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Reviving Modi-script

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Abstract: Modi-script” are concrete examples of the humanistic and artistic activity of the past. This cultural treasure is supported to serve as a source of inspiration and information to the present generation. “Modi-manuscript” speaks of the past, reveals history, unfolds perspectives and reflects the social, political and cultural senses of its time. ‘Modi script’ is one of the scripts used to write Marathi language and is primarily used to write scriptures of Maharashtra in Western India. Modi Script is known by this name in Maharashtra for last 700 years. Modi script was refined by Hemadpant during the time of Mahadev and Ramdev Yadav (1260 - 1309). It was used for writing until 1950, but because of its difficulty in printing its use was stopped and Devnagari (Balbodh) was used for writing Marathi. In this context, there is scope for reviving the Modi script by rendering it with appropriate technology that makes it easy to use. This paper describes the project to standardize the Modi-script and consequently translate it into a usable typeface. It discusses the need for bringing back the Modi-script and the steps that need to be taken in order to relate with earlier cultural and historical era.

Key words: *Maratha era, Modi-script, Marathi Handwritten script, Modi document, Modi-lipi, Hemadpant lipi, Shivaiji lipi.*

1. Introduction

Modi script is a Brahmi based script used primarily for writing Marathi and in some cases other languages like Hindi, Gujarati, Konkani, Tamil and Telugu. It is believed that Modi-script was developed by Hemadpant, during the reign of Yadava dynasty (1260- 1309). There are some other views about the origin of the script but most researchers agree that Modi script derives from Nagari family of script. Importance of Modi is because it was the official script for all administrative purposes in the 16th century. When the Maratha dynasties came in power they adopted also continued it as official script through the 17th century and it remained so until the middle of the 20th century. Changing socio-political conditions and gradually pushed Modi out of its official use and was replaced by the Devanagari script, known as ‘Balbodh’.

In recent years interest in Modi script has increased and researchers and enthusiasts are reinventing this cultural and historical heritage. Fortunately there are many of Modi documents preserved not only in India but also in other Asian and European countries. While the majority of Modi documents are official records, land records and other administrative documents, the script is also used in education, journalism and other routine activities before the 1950s. (*Anshuman Pandey, 2011*)

2. Importance

The growing interest in Modi makes it imperative that it is contemporaried for modern use through digital systems. The efforts to use Modi script in digital format has led to multiple initiatives such as font development, OCR techniques and other digitization methods. However, since Modi has certain unique characteristics it requires a different approach and treatment. Lack of character-encoding standard for the script and hence use of Unicode blocks such as Devanagari limits the use of the script in the digital space. Anshuman Pandey, (2011) points out that the lack of a Unicode standard for Modi impedes its use in basic computing activities, such as writing e-mails, creating websites and in digital publishing, as well as larger scale effort such as localization and internationalization. Thus it is important to have a standard encoding for Modi to permit its representation in plain text.

At the same time since the script has social, political, aesthetic and cultural dimensions and also a character of its own any attempt to standardize the script cannot be isolated from these aspects. Availability of modern design tools and digital technologies offer a flexibility to design and develop multi-script typefaces. This paper focus on how this flexibility can be combined with the nuances of the letterform and the rich heritage of the script to develop a new typeface.

3. Characteristics of Modi script

3.1 Structure

Modi script has only single “eekar” and “ookar”, which minimize grammatical mistakes.

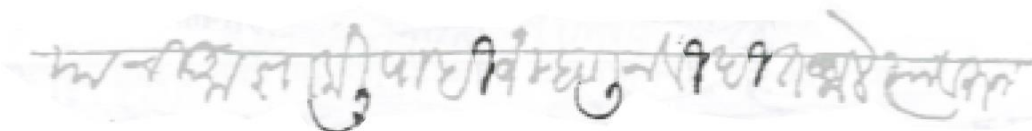


Figure.1 Writing only one ‘eekar’ and ‘ookar’ in Modi-script (Dr. Madhukar R. Kulkarni, 2011)

Maximum characters of Modi-script are of Nagari. “Kana” is given upwards to join the next character.

