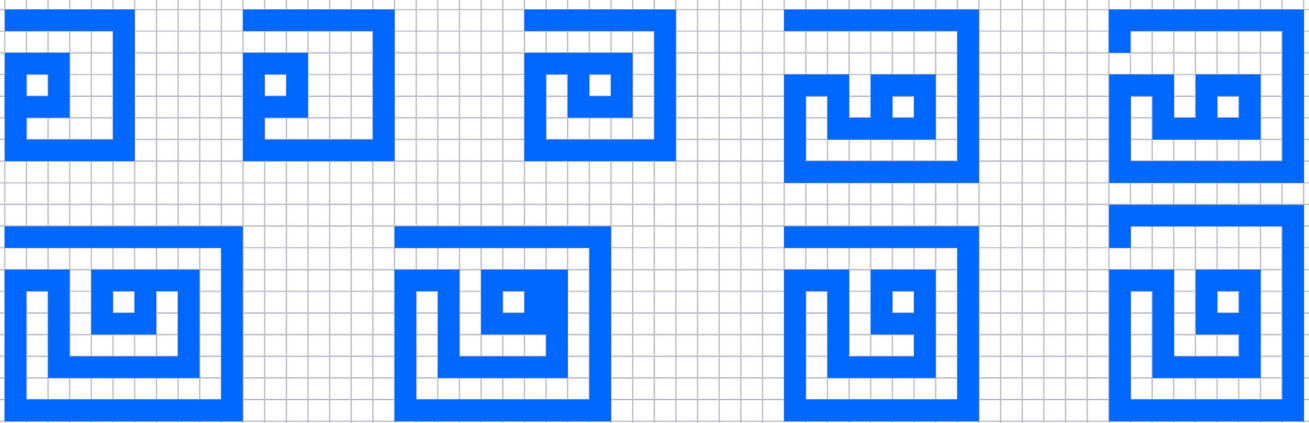# VARIABLE SINHALA TYPEFACE TOWARDS RESPONSIVE DESIGN: AN EXPLORATION

Pronounced as 'Ma'.

Variable typography allows designers and programmers to fully leverage the capabilities of Responsive Web Design by modifying or animating the typeface. This study was conducted to analyse and design a dynamic variable Sinhala typeface that changes letters to letters or word to word. The research goals included using an existing typeface to use in making the transitions; analysing an existing Sinhala typeface to map out the issues of using the existing typeface; overcoming the issues identified by introducing a grid to develop a new typeface; and testing the legibility of the newly developed typeface, to generate different letter-to-letter or word-to-word animations using the developed typeface. Letter-to-letter or word-to-word variable transitions can be implemented in a web and interactive designs to enhance the engagement of the users with the corresponding digital medium. This Sinhala variable typeface can be combined with a variety of factors such as user interactions, mouse interactions, facial gestures, sound, light etc. This study shows the possibilities to create and design functioning Sinhala responsive variable typefaces with a well-founded framework, and possibilities to adapt them in any compatible systems.

> " This Sinhala variable typeface can be combined with a variety of factors such as user interactions, mouse interactions, facial gestures, sound, light etc. "

PHASE 01 - USING AN EXISTING TYPE-FACE TO CARRY OUT THE EXPERIMENT

A) Use and analysis of existing Sinhala typeface

In the first phase, an existing Sinhala typeface (FM Gemunu) was used to find the possibility of converting the typeface into a variable typeface. But prior to this, anatomy of the selected (FM Gemunu) analysis was carried out.

