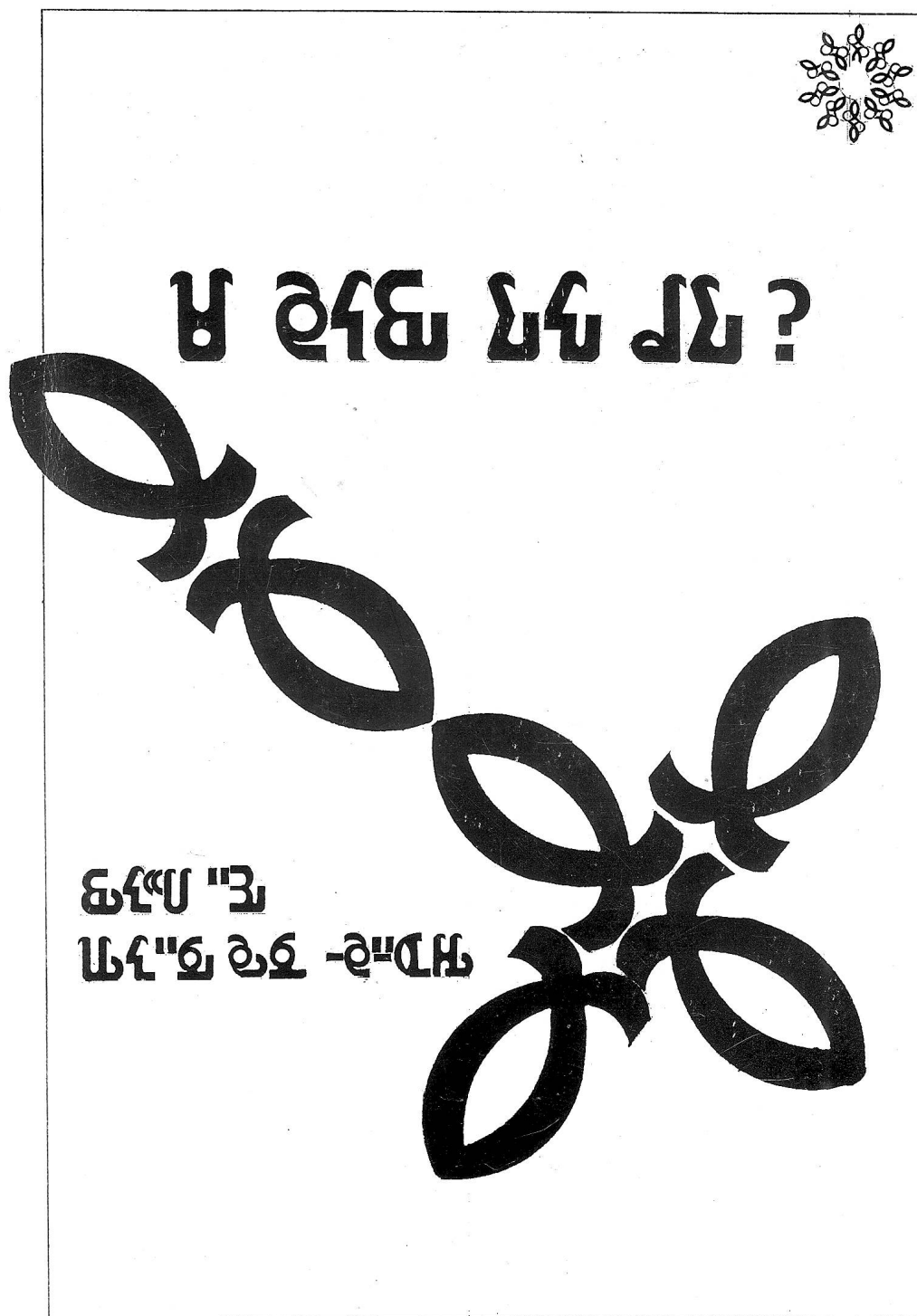


Figure 2.1. Cover page of the Chichewa language book “*ᖃ ᑭᖅᑎᖅ ᑎᖅᑎᖅ*” (transliteration: “*A Malawi Tili Pati*”; translation: “*Malawians, where are we?*”). Mwangwego, Nolence. 2011. *ᖃ ᑭᖅᑎᖅ ᑎᖅᑎᖅ ᑎᖅᑎᖅ ᑎᖅᑎᖅ ᑎᖅᑎᖅ* (A Malawi tili pati? Wolemba ndi Nolensi Mose Mwangwegho). Blantyre: [self-published; printed by Blantyre Print and Packaging].