“ee ई, na न, zha झ, nha ण, ta ट, da ढ, dha ढ” the Modi characters are similar to “Ghasiti” style of Nagari i.e. Gujarati.

Anuswar “.” Are not written are some rules and aspects of Modi-script.

Draw the complete “header line” before writing in practically to prevent lifting hand.

In other words Modi-script is highly cursive alternative to Nagari.

Lift the pen only and only an essential points “ga ग, da ढ, zha झ, ja ज, sha श, shya ष,”.

The Modi letters are syllables as they cannot be drawn without the inherent vowel sign “Kana”.

The precision of long and short vowels, observe in Balbodh, is neglected in Modi writing.

Modi has no graphemes for “ru रू”, the phonemes “kru कृ, jru जृ” etc. cannot be correctly represented in Modi.

There are no separate signs for “aya ए, ye ऐ” in Modi. They are represented by the graphemes of “aa अ” with matra.

The vowels “ru रू, rru रू, aye” cannot be represented in Modi.

The method of joining the vowel signs to the consonants is common to both the Ashoka and Modi script.

One the distinctive features of the dissimilar letter in Balbodh and Modi is that the strokes in Balbodh are drawn from top to bottom, while those in Modi are drawn from bottom to top.

3.2 Developments in early Modi Script Writing

Modi has undergone a series of changes and it reflects the socio-political and cultural changes that occurred in the period when Modi was prominently used. The earliest form is of the 12th century, known as ‘Adyakalin (आद्य कालीन)’. It underwent a change during the 13th century and is known as “Yadavakalin (यादव कालीन)” followed by “Bahamanikalin (बहमनी कालीन)” of the 14th-16th century. The well-known “Chitnisi” form developed during the “Shivakalin (शिव कालीन)” of the 17th century. In the 18th century the “Peshvekalin (पेशवे कालीन)”, style of Modi gained prominence and had variations like “Chitnisi, Bilavalkari, Mahadevapanti, and Ranadi”. The final stage of Modi is associated with English rule and is called “Anglakalin (आंग्ल कालीन)”. These forms were used from 1818 until 1952. (*Anshuman Pandey, 2011*)

In the 20th century introduction of Modi in schools necessitated a very important shift of doing away the typical cursive style to ensure legibility and readability.

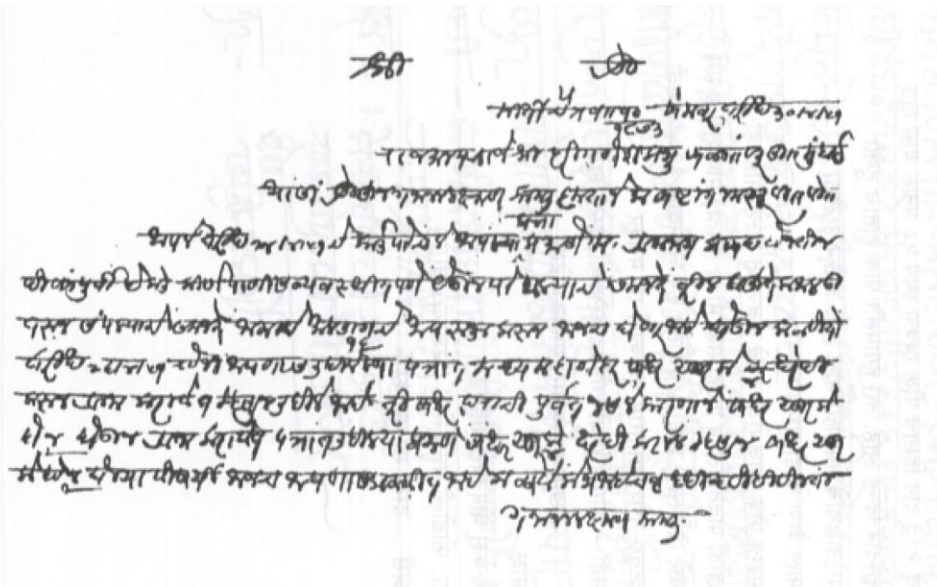


Figure.2 Goa-side modern letter (1873) in Modi-script (Dr. Madhukar R. Kulkarni, 2011)