B) FM Gemunu Typeface Analysis

The research, he anatomy and historical development of Sinhala typefaces by Samarawickrama, S. S. M. R. (2016) was used to anatomically analyse each character in the FM Gemunu Typeface. The anatomical variations of letters were mapped out.
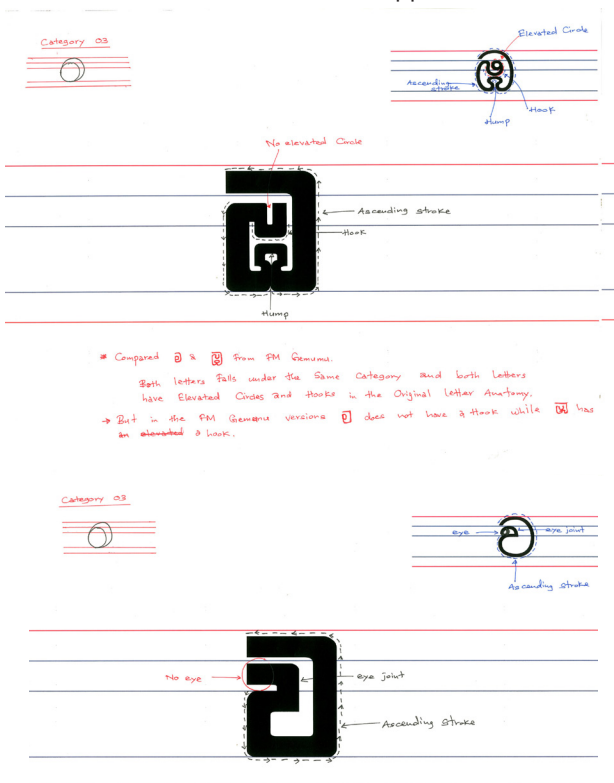

Figure 2 – FM Gemunu typeface analysis

C) Method 01 - Disconnecting letters anatomically & experimenting variations

The first letter attempted to vary every part of its anatomy into the other anatomy of the subsequent letter by severing its anatomical joints.
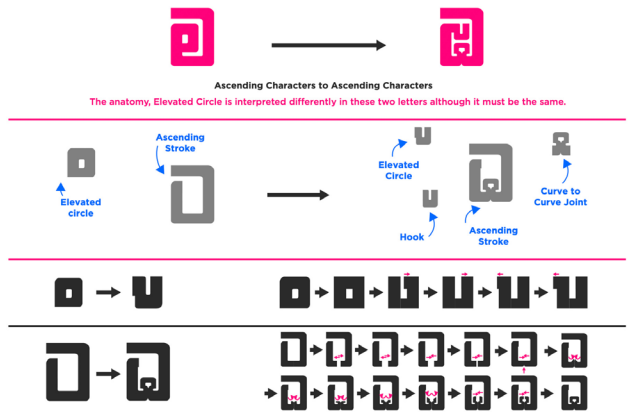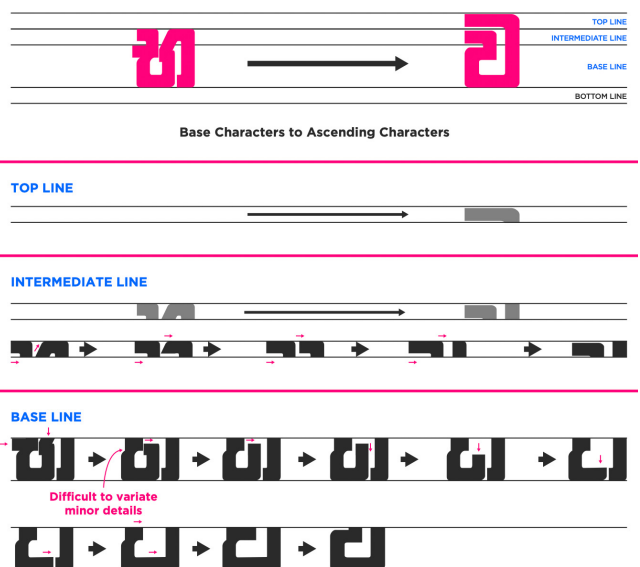

Figure SEQ Figure * ARABIC 3 – Disconnecting letters into their anatomical parts to variate

D) Variating the letters accordance to the five-rule reference

The letters were split into their five rule writing ratios, and an attempt was made to vary the letter areas on each rule from the first letter to the following letter.

