

P2 Project Report

Devanagari Display Font

Project by:

Vedang Pathre
216450004

Project Guide:

Prof. Prasad Bokil

Approval Sheet

This project report entitled “Devanagari Display Typeface” by Vedang Pathre, 216450004 is approved for partial fulfillment of the requirements for Masters of Design Degree in Communication Design.

Project Guide: Prasad Bokil



Internal Examiner:

Chairperson:

External Examiner:

Date: 18/11/2022

Place: Mumbai

Declaration

I declare that, this written submission represents my ideas in my own words and where others' opinions or words have been included, I have adequately cited and referenced the sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated any idea/data/ fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been appropriately cited or from whom proper permission has not been taken when needed

Name: Vedang Pathre

Roll no: 216450004

Date: 18/11/2022

Acknowledgment

I want to express my sincere gratitude to My Guide, **Prof. Prasad Bokil** for his invaluable advice during the project.

I Thank all the professors and jury members for their comments and feedback following each presentation. **Prof. G. V. Sreekumar** whose valuable guidance, insights and encouragement helped me through this project.

I'd like to express my gratitude to all of my closest friends and **fellow graduates** who gave their time to help me with this project with their relentless motivation and support.

This project would not be possible without my college, **IDC School of Design**, IIT Bombay, and people associated with it. I hereby, thank all faculty members, administrative staff, mess workers, shopkeepers, and delivery guys inside the campus.

Abstract

A imbalance can be seen in the availability of fonts for the Devanagari script as compared to the latin script. The disparity increases when we narrow this down to Display fonts. It is essential to create newer fonts specifically for the Indian context so that the script can win the graphic design community and meet the demand for creative type design applications in a native script.

We can observe a gap in the typefaces used by newspapers for their headlines, where a space efficient font can help with the layout and other need by publication houses, as pointed out by prof. G. V. Sreekumar. This project aims to create a open source Devanagari display typeface for the primary application in news paper headlines.

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Introduction

The evolution of Devanagari typefaces has taken over centuries with the changing aesthetics of times, limitations set by various methods, desires, need and with culture as context. Methods of reproduction has a great impact on Devanagari typefaces* (read about it more [here](#))

1.2 learning Objective

This project was an undertaking to better understand and experience the font design process and the man learning that comes with it. To get a closer understanding of the logic and construction behind typography, foster a critical eye for shapes and spacing, and a deeper understanding of how typefaces work, all skills critical to both type design and typography. The interaction between the abstract elements of positive shape and negative space

1.3 Aim

The aim of this project is to design a Devanagari display font. It is an attempt to create a condensed bold font with its intended primary usage being newspaper headlines.

Devanagari Script

The script has been an integral part of the visual system in the many geographical cultures across the northern Indian subcontinent. It is an alpha-syllabic script with a notable feature being the letters hanging from a horizontal stroke.

It is a descendant of the Brahmi script and currently is the 4th most widely adopted writing system, used for over 120 languages, Hindi, Marathi, Nepali to name a few.

Devanagari is a compound of “deva” (देव) and “nāgarī” (नागरी). Deva means “heavenly or divine” Nagari comes from नगरम् (nagaram) a Sanskrit word which means town. Hence, Devanagari denotes from the abode of divinity or deities

The Devanagari Script in its traditional form consists of 16 swaras (vowels) and 36 vyanjana (consonants).

अ आ इ ई उ ऊ
ऋ ॠ ऌ ॡ
ए ऐ ओ औ
क ख ग घ ङ
च छ ज झ ञ
ट ठ ड ढ ण
त थ द ध न
प फ ब भ म
य र ल व
श ष स ह

*Devanagari script
(vowels top, consonants
bottom) in Mukta font*

Devanagari Anatomy

The Devanagari script can be intimidating due to its extensive and limitless cast of characters, numerous moving parts, and intricate shapes. To bring order to its chaos S.N.Bhagwat did the first graphical analysis on handwritten text. He created a scheme for anatomy and divided letter forms into categories based on their construction and shape. Later Bapurao Naik categorized the letters based on various strokes and their interaction with the 'kana'. Mukund V. Gokhale further tried to formalize the anatomy, by defining various vertical metrics. These Metrics are not meant as compulsion but rather a reference for the design process.

Further to his 2009 paper, Anatomy of Devanagari Typefaces, Girish Dalvi has created a scheme for Devanagari letter parts and anatomy. In his paper, he points out that a previous scheme by Mahendra Patel is specific to a particular style of typeface; Dalvi tries to rectify that. For example, he not only defines parts like "knot," but also offers options for how it could be represented: open, closed, or filled, much the same way a serif can be bracketed, wedge, hairline, etc. Several terms, such as contrast, axis, terminal, and counter have been borrowed from Latin type anatomy, which makes the scheme easy to use in multi-script settings. (summary by Pooja Saxena)

For this report we shall use the terminologies as specified by the conceptual model proposed by Girish Dalvi.

of consonants and hence the vowel-sign for अ is not shown.