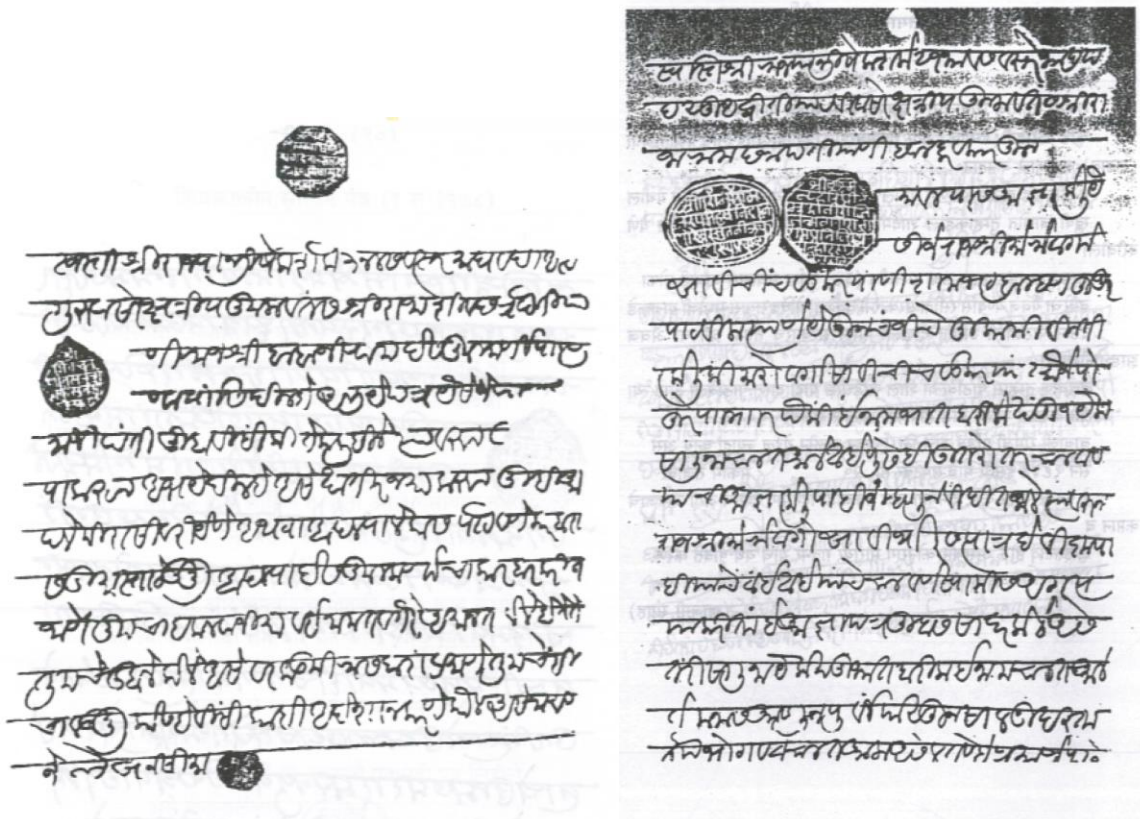


Figure.3 Shivakalin abhayapatra (1677), Chitnisi writing style in Modi-script and second letter of Chhatrapati Rajaram aadhyapatra (1695). (Dr. Madhukar R. Kulkarni, 2011)

3.3 Early Modi Printing

The earliest extant Modi document is dated to the early 17th century. While the majority of Modi documents are official letters, land records, and other administrative documents, the script was also used in education and other routine activities before 1950s. Printing in

Modi began in the early 19th Century after ‘Charles Wilkins’ cut the first metal font in 1807 for the script in Calcutta.