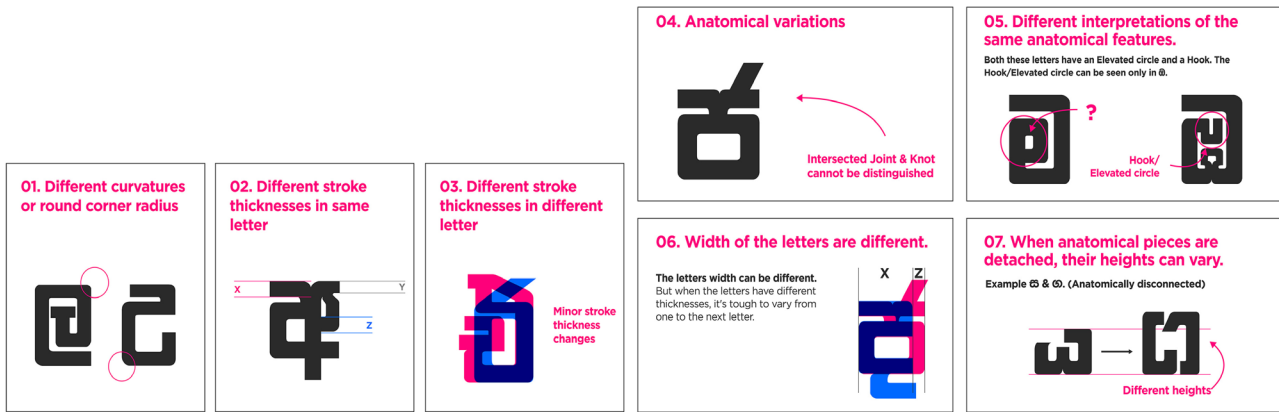## E) Due to the issues listed below, this was not successful

04. Anatomical variations

Intersected Joint & Knot cannot be distinguished

05. Different interpretations of the same anatomical features.

Both these letters have an Elevated circle and a Hook. The Hook/Elevated circle can be seen only in ⓐ.

?

Hook/ Elevated circle

01. Different curvatures or round corner radius

02. Different stroke thicknesses in same letter

03. Different stroke thicknesses in different letter

Minor stroke thickness changes

06. Width of the letters are different.

The letters width can be different. But when the letters have different thicknesses, it's tough to vary from one to the next letter.

X Z

07. When anatomical pieces are detached, their heights can vary.

Example ⬡ & ⬡. (Anatomically disconnected)

Different heights

Figure 5 – Issues found on methods 01 and method 02

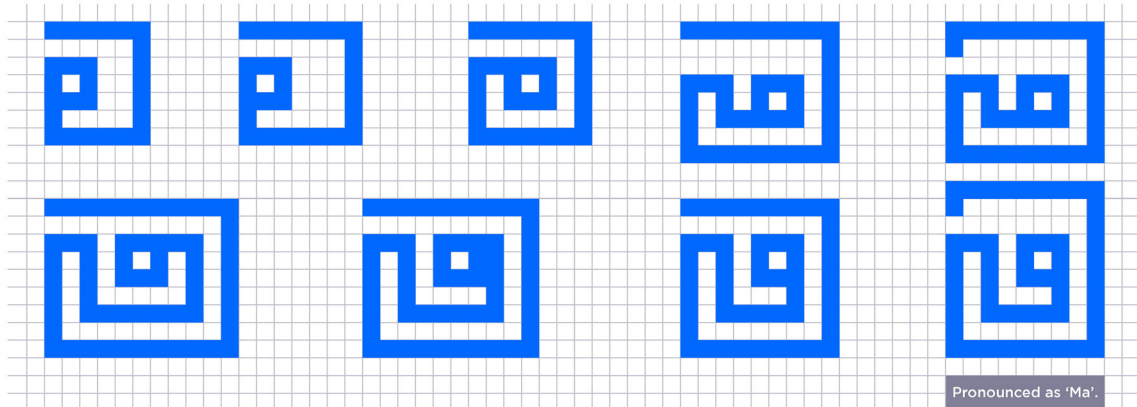## PHASE 02 - DEVELOPING A NEW TYPEFACE TO OVERCOME THE ISSUES

Pronounced as 'Ma'.

Figure 6 – Letter experiments to find the perfect grid

A) Letter development

In order to streamline the design process, a grid was used. Also it is simple to vary letters along the X and Y axes using a grid. To choose the readable letters, there were two rounds of legibility testing.
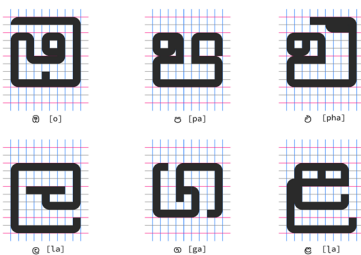

[a]   [pa]   [pha]

[la]   [ga]   [la]

Individuals who took part in user testing.

USER TESTING

However, following extensive user testing, it was discovered that some anatomical elements of the letters were unreadable.

Difficult to recognise the lines.