GRAPHIC CLASSIFICATION OF DEVANAGARI

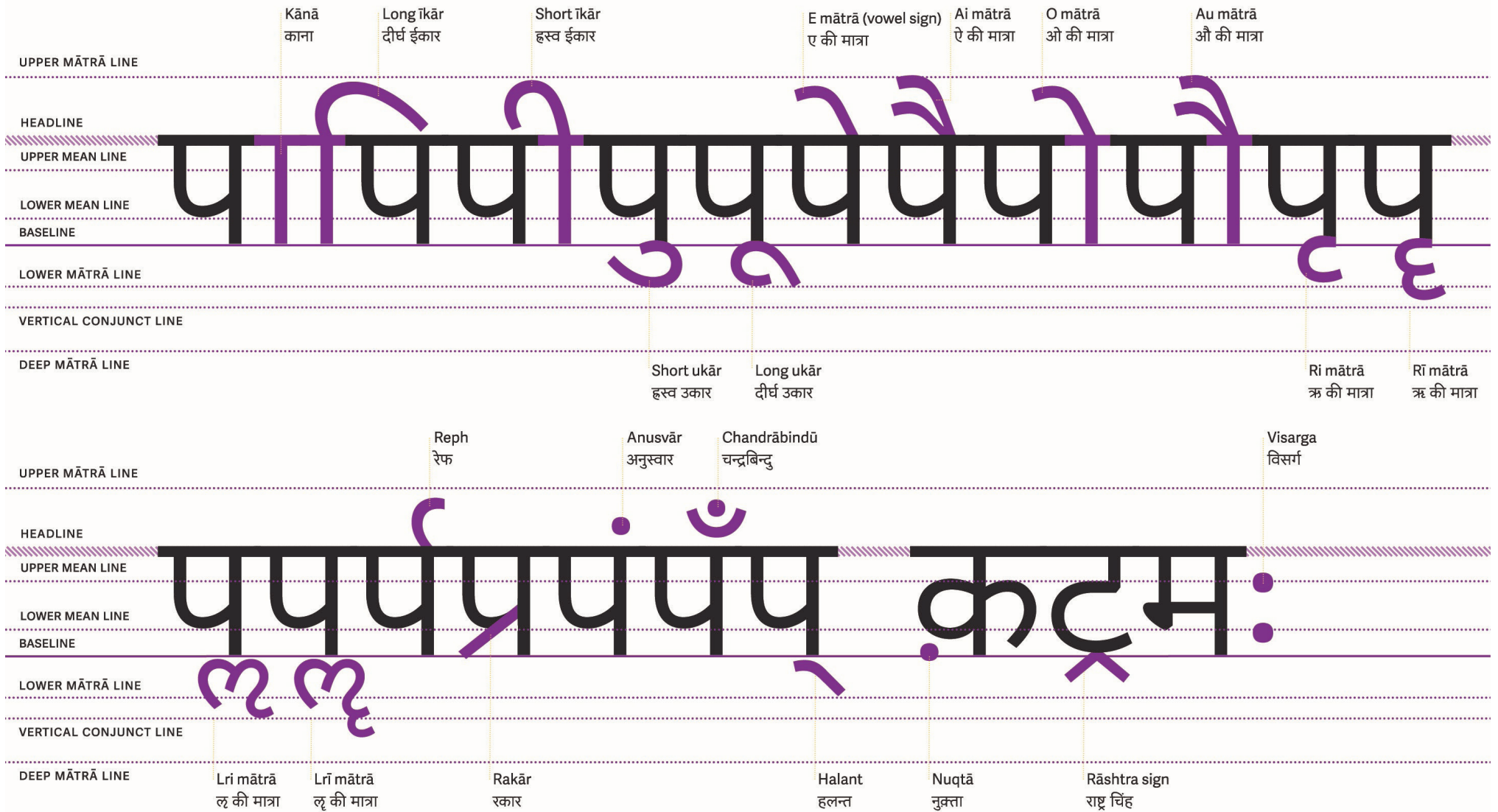
125. The vowels and consonants can be classified graphically under five groups based on the position of the *Kānā* or the verti-bar :

Table 35 : Graphic Classification of Devanagari Varnas

	Vowels	Consonants	
Group 1	letters with full verti-bar attached (अंत्यदंडयुक्त)	20	
	अ	ख घ च ज झ त थ ध न प ब भ म य व ष स क्ष ज्ञ	
Group 2	letters with full verti-bar detached (अंत्यदंडयुक्त)	3	
	ग ण श		
Group 3	letters with a short-bar (अल्पदंडयुक्त)	14	
	उ ऊ लृ लृ ड छ ट ठ डढ द ल ह ळ		
Group 4	letters with a central-bar (मध्यदंडयुक्त)	4	
	ऋ ॠ क फ		
Group 5	letter without a bar (दंडरहित)	1	
	र		

The inherent vowel अ, as stated in para 126 below, is represented by the verti-bar, which is present in full form, on the right, in the first and the second groups of consonants. In the third group it takes a form of a small joint to the head-line and can be called a 'quarter verti-bar'. In the fourth group, the verti-bar cuts through the consonantal grapheme

Img 1. Naik, Bapurao S. *Typography of Devanagari*, vol. 1 Bombay: Directorate of Languages, 1971, p. 176. Courtesy of Vaibhav Singh.