ፊጽላላ

-ቶ ዘላ ለ"ፍ ይገባሉ" ለገላ ለገላ-3
ቶጊ ይገባ, ለገላ ለገላ ለገላ ለገላ
-ቶ ይገባ ለገላ ለገላ ለገላ ለገላ.

"ይገባሉ" ይገባ -ቶ ለ ለ-3 ለገላ, ይገባ
ለገላ "ፍ ይገባሉ" -ቶ ለገላ-3 ለገላ
ገላ ለገላ.

"ይገባሉ" ለ -ቶ ይገባ ይገባ ለገላ
ገላ ለገላ "ይገባ ለገላ" ለገላ ለገላ
ለገላ ለገላ. "ይገባሉ" ይገባ ይገባ
ለገላ ለገላ ይገባ ለገላ ለገላ.
ለገላ -ቶ ይገባ.

"ይገባ ለገላ ይገባ

<div> <div>ገጽ</div> <div>ጽሑፍ</div> <div>ገጽ</div> </div>		
1	፪ ክፍላ	1
2	ዘ፪ኛ ክፍላ	10
3	"፪" "፪" ፪፪፪	18
4	፪፪ ፪ ፪፪	21
5	፪፪፪	23
6	፪፪፪፪	25
7	ዘ፪ ዘ፪፪	34
8	፪፪፪፪	35
9	፪፪ ፪፪	37
10	፪፪፪፪-፪	39
11	፪፪፪	40
12	፪፪፪፪	54
13	ዘ፪፪፪ ፪ ፪፪፪-፪	55
14	ዘ፪፪፪ ፪ ዘ፪	59
15	ዘ፪፪፪ ፪ ዘ፪፪	61
16	፪፪፪ ዘ፪፪	63
17	፪፪፪ ዘ ዘ፪፪	66

Figure 2.3. Table of contents of "ዘ ፪፪፪ ፪፪፪", page iv.

[illegible]