Figure.4 First Modi metal type face designed by Charles Wilkins (1807), (L.S. Wakankar (Editor) 1983, 1984, 1985 Caltis)

4. Comparison of Modi with Gujarati Script

There are 12 characters in Gujarati which is very similar to Modi-script. Gujarati script which like “Nagari” writing system, was adapted from the Devanagari script. It is a variant of Devanagari script differentiated by the loss of characteristic horizontal line running above the letter. (See Image 5)

Modi	Gujarati	Devanagari	
ઈ	ઈ	ई	e
ગ	ગ	ग	ga
ઘ	ઘ	घ	gha
ડ	ડ	ड	da
છ	છ	छ	cha
જ	જ	ज	ja
ઝ	ઝ	झ	nya
ઢ	ઢ	ढ	dha
ત	ત	त	ta
શ	શ	श	sha
ષ	ષ	ष	ssa
ક્ષ	ક્ષ	क्ष	shya

Digits

Modi	૦	૧	૨	૩	૪	૫	૬	૭	૮	૯
Gujarati	૦	૧	૨	૩	૪	૫	૬	૭	૮	૯
Devanagari	०	१	२	३	४	५	६	७	८	९

Figure.5 Comparison of Modi & Gujarati script, on first chart shows similar letter and in second chart shows digits in Modi & Gujarati script

5. Comparison between Modi and Devanagari script

Although Modi is based upon the same model as Devanagari, it differs of letterforms, rendering behaviors. The shapes of some consonants, vowels, and vowel signs are similar. The actual differences are visible in the behavior of these characters in certain environments, such as consonants-vowel combination and in consonant conjuncts that are standard features of Modi-script.

1) Some letters of Modi-script are like as Devanagari script having some differences as:

Ga ગ, gha ઘ, bha ખ, sa શ, ala ળ shows small difference, 'ta ત' has curved to the left, 'na ન' has solid note to the right, 'sha ષ' also has curved shape to the left, 'da ઢ' has curved shape.

Vowels			Consonants		
A	अ	अ	KA	क	क
AA	आ	आ	KHA	ख	ख
E	इ	इ/ई	GA	ग	ग
U	उ	उ/ऊ	GHA	घ	घ
AE	ऐ	ऐ	NGA	ङ	ङ
AI	ऑ	ऐ	CA	च	च
O	ओ	ओ	CHA	छ	छ
OU	औ	औ	JA	ज	ज
AM	अं	अं	JHA	झ	झ
AH	अः	अः	NHA	ञ	ञ
			TTA	ट	ट
			TTHA	ठ	ठ
			DDA	ड	ड
			DDHA	ढ	ढ
			NNA	ण	ण
			TA	त	त
			THA	थ	थ
			DA	द	द
			DHA	ध	ध
			NA	न	न
			PA	प	प
			PHA	फ	फ
			BA	ब	ब
			BHA	भ	भ
			MA	म	म
			YA	य	य
			RA	र	र
			LA	ल	ल
			VA	व	व
			SHA	श	श
			SSA	ष	ष
			SA	स	स
			HA	ह	ह
			LLA	ळ	ळ
			SHYA	क्ष	क्ष

ह	द	ज	न
ह	द	ज	न

Figure.6 Vowel and Consonants in Modi-script, similar character of Modi and Devanagari script showed in yellow color. Difference between 'ha ह', 'da द', 'ja ज' and 'na न' showed in second chart.



Figure.8 Joining ookar shows character remains same but in second image character totally changed in Modi-script

6. Revival of Modi-script

This paper is first in the series of the larger project that aims to revive the Modi-script and which would entail the development of fonts, creating instructional books, website, and electronic documents for learning the script.