Img 2. Vowel and other signs used in Devanagari, shown in Adelle Sans Devanagari by Pooja Saxena



Img 3. Common terms for Devanagari anatomy and vertical metrics, shown in Adelle Sans Devanagari. by Pooja Saxena

Display Type

A display typeface is one that is used in bigger sizes, they are meant to grab the users attention and to ass

Display Fonts are designed primarily for heads. They usually have complex forms or extreme proportions which become tiresome for reading in large quantities. Display fonts are like garnish and spice for the meat and potatoes of basic body text. (Lupton, 2014, 18-19). They are made to grab reader's attention and to add to the character/mood of the written text. These types of fonts are not suited for sizes below 14 points.

Sarang Kulkarni, in his paper 'Issues with Devanagari Type' Highlights the inadequacies of existing display typefaces in Devanagari script, such as lack of overall consistency in letter-form construction, overall form and stroke consistency, incorrect letter-form construction, ambiguity in letter shapes, etc

Fonts in use

Current fonts used to set Headlines in Popular Newspapers in Devanagari (Hindi and Marathi) . A majority of these fonts are either custom made or modified versions of existing fonts.

कस्तुरबात गोवरची ५० बालके व्हेंटिलेटरवर; दोधे चिंताजनक विनयभंगाचा गुन्हा दाखल होताच आव्हाडांचा आमदारकीचा राजीनामा जगाची लोकसंख्या आता ८०० कोटींवर

भारत सर्वाधिक लोकसंख्येचा देश म्हणूनही पुढील वर्षीपासून ओळखला जाण्याची शक्यता.

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www.lokmat.com
epaper@lokmat.com

वाचकांच्या पहिल्या प्रतीचे
मराठी राष्ट्रीय दैनिक
लोकमत

हुरश.. अखेर
महागाई झाली कमी
पत्र ११

जगाची लोकसंख्या आता ८०० कोटींवर

नवी दिल्ली । जगाची लोकसंख्या आज ८०० कोटींवर पोहोचली आहे. हा पायावर अंदाजित केलेल्या अंदाजावरून अंदाजित केले जाते. अंदाजित केलेल्या अंदाजावरून अंदाजित केले जाते. अंदाजित केलेल्या अंदाजावरून अंदाजित केले जाते.

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संतापजनक, लिव्ह-इन पार्टनरचा खून, ३५ तुकडे करून फ्रीजमध्ये ठेवले

अभिनेते सुनील शेंडे यांचे निधन

जगात सर्वाधिक लोकसंख्या असलेल्या देशांमध्ये भारतही एक आहे. जगात सर्वाधिक लोकसंख्या असलेल्या देशांमध्ये भारतही एक आहे.

जुन्या पेट्रोल व डिझेल वाहनांवरील बंदी हटविली

प्रदूषणाचे प्रमाण कमी : दिल्ली सरकारचा निर्णय

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राहुल गांधी यांनी समजून घेतल्या तरुणांच्या समस्या

राहुल गांधी यांनी समजून घेतल्या तरुणांच्या समस्या. राहुल गांधी यांनी समजून घेतल्या तरुणांच्या समस्या.

बळजबरीने होणा-या धर्मांतरामुळे देशाच्या सुरक्षेला गंभीर धोका

सर्वोच्च न्यायालयाचा इशारा, रोखण्यास उपायांची माहिती देण्याचे केंद्राला निर्देश

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केंद्राला दिलासा : ऑक्टोबरमध्ये ६.७७ टक्क्यांवर महागाई सात टक्क्यांखाली

सकाळ न्यूज नेटवर्क

नवी दिल्ली, ता. १४ : किरकोळ आणि घाऊक महागाईमध्ये घट झाली झाली असून तीन महिन्यांत

किरकोळ महागाईवाढ

ग्राहक किंमत निर्देशांकावर आधारित

२७.७९ ०.४ ४ ० ३.४९

घाऊक महागाई
दरही नीचांकी

ते शातील घाऊक किंमत आधारित

जगाची लोकसंख्या आता ८०० कोटींवर

विनयभंग केल्याचा गुन्हा दाखल ; राष्ट्रवादी आक्रमक

आव्हड राजीनाम्यावर ठाम

भूमिका पटवून देण्याचे निर्देश त्र्यंबकेश्वर सशुल्क दर्शन सक्तीचे नाही!