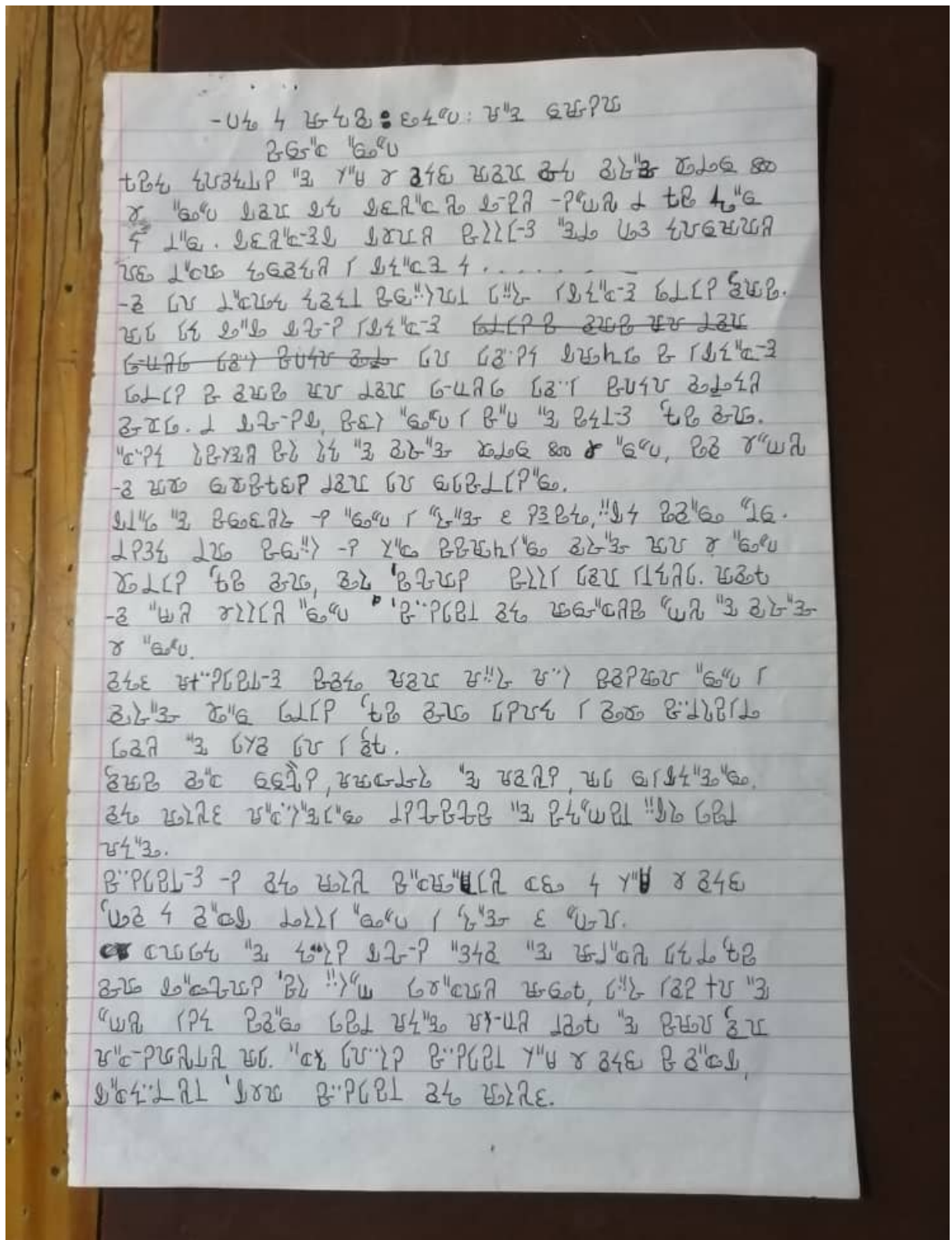


Figure 3. Handwritten Chichewa letter from 2012. The author was from Blantyre; the recipient was in Lilongwe. The topic is on agricultural practices.

[illegible][illegible]

Figure 4. A letter from 2002. Written from someone in Blantyre to another person in Blantyre. The topic is on literacy.

NOTE

X"U r R"Z
 H620 Z"U J-A7E E"U76 Y"U r R"Z
 182E 182 637E"U "378 H620. d73
 487 84"378 Y"U 637E"U. H620 7620 A872.
 8767 1827 637E"U, "378 8767 H620 7620
 A"U, 7620"U A872. 7620 7620 7620 A872
 7620 "378 7620 d73

07 July 2020 H
 182E 8767, 182E"U-A "378 7620 "378
 7620 7620"U 7620 7620 7620 7620 7620
 7620 A-7620. "378 7620 7620 7620
 7620. 7620 7620 Y"U "378 Y"U, 7620 7620
 7620 "378 7620.

07 July 2020 7620 7620 7620 7620 7620
 2020 7620 7620 7620 7620 7620 7620
 7620 7620 7620 7620 7620 7620 7620
 7620 A 7620 "378 7620 7620 7620 7620
 7620.

07 July, 7620 7620 7620 7620 7620 7620
 "378

7620 7620 7620 7620 7620 7620
 7620 7620 7620 7620 7620 7620 7620
 7620. 7620 7620 7620 7620 7620 7620
 7620 7620 7620 7620 7620 7620.

Figure 5. Page from a very long diary that was mailed from the author (in Malawi) to other user(s) (in South Africa) for interpersonal communication/text interchange. A 40-page excerpt of the longer text is in the Google Drive.

ଅଧିକ "3" "3" 22 8 ୧୧"୫୧୬
? ୧୨୪ ୪ ୨୩ ୪୫ ୧୧"୫୧୬

୧"3 ୦ ୪୩୫

୫୩ ୩୪ ୩୫ ୧୧"୫୧୬
୨୩ ୨ ୫୬ ୪ ୩୫ ୩ ୧୨୪,
୩୫୬୩ ୩ ୪ ୧"୫ ୩୧୦ ୩"୫
୧୫ ୫ ୨୩, "3୫୬ ୩୧୦ ୩"3
୧୫. ୩୫-୧ ୩୪ ୩୫ ୧୧୦
୧"୫ ୩-୧୨ ୩୫ ୫ ୨୩. "3୫୬
୧୧୦୩ ୧"୫ ୧୧୫୬ ୨୩. -୧୫
୧୫-୫ ୧୧-୧୫"୫ ୧୫୬ ୫ ୨୩
୪ ୧"୫୬ ୨୩ ୩୫

୫୫୫୫ ୩୪ ୩୫ ୧୧"୫୧୬
୧"୫ ୧୫୬ ୧ 3"୫ ୫ ୫୬ ୪
୧"୫୬୫୬ ୧୫ "୫୫ ୧"୫ ୧୫୫୫

Figure 6 Handwritten journal entry from a user in Mzuzu.