Developing the font will be based on the following pointers

- 1) Studying the social and cultural context of Modi-script
- 2) Identifying the major influencing factors that led to the formal changes in the characters
- 3) Comparison with the existing Devanagari fonts
- 4) Standardizing the Modi-script characters

The existing Modi fonts (e.g. ModiGhate, Hemadree etc.) are designed as a calligraphic script. Calligraphic style high on the aesthetic and formal quotient has limitations of readability and especially in becomes smaller point size. For the font to be effective this balance between the readability and aesthetics has to be achieved. This paper proposes how this balance can be achieved and making the font suitable for digitization and new age media. Among all the styles the “Peshwa” era “Chitnisi” writing style has highly refined aesthetic elements and the paper will use this style as the reference.

7. Aesthetic Parameters of Modi font designing

Although Modi is based upon the same model as Devanagari, it differs of letterforms, rendering behaviors. The shapes of some consonants, vowels, and vowel signs are similar. The actual differences are visible in the behavior of these characters in certain environments, such as consonants-vowel combination and in consonant conjuncts that are standard features of Modi-script.

After studying old manuscript of Modi with different writing styles of ‘Bahamani, Chitnisi, Peshve, Anglakal and 19th, 20th century’, it leads me to fix on certain type design parameters, which helped me to design modi font. It includes ‘structural guidelines, letter nomenclature and variations’.

Based on research of forms and guidelines fixed the parameters as: 1) Large Kana -height
2) Big counter space

7. 1 writing style of one letter in various ways in Modi and its standardization

There are many letter form can be write in various or different ways (See Image 11). As shown in below (See Image 11) image in yellow color I have attempted to propose standardization for the Modi script on the basis of character, weight, and look.

जु -	अ	ग	गि	गि
ली -	री	उ	उ	उ
खा -	ख	ख	ख	ख
स -	स	स	स	स
च -	च	च	च	च
कु -	कु	कु	कु	कु

डी - डी डी डी डी
 लु - लु लु लु लु
 ला - ला ला ला ला
 सा - सा सा सा सा
 गु - गु गु गु गु
 गुरु - गुरु गुरु गुरु गुरु
 ढ - ढ ढ ढ ढ
 आ - आ आ आ आ
 ख - ख ख ख ख
 मु - मु मु मु मु
 ण - ण ण ण ण
 थु - थु थु थु थु

Figure.11 Writing one character in various ways in Modi-script and marked yellow I've standardized for font design (Rajesh Khilari, (2008))

8. Proposed Modi font design process

8.1 Structure

After studying some fonts like ModiGhate, Hemadree, earlier designers designed the font in calligraphic style, which does not seem to fulfill the requirement of digitization. This understanding helped me to decide proportion of stroke width, character height, and optical balance, positive and negative space, as consideration to satisfy design for a digital output.

After analyzing various existing writings and manuscripts of Modi, I could developed suitable character styling, writing flow, proportion of individual letter, word and line spacing, stroke variation, starting and end-point, joineries, inner and outer counter space for the proposed new Modi font.

After much deliberations substantiated by research and I concluded to go ahead with a mono-linear font which has large counter space and large kana-height for better readability.