लोकमत

बळजबरीने होणाऱ्या धर्मांतरामुळे देशाच्या सुरक्षेला गंभीर धोका

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लोकमत

अधिकाऱ्यांना मुंबईत आणून क्रीम पोस्टिंग देण्याचा सपाटा

पोलीस दलात नवा गडी नवं राज्य

Samples of headlines form popular marathi newspapers (Sakal, Lokmat, Maharashtra Times, etc)

Monolinear vs Modulated

A majority of the newspapers use modulated fonts for the body text which makes a bold monolinear font a good pairing option for headlines along Devanagari typefaces are differentiated into monolinear and modulated. The roots of the modulated text lies in early manuscripts, which use calligraphy by various tools, resulting in varying stroke-widths, they reflect discipline, convention and tradition. Monolinear type is much cleaner and Crisp as it tends to be perceived visually as having a uniform stroke width .

Consideration should be given to the newspaper's typeface economy. Readers are exposed to a variety of sources to obtain a single piece of information or news as a result of the quick development of technology and the ease of familiarity with digital media. Reading the newspaper online or on a digital device like a tablet or phone saves a lot of money and time. The print media economy has been impacted by this. The price of a newspaper, the number of pages, the articles it contains, how it is designed, how much advertising it contains, and other factors all have an impact on the newspaper industry. Therefore, it is crucial to evaluate the effectiveness of text. type to accommodate maximum content in lesser space.

As we can see in the examples of current headline typefaces, the monolinear typefaces offer the best use of space, offering legibility in a Narrow form-factor.