$\frac{7}{8}'' \times 60^{\circ}$

1. 1975 12 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 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044

Page 33 of 53

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 9. Chichewa text about changing mindsets of Malawians. Written in early February 2025.

Os Campesinos
 15 Peru - 1998
 06 Gggg d Lister - 1920
 6 GZ"37 34 321"3 - 1993
 06 11"3 E d Campa - 1910 PA
 0 Wages Date 11231 - 1920

Figure 10. List in Chichewa.

08 de Outubro 2023
 NANFEI
 62127 1 d 2023 62127!! > "31...25.
 2734 126 "314 d Serviço 6 aerolinas
 6-2 > 00661 gabinete 4 10 d 16 6 10-4
 "31...74 "314 6 Nanfei 626 -P 6 semana
 4444 6...6 "62 1 7 2 "31 1-3 7 Serviço
 621 21P-444 62144, 21P...74 "31 447344
 6214444.
 621...44 6-2 21P...74 "62 621, 21P
 "62 621...74 444 6 62144 62144 Domingo
 446-444. 21P...74 621 "62 -621 621
 21P...74 621 "62 621 44444 621
 62144 621 21P...74 "31 621...74 21P-444.
 621 621...74 "62: mudança 6 casa 621P 6
 "3144 621 621...74; 621...74 negócios 6
 62144 621; 621...74 6 investimento 62144
 62144 621...74 "31 621...74 -P 21P...74, 621...74
 routine 62144 621 621...74 621...74
 6-2 21P...74 "31 621 1...74.
 62144 62144 621...74 621...74
 621 "3144 62144 62144-3 62144 621
 44444-3 44.

Figure 11. 2023 Chichewa-language handwriting by a Malawian user. This image showcases some intralinear Portuguese words in the Latin script (important to typographers) as the user is a businessman that conducts international business in Portuguese. The topic is business.

Handwritten text in a non-Latin script, likely a journal entry from a user in Blantyre. The text is written in two main sections, separated by a horizontal line. The script is a form of Shona, characterized by its unique characters and diacritics.

Top Section:
 The text begins with a header line, followed by several lines of dense handwriting. It includes various symbols and characters, such as "A", "B", "C", "D", "E", "F", "G", "H", "I", "J", "K", "L", "M", "N", "O", "P", "Q", "R", "S", "T", "U", "V", "W", "X", "Y", "Z", and numbers, suggesting a mix of letters and digits.

Bottom Section:
 This section continues the handwritten text, maintaining the same style and script. It also features a mix of characters and symbols, with some lines appearing more structured than others.

Figure 12. A journal entry from a user in Blantyre.

| M'WANGWECO SCRIPT | |
|-------------------|-------|
| LESSON 1 MISISI | |
| 𐌲 a | 𐌶 nya |
| 𐌵 ba | 𐌷 pa |
| 𐌸 cha | 𐌹 ra |
| 𐌺 da | 𐌺 sa |
| 𐌻 fa | 𐌽 sha |
| 𐌼 ga | 𐌾 ta |
| 𐌽 gha | 𐌿 tsa |
| 𐌾 ha | 𐍀 psa |
| 𐌿 ja | 𐍁 va |
| 𐍀 ja * | 𐍂 wa |
| 𐍁 ka | 𐍃 ya |
| 𐍂 la | 𐍄 za |
| 𐍃 ma | 𐍅 dza |
| 𐍄 na | |

* ja pronounced like in measure, or treasure

Figure 13. Educational material for Misisi (lesson 1).