There should be a gap between the eye and the eye joint.

Eye and eye joint must be same in every letter.

Ascending loop must have visible loop.

Difficult to recognise the lines.

Difficult to recognise the lines.

Difficult to identify the letter quickly.

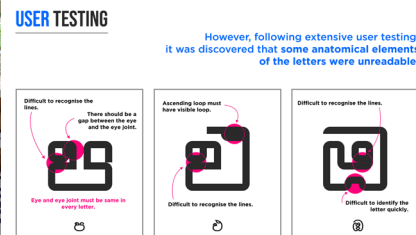Figure 7 – Letter designs of phase 01   Figure 8 – Legibility testing   Figure 9 – Problem identification

B) Finalised grid and the alphabet design

The below grid can fit each letter of the Sinhala alphabet and it has the five-rule reference which accommodate character's anatomies correctly.

DEVELOPED TYPEFACE
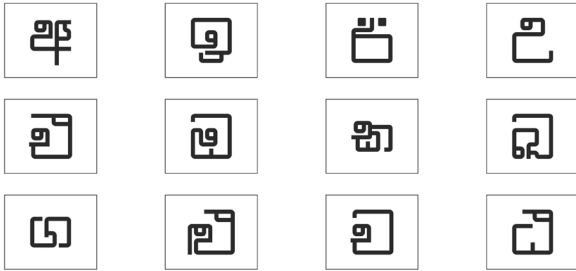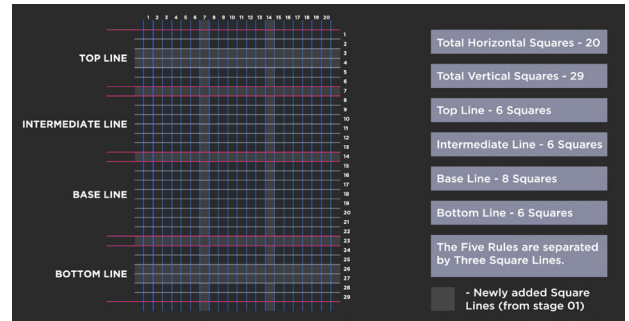