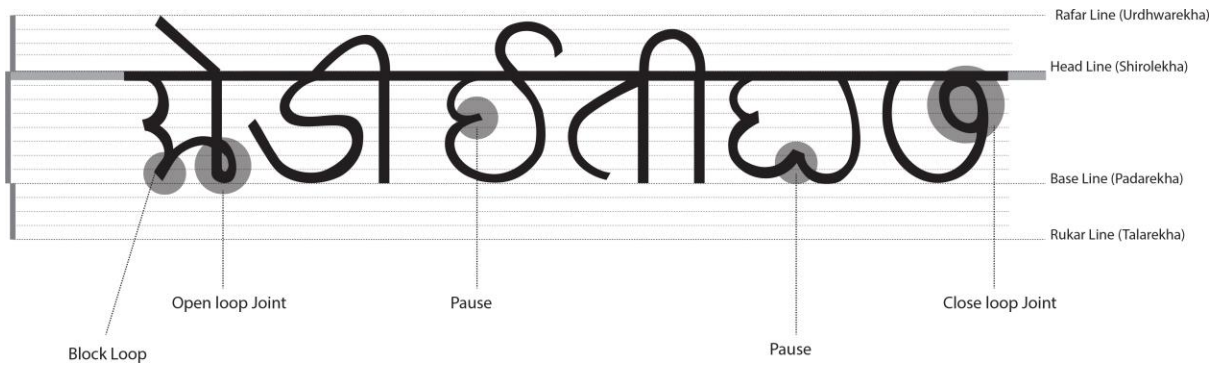


Figure.12 Proportion of Proposed Modi font design

8.2 Initial sketches

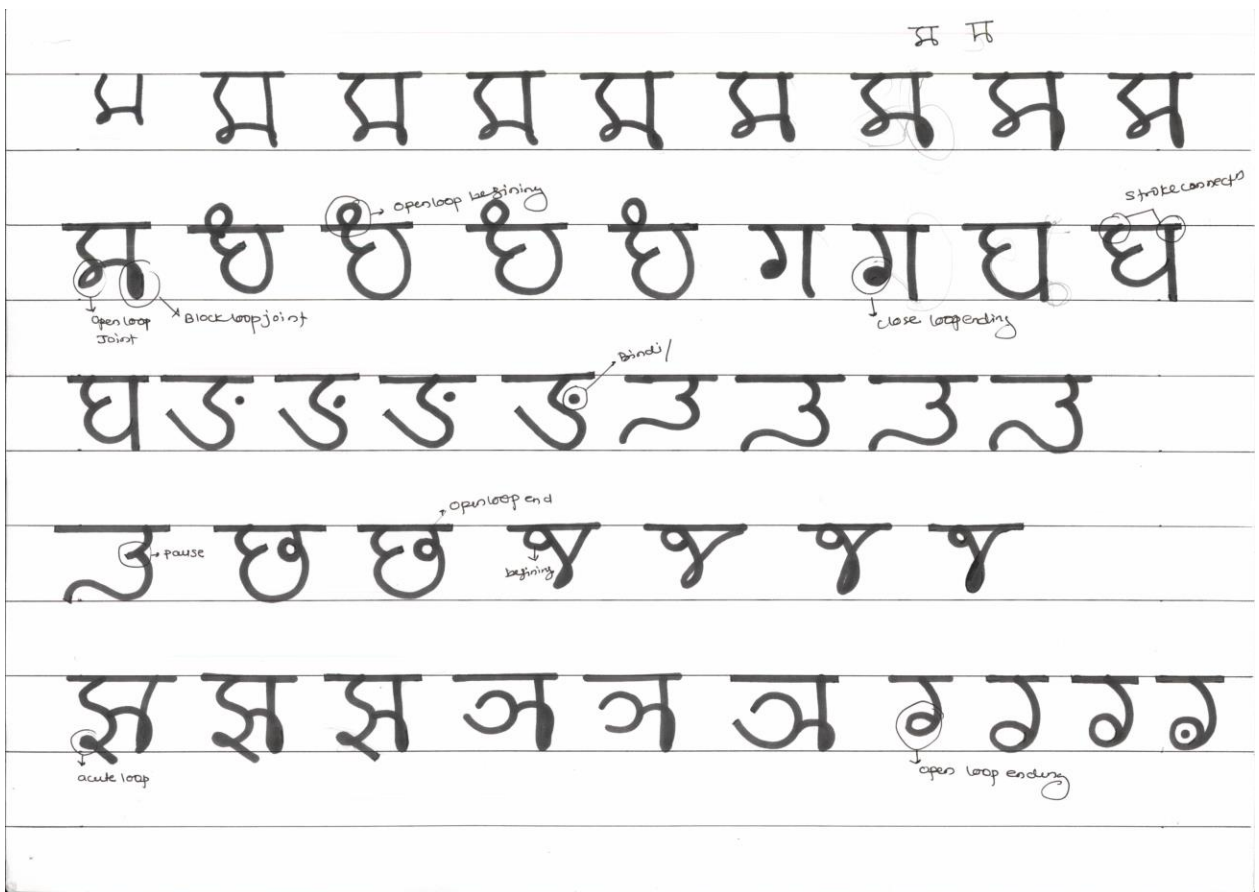


Figure.13 Initial explorations to understand the different knot & loops

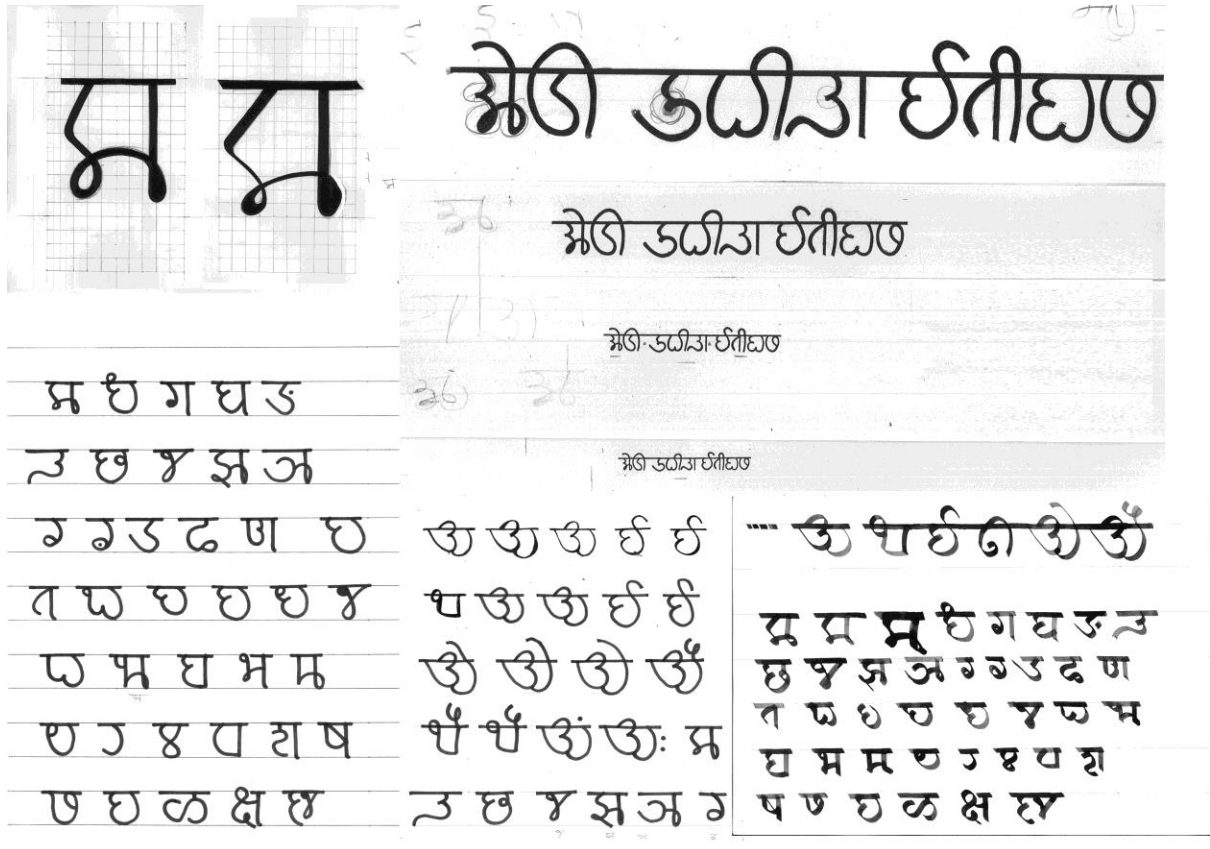


Figure.14 Initial explorations on paper for designing font

8.3 Designing Key Character set



Figure.15 Key character set designed in Font lab



Figure.17 Refined characters

8.6 Comparison with existing font in Modi

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Figure.18 Comparison with existing font & checking gray value