| MISIRI | | LESSON 2 | |
|-----------|---------------------|-----------|---------------------|
| Ḥ Ḥ Ḥ Ḥ Ḥ | a e i o u | Ṛ Ṛ Ṛ Ṛ Ṛ | ra re ri ro ru |
| Ṳ Ṳ Ṳ Ṳ Ṳ | ba be bi bo bu | Ṣ Ṣ Ṣ Ṣ Ṣ | sa se si so su |
| Ṡ Ṡ Ṡ Ṡ Ṡ | cha chechi cho chu | Ṧ Ṧ Ṧ Ṧ Ṧ | sha she shi sho shu |
| Ḍ Ḍ Ḍ Ḍ Ḍ | da de di do du | Ṳ Ṳ Ṳ Ṳ Ṳ | ta te ti to tu |
| Ḓ Ḓ Ḓ Ḓ Ḓ | fa fe fi fo fu | Ṳ Ṳ Ṳ Ṳ Ṳ | tša tše tsi tso tšu |
| Ḟ Ḟ Ḟ Ḟ Ḟ | ga ge gi go gu | Ḥ Ḥ Ḥ Ḥ Ḥ | psa pse psi pso psu |
| Ḣ Ḣ Ḣ Ḣ Ḣ | gha ghe ghi gho ghu | Ḑ Ḑ Ḑ Ḑ Ḑ | va ve vi vo vu |
| Ḧ Ḧ Ḧ Ḧ Ḧ | ha he hi ho hu | Ḕ Ḕ Ḕ Ḕ Ḕ | wa we wi wo wu |
| Ḫ Ḫ Ḫ Ḫ Ḫ | ja je ji jo ju | Ḳ Ḳ Ḳ Ḳ Ḳ | ya ye yi yo yu |
| Ḭ Ḭ Ḭ Ḭ Ḭ | ja je ji jo ju * | Ḵ Ḵ Ḵ Ḵ Ḵ | za ze zi zo zu |
| Ḑ Ḑ Ḑ Ḑ Ḑ | ka ke ki ko ku | Ṳ Ṳ Ṳ Ṳ Ṳ | dza dze dzi dzo dzu |
| Ḓ Ḓ Ḓ Ḓ Ḓ | la le li lo lu | | |
| Ḟ Ḟ Ḟ Ḟ Ḟ | ma me mi mo mu | | |
| Ḣ Ḣ Ḣ Ḣ Ḣ | na ne ni no nu | | |
| Ḧ Ḧ Ḧ Ḧ Ḧ | nya nye nyi nyo nyu | | |
| Ḑ Ḑ Ḑ Ḑ Ḑ | pa pe pi po pu | | |

* ja pronounced like in measure or treasure

Figure 14. 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 -ʔɛ | khama -ʔɛ phala ɛɛ |
| | | thobwa -ɔ-u | tchimo -ɔɛ |
| " | Mi | mbala "uɛ | mbiri "uɛ |
| | | mbatata "uɛ | mpaka "uɛ |
| C | Myu | mkaka ʔʔ | mkanda ʔʔ ɛɛ |
| | | m'dziko ʔʔ | m'mudzi ʔʔ |
|) | Sisa | sma ɔɛ | sketi ɔɛ |
| | | stima ɔɛ | |
| ɔ | Mura | bra ɔ kra ɔ tra ɔ | |
| ˘ | Mula | Blantyre ɔkla ɔ tla ɔ | |
| ^ | Pewa | ba ɔ (Tumbuka) ɔ wa ɔ (Chichewa) | |
| | | bva ɔ bza ɔ pfa ɔ *tha ɔ | |
| ı | Tumbu | n'da ı n'nya ı n'ya ı n'wa ı | |
| ı | Kwanthua | mtengo ı (tree) ; mtengo ı (price) | |

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

Figure 15. Educational material for Mituyo (lesson 3).