Figure 10 – A few of the developed characters

Figure 11 – The finalised grid
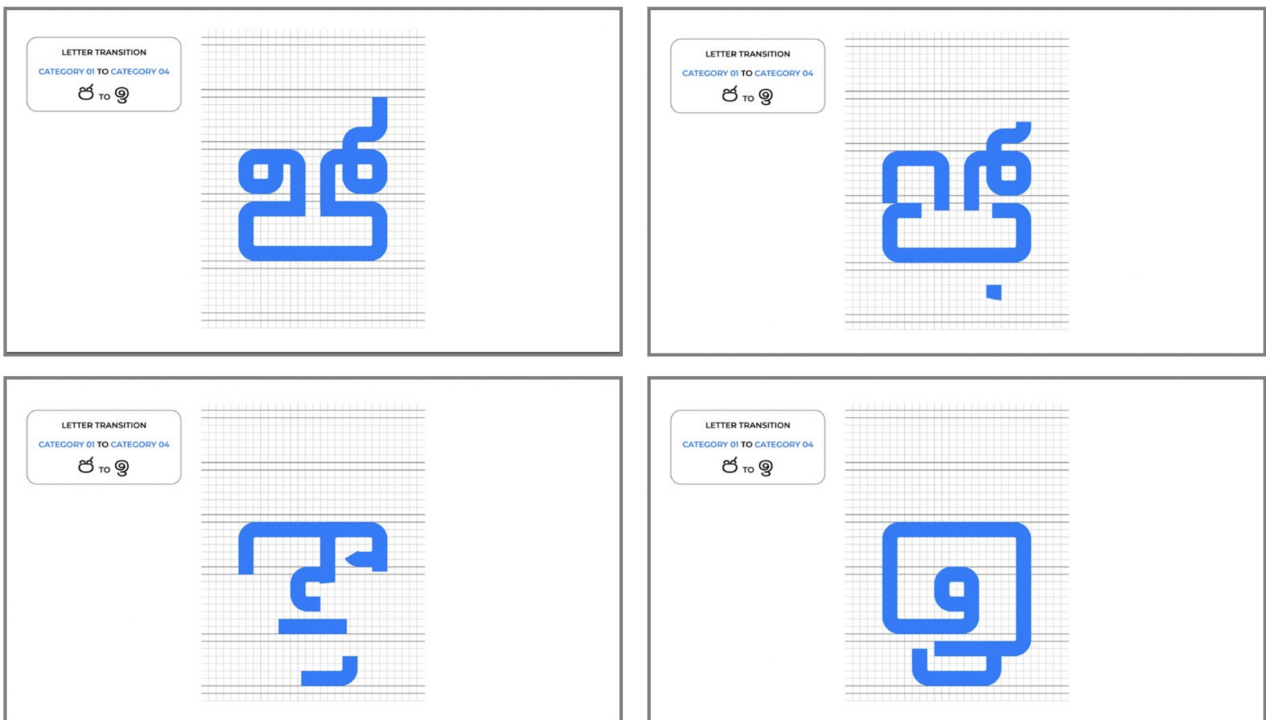
PHASE 03 - LETTER TO LETTER ANIMATION EXPERIMENTS
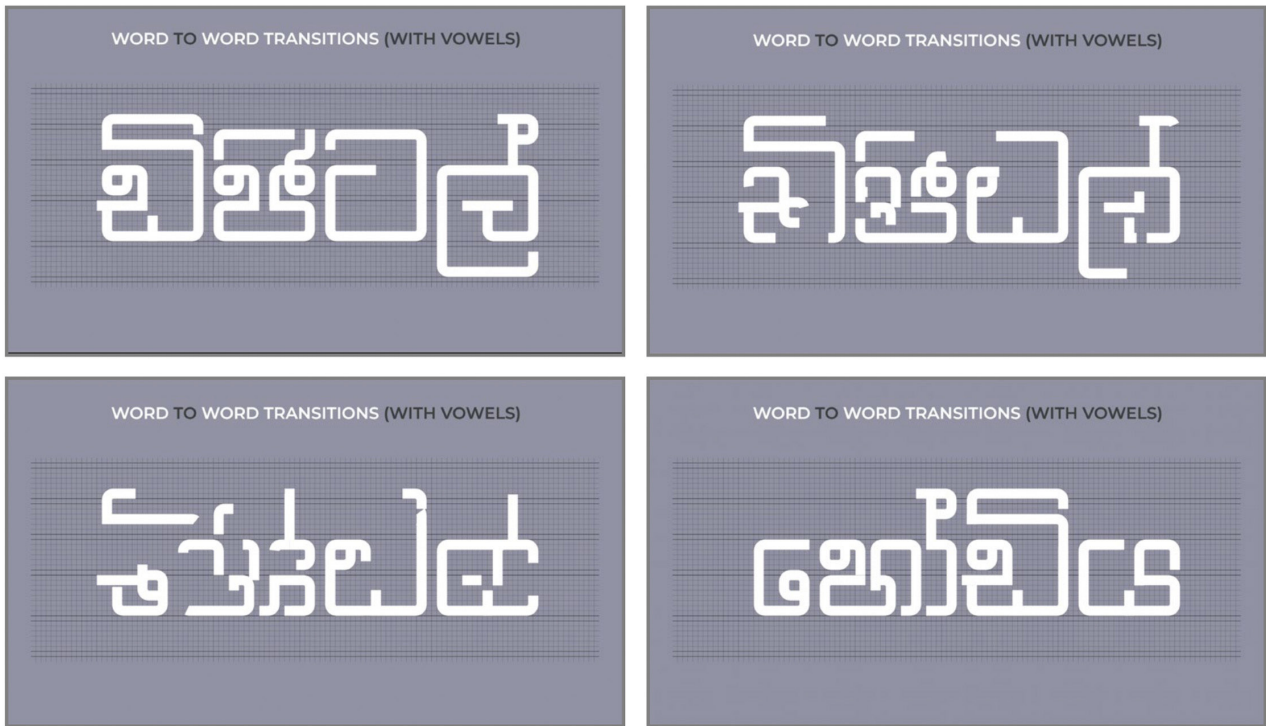

Figure 12 – Transition animations of letter ඦ to ඔ

Figure 13 – Transition animation of words äðg,a to fydaäh

Figure 14 – Web application interface with the word transition from uq,a msgqj to .e,ßh" .e,ßh to fiajd" fiajd to úuiSï

The animations can be seen by
scanning this QR code.

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