Design Process

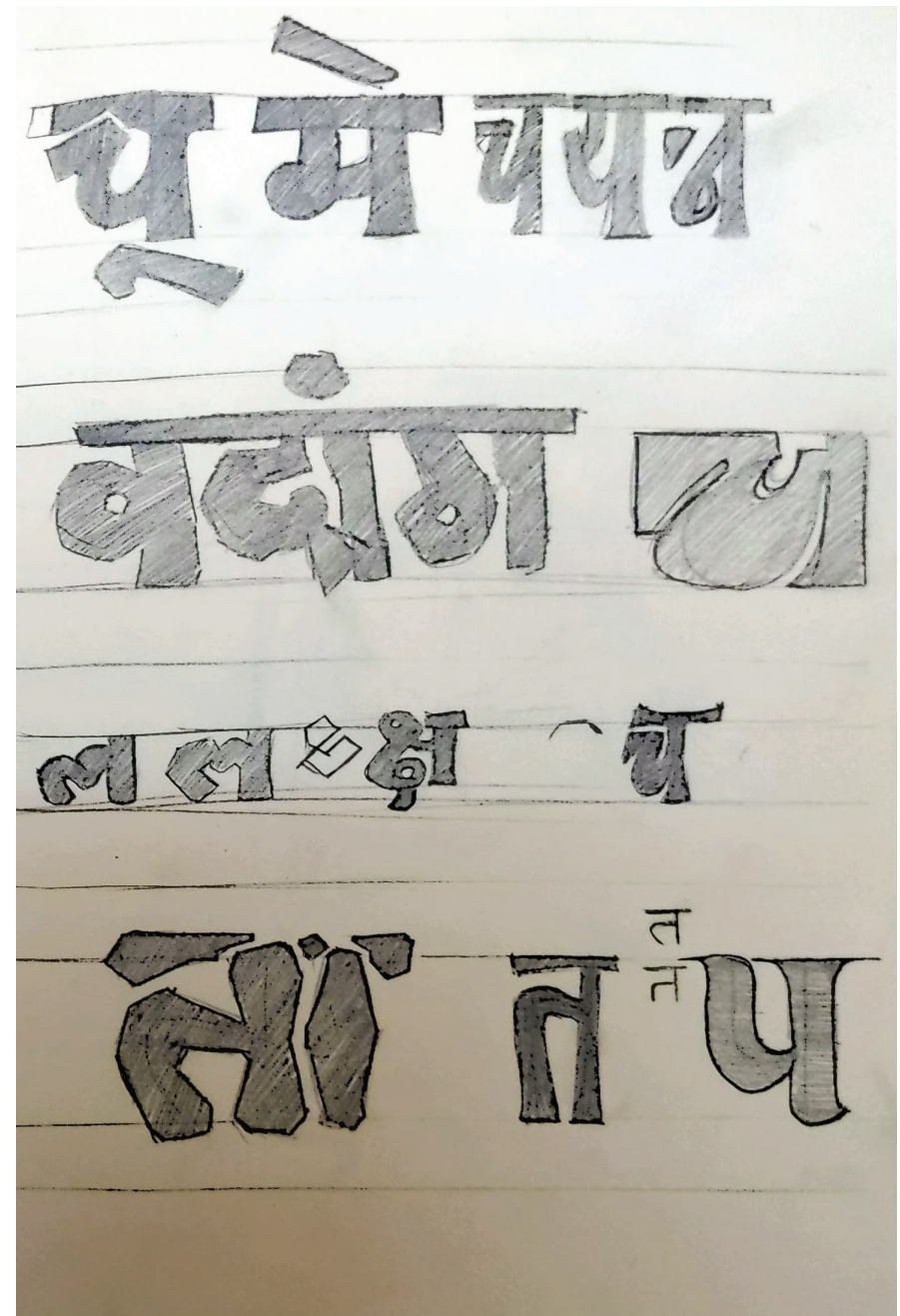
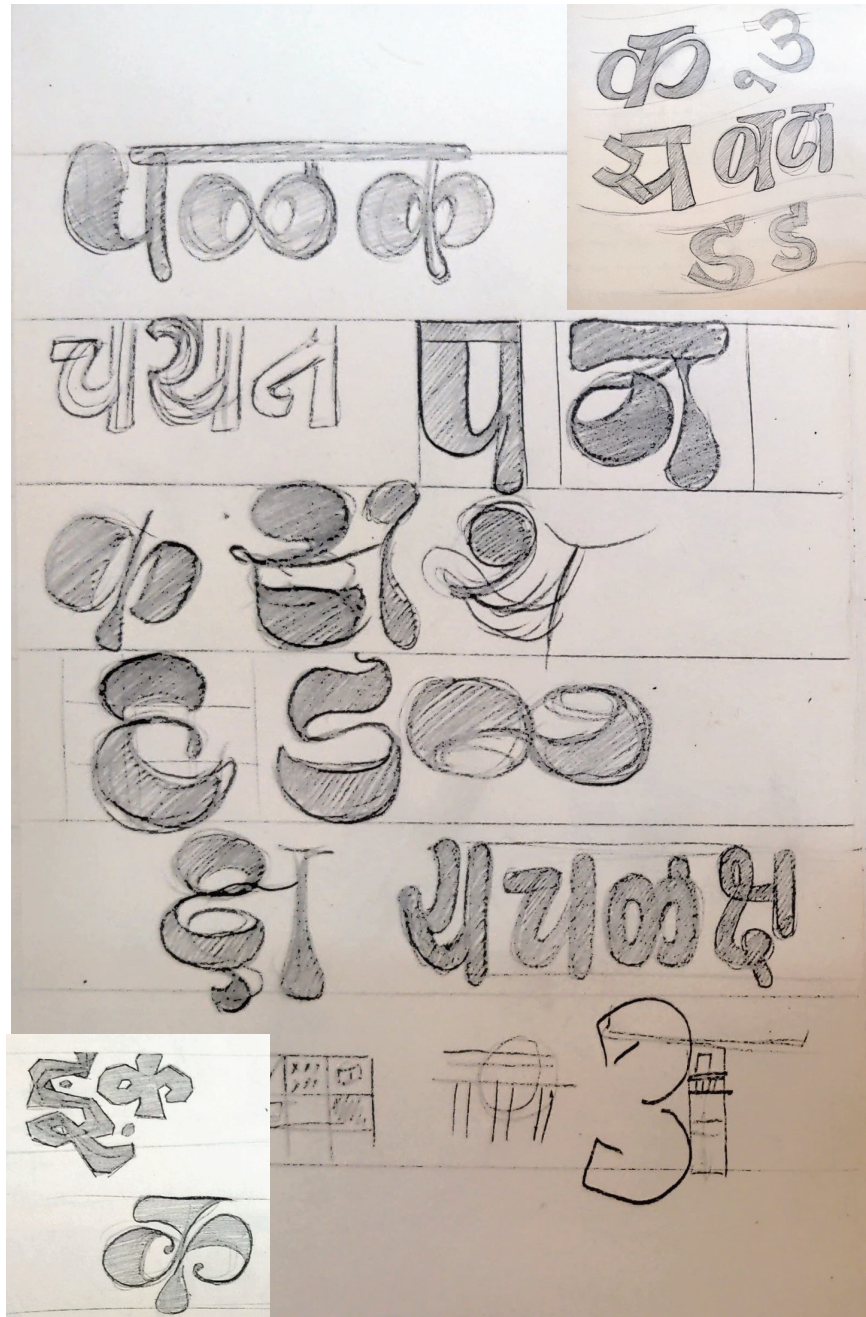
1. Form Exploration

Exploring extreme possibility by sketching characters with parameters and styles

क क म अ स व र

इ क न
र य
अ ए क्ष

इ क न
र य
अ ए क्ष



2. Tool exploration

Explorations with a flat brush to recreate the effect of a monolinear font. and creating words trying to maintain a style and exploring possible variations or different characters.