ᐅ ᐱ ᐅᐱᐅ ᐱᐱᐱ ᐱᐱ

ᐅᐱᐱ ᐅᐱ ᐱᐱ ᐱᐱᐱᐱᐱᐱ "ᐅ ᐱᐱᐱ ᐱᐱᐱ, ᐱᐱᐱᐱ
ᐱᐱᐱᐱᐱ ᐱᐱᐱ ᐱᐱᐱ ᐱ ᐱᐱᐱ, ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱ ᐱᐱᐱ
ᐱ ᐱᐱᐱᐱᐱᐱ "ᐅ ᐱ ᐱᐱᐱᐱᐱ, ᐱᐱᐱᐱᐱ, ᐱᐱᐱ ᐱᐱᐱᐱᐱᐱ
ᐱᐱᐱ ᐱᐱᐱ, ᐱᐱᐱᐱᐱ ᐱᐱᐱ ᐱᐱᐱ ᐱ ᐱᐱᐱᐱ "ᐱᐱᐱᐱᐱ ᐱᐱᐱ
ᐱ ᐱᐱᐱᐱᐱᐱ ᐱᐱᐱ ᐱᐱᐱ ᐱ ᐱᐱᐱᐱᐱ. ᐱᐱᐱ ᐱᐱᐱᐱᐱ
ᐱᐱᐱᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱ ᐱᐱᐱᐱ ᐱᐱᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ,
ᐱᐱᐱᐱᐱ ᐅᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱ, ᐱᐱᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱ
ᐱ ᐱᐱᐱᐱ.

ᐱᐱᐱᐱ ᐱᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱ
ᐱᐱᐱᐱ ᐱᐱᐱ ᐱ ᐱᐱᐱᐱᐱ, ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱ ᐱᐱᐱ ᐱᐱᐱᐱᐱ.

ᐱᐱᐱ ᐱᐱᐱᐱᐱ "ᐅ ᐅᐱ, ᐱᐱᐱᐱᐱ ᐱᐱᐱ ᐱᐱᐱᐱ, ᐱᐱᐱᐱᐱ
ᐱᐱᐱᐱᐱᐱᐱ ᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱ ᐱᐱ ᐱ ᐱᐱᐱᐱ. ᐱᐱᐱᐱᐱ
ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱ, ᐱᐱᐱᐱ ᐱᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱ ᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱ
ᐱᐱᐱᐱᐱ, ᐱᐱᐱ.

ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱ ᐱ ᐱᐱᐱᐱ, ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱ
ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱ ᐱᐱᐱ
ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ.

ᐅᐱᐱᐱᐱ ᐅᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱᐱᐱᐱ
ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱ ᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱ
ᐱᐱᐱᐱᐱᐱ. ᐱᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱ "ᐱᐱᐱ ᐱ ᐱᐱᐱᐱᐱᐱ ᐱᐱᐱᐱ
ᐱᐱᐱᐱ "ᐅ ᐱᐱᐱᐱᐱ ᐅᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱ,
ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱ ᐱᐱᐱᐱ ᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱ
ᐱᐱᐱ. ᐱᐱᐱᐱᐱᐱ "ᐅᐱᐱ ᐱᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ "ᐅ ᐅᐱ
ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱᐱᐱ.

Figure 16. Educational material of paragraphs used for reading practice. The topic is on slavery and colonization.

| 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 17. Educational material used to teach the basic syllabic graphemes of the Mwangwego script.



Figure 18. Most of the possible Mutuyo & Mituyo attachments onto Misisi (not according to collation/ordering).