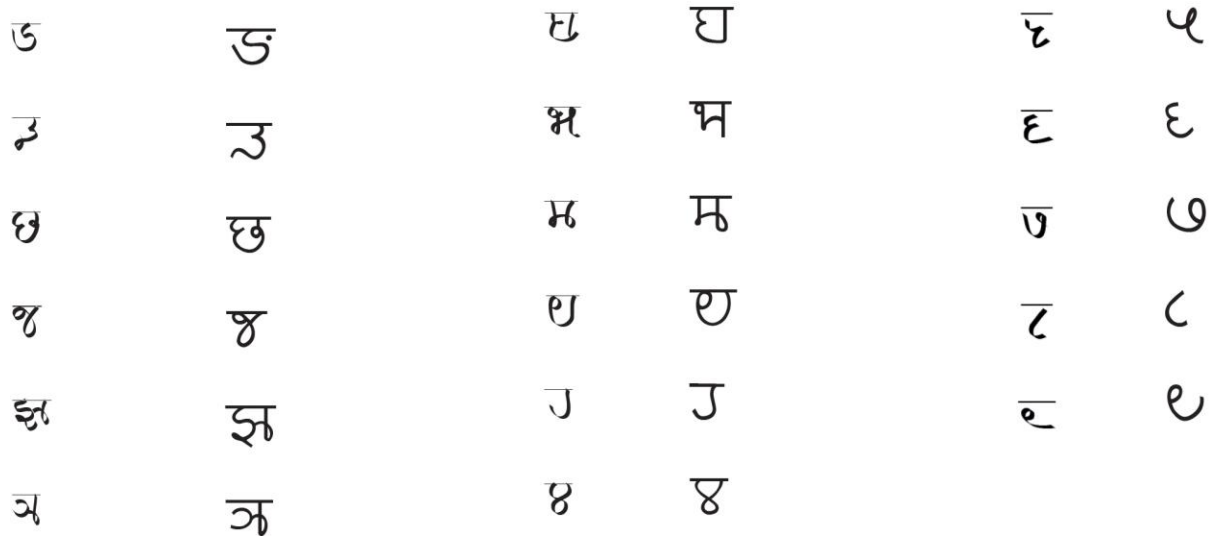


Figure.19 Comparison of basic Modi characters with 'Hemadree' font by Somesh Bartakke and the font designed by me

9. Challenges

This font is designed that Modi-script can be used, and interested people can learn the script. Structure and form of the character is given importance to ensure better digitization. The intended use of this script is for an instructional book to learn Modi-script, to support the Unicode proposal and for documenting Modi-manuscripts. Definitive steps need to be taken to ensure that the original script is presented in its simple and authentic form.

10. Conclusions

The paper discussed the growing interest in Modi-script and hence the importance of reviving it. There is a need among the design professionals, researchers and students to understand the script better so that the rich heritage and cultural treasure available in this script is efficiently organized. Such revival will bring to fore the varied facets of the script and reintroducing a forgotten hue of the colorful culture of Maharashtra to today's generation. The approach was to go back to the basics and understanding the various communication systems, materials, past events and scripts that have influenced Modi-script.

There are many documents available in various institutions and organizations. However, further reproduction and transmission is difficult in absence of a standardized font across the platforms and media. There is a need for books and study material for learning Modi-script which also needs an easy to understand, legible and readable font so that books can

be written and designed for this purpose. This new font will enable such activities to be taken up and this is one of the future directions for this project. My work so far, as a type designer shared in this paper is a humble effort to encourage young designers to choose this field as a specialization and contribute in continuing the rich tradition and heritage of India.

Acknowledgement

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