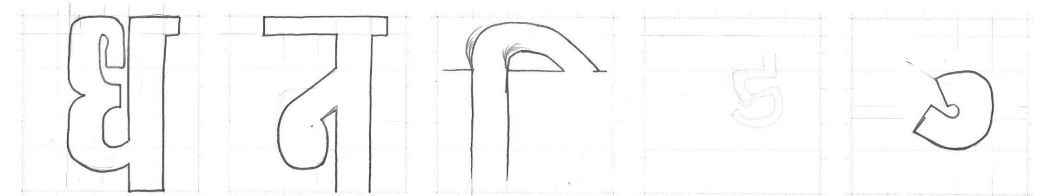
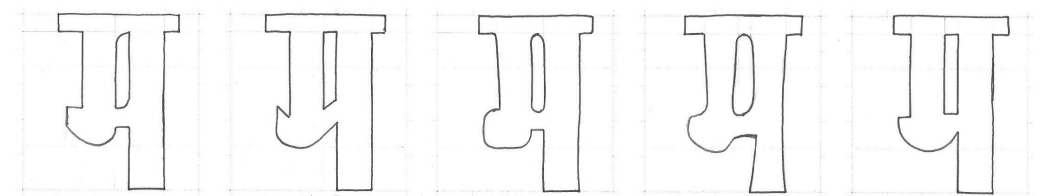
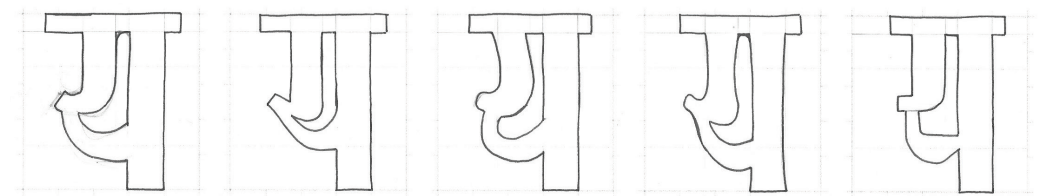
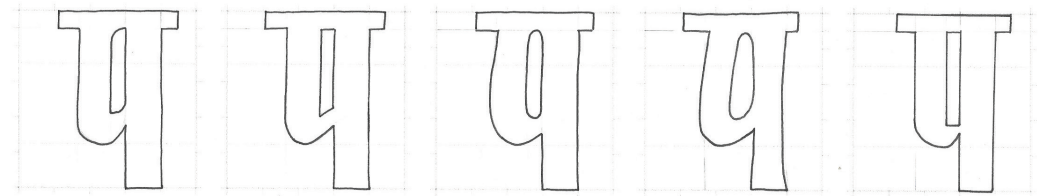
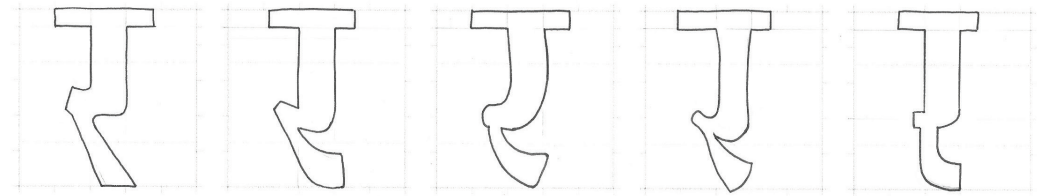
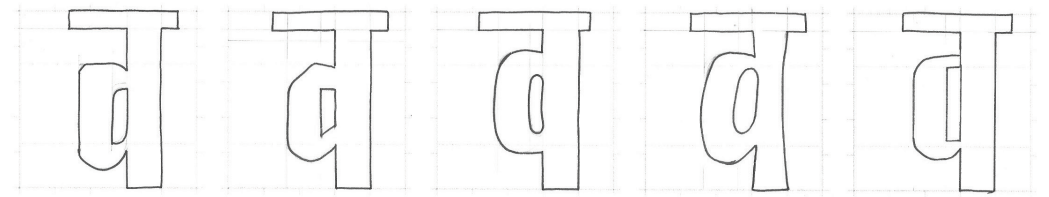
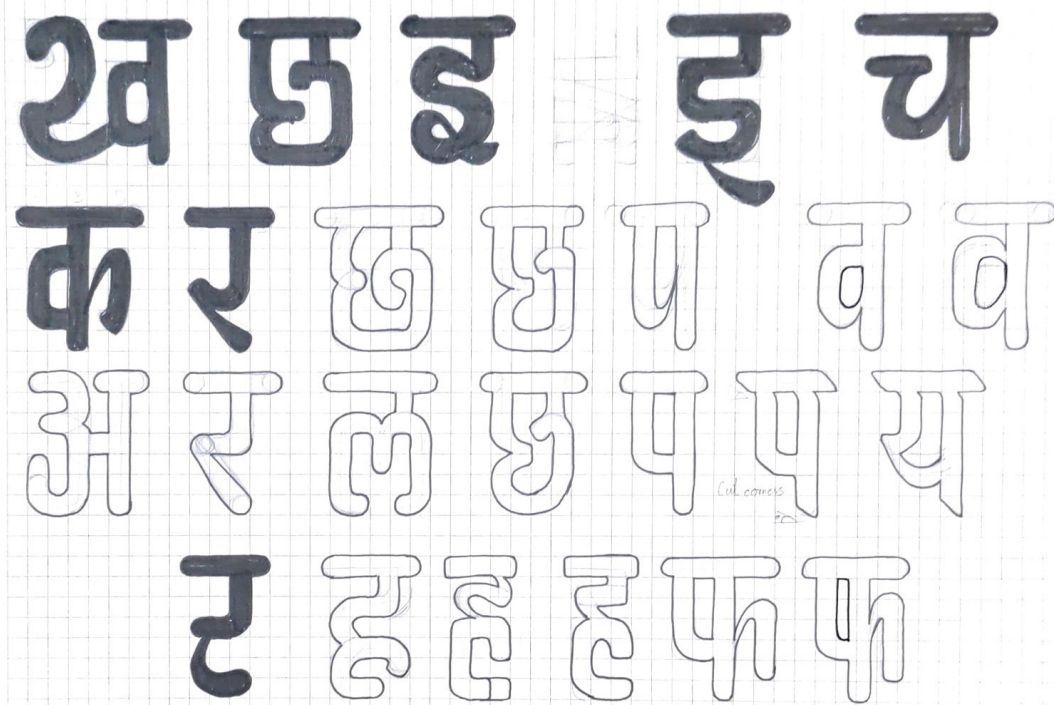
क इ इ इ इइज र
ए ए चचच च। च इ
फ छ इ ढ ढ थ थ पप क
स स स स म म म