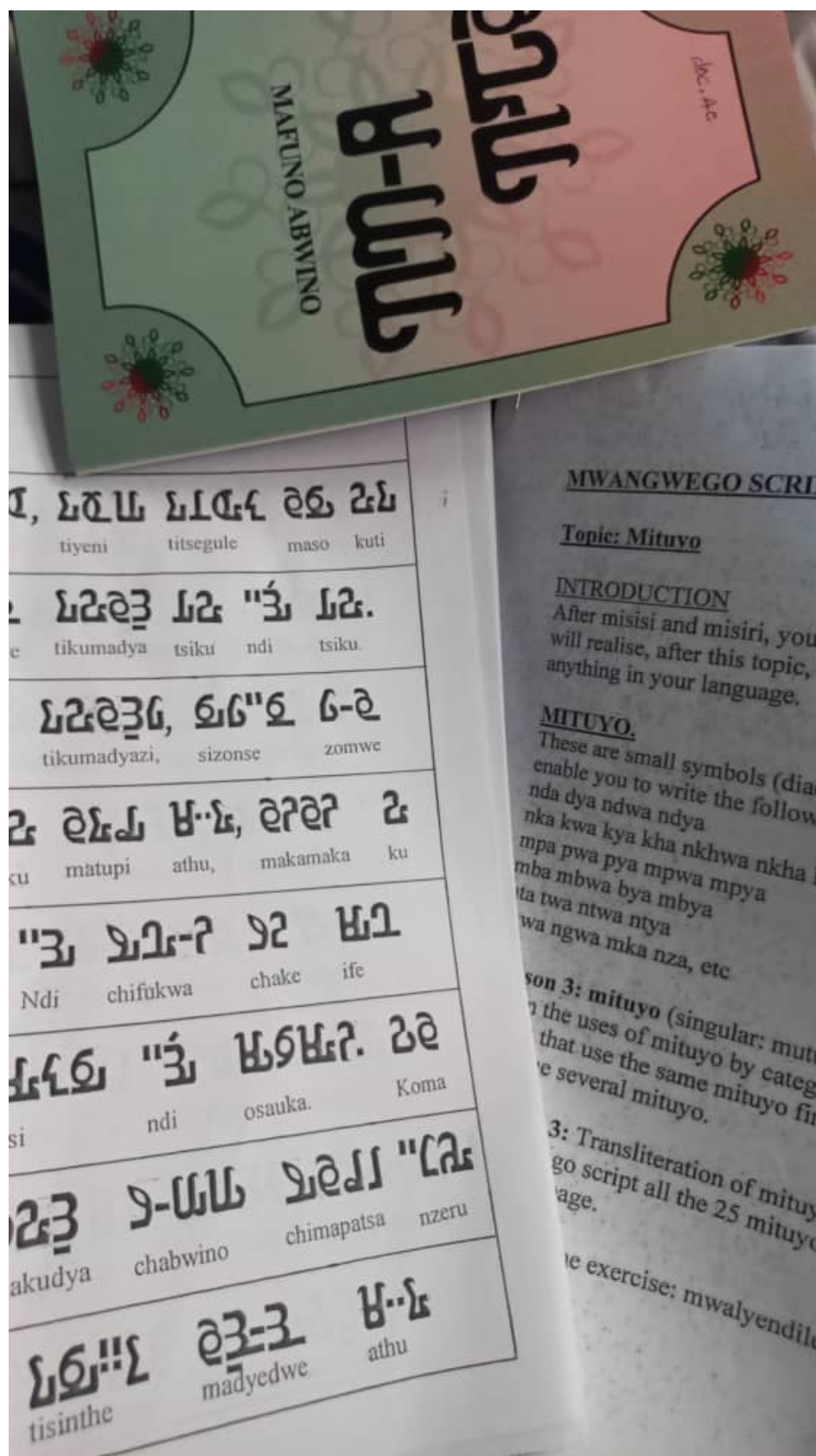


Figure 19. Educational materials used by teachers to teach the Mwangwego script.

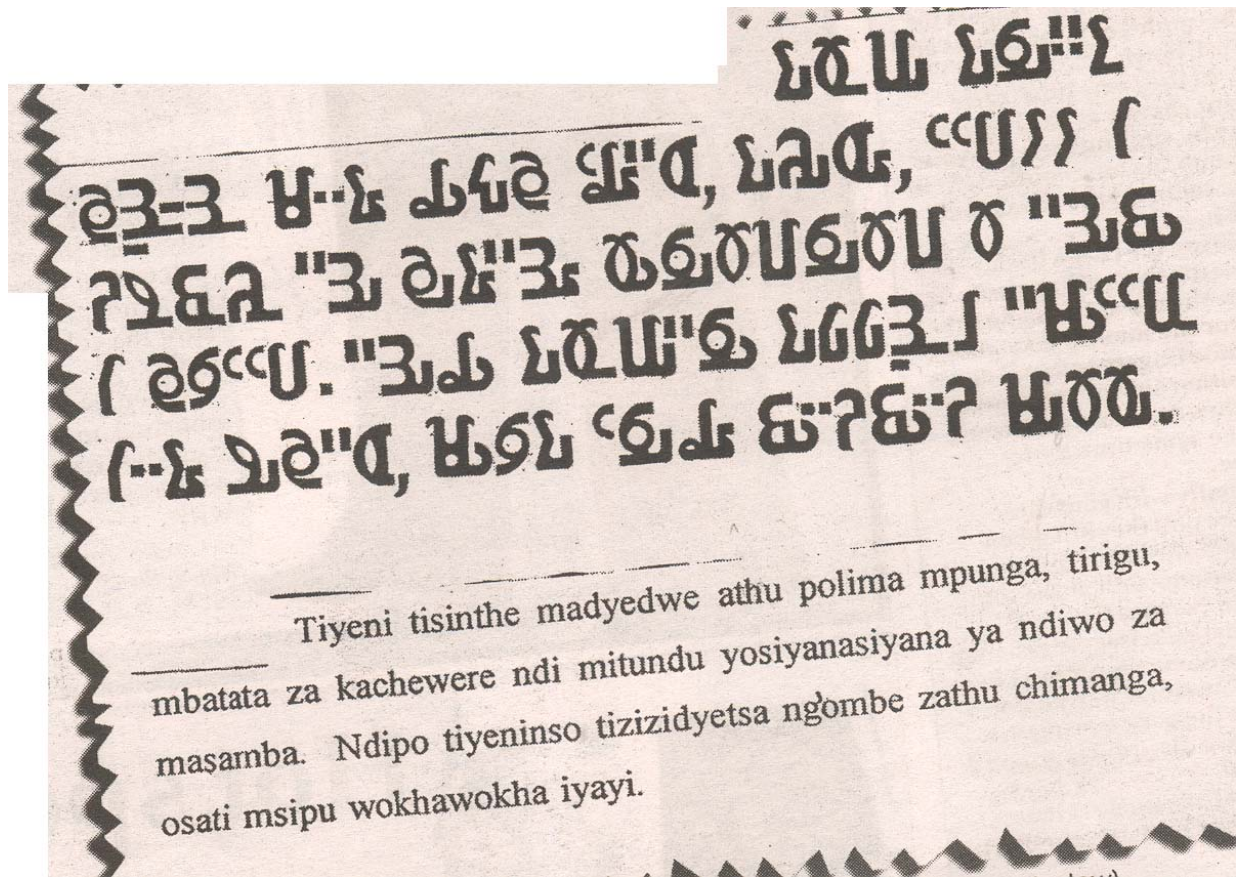


Figure 20. Excerpt from “ᐃᐃᐃ ᐃᐃᐃ?” with Latin transliteration below hosted on a news site discussing the script. English translation: “Let’s diversify our diet by growing rice, wheat, Irish potatoes and different types of vegetables. Let us feed our cattle with grains as well, not just fodder.”



Figure 21. 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]

Page 49 of 53

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>2025-02-28</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

| | | | | | |
|---|-------------------------------------|---|--------------------------|------------------------------------|--------------------------|
| 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> | | | | |
| b. The proposal is for addition of character(s) to an existing block: | | | | | |
| Name of the existing block: | | | | | |
| 2. Number of characters in proposal: | <i>64</i> | | | | |
| 3. Proposed category (select one from below - see section 2.2 of P&P document): | | | | | |
| A-Contemporary | <input checked="" type="checkbox"/> | B.1-Specialized (small collection) | <input type="checkbox"/> | B.2-Specialized (large collection) | <input type="checkbox"/> |
| C-Major extinct | <input type="checkbox"/> | D-Attested extinct | <input type="checkbox"/> | E-Minor extinct | <input type="checkbox"/> |
| F-Archaic Hieroglyphic or Ideographic | <input type="checkbox"/> | G-Obscure or questionable usage symbols | <input type="checkbox"/> | | |
| 4. Is a repertoire including character names provided? | <i>Yes</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)

| | | |
|---|--|---|
| 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? | | Athinkra |
| b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.): | | Athinkra, LLC, 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: | | |
| <p>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.</p> | | |

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 |
| 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? | Yes |

| | |
|---|--------------------------|
| If YES, reference: | Enclosed in the proposal |
| <hr/> | |
| 11. Does the proposal include use of combining characters and/or use of composite sequences? | No |
| <hr/> | |
| If YES, is a rationale for such use provided? | |
| <hr/> | |
| If YES, reference: | |
| <hr/> | |
| Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided? | |
| <hr/> | |
| If YES, reference: | |
| <hr/> | |
| 12. Does the proposal contain characters with any special properties such as | |
| control function or similar semantics? | No |
| <hr/> | |
| If YES, describe in detail (include attachment if necessary) | |
| <hr/> | |
| <hr/> | |
| <hr/> | |
| 13. Does the proposal contain any Ideographic compatibility characters? | No |
| <hr/> | |
| If YES, are the equivalent corresponding unified ideographic characters identified? | |
| <hr/> | |
| If YES, reference: | |
| <hr/> | |