युवतीच यवत च यवताच
यवतीचा यवताच चच चच
यवताचा यवताच ववव वव व
यवतीच यवतीच यवताच

सहभागासह नादला नव शा शा श
विक्रातचा ववव ललल ययय
सहभागासह सहभागासभ य स
स स भ भ य य यचचन न न न

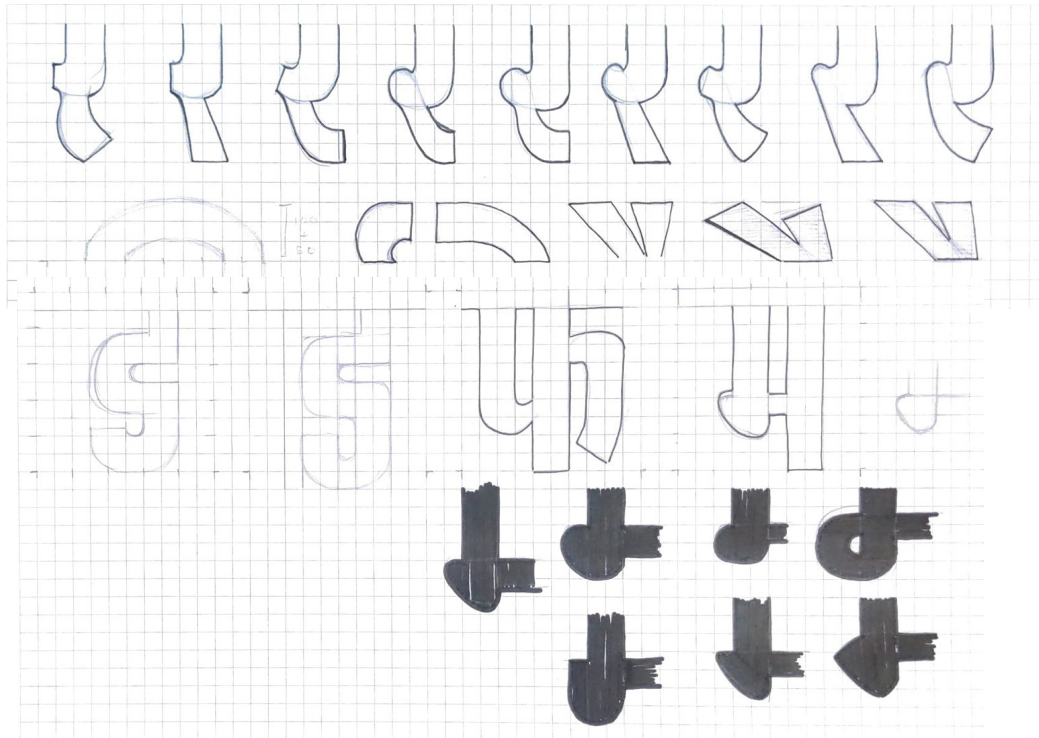
3. Style Explorations

Exploring different styles across a set of letter, this exercise helped me get a better sense of anatomy, and factors that help maintain visual consistency in a typeface.



4. Sketching letters

Piecing together desirable elements from the explorations and trying to create homogeneous letter sketches



5. Root letters

Root letters are a set of characters that contain key elements of all the characters of a typeface

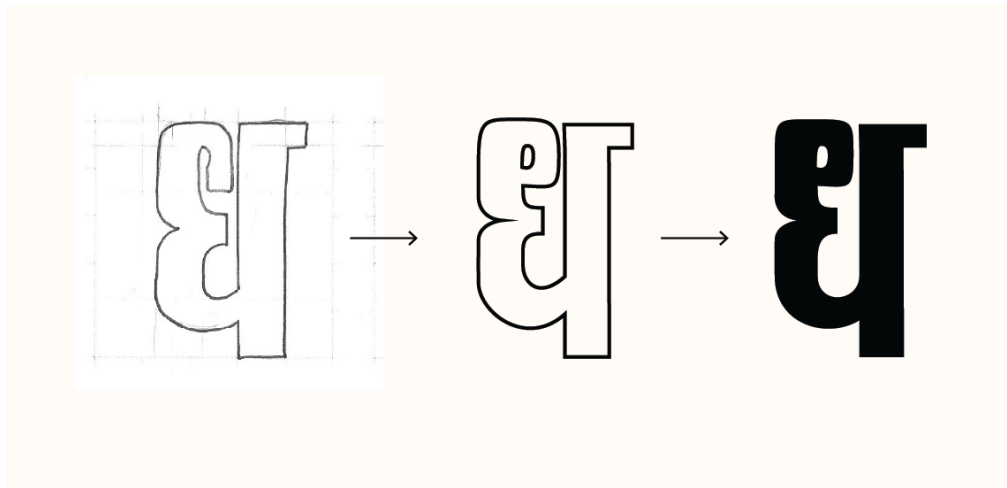
This grouping method by visual similarity is influenced by Bhagwat's method

Developing the root letters help define the typeface and speed up the process of creating the derivative letters. Defining the key elements help give character to the characters.

अ	अ आ ओ औ उ ऊ अं
इ	इ ई झ ह
क	क ऌ व ब
म	ग म भ न
प	प फ ष ण
ढ	ट ठ ढ द
ध	च ज ञ घ ध छ
र	र स श
थ	य थ ख श
ल	त ल

6. Vector Drawing

Using the sketches as references, I traced it out in fontlab. After getting a hang of the software. I managed to improve on the irregularities of the hand drawings.



Variation of knots tried in ध

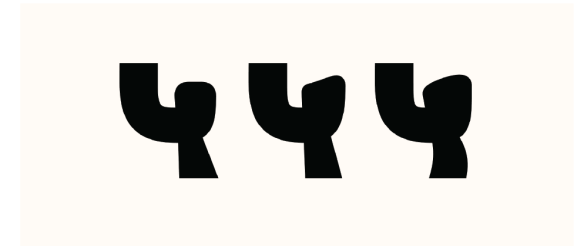
6.1. Loops and Knots

Determining the primary blocks helps us to maintain the consistency in the typeface. It also helps in construction of every individual letters.

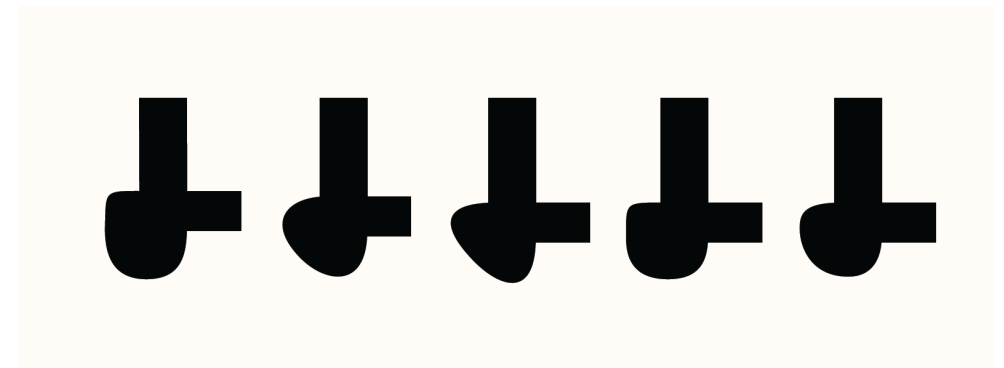


Variation of loops tried in ध

Variation of knots tried in द



Variation of knots tried in म



अ अ ल ल प प
भ भ भ र र र
ड ड ड क क क

References

Yashodeep Gholap, Designing a Devanāgarī text font for newspaper use

Sarang Kulkarni, Issues with Devanagari Display Type

Dalvi, Girish. Conceptual model for Devanagari typefaces

Classification of Devanagari Display Typefaces, and finding scope for novelty

Web

www.typotheque.com

www.dsource.in

www.motaitalic.com

www.type-together.com

Fonts Used

Open Sans

Bitter

Mukta

