



## Title Sheet

Introducing Devanagari Calligraphy  
to Undergraduate Design Students

Submitted in partial fulfillment of the requirements  
of the degree of Master in Design

by

Kailash Haibati Gharat  
(Roll No. 126254001)

Supervisor (s):

---

---

Industrial Design Centre  
INDIAN INSTITUTE OF TECHNOLOGY BOMBAY  
2013

## Approval Sheet

This report entitled (Introducing Devanagari Calligraphy to Undergraduate Design Students) by (Kailash Haibati Gharat) is approved for the degree of Master in Design.

Examiners

\_\_\_\_\_ *Dr. Prakash* (External)  
\_\_\_\_\_ *SUMESH* (Internal)  
\_\_\_\_\_ *M. K. K. (Guide)*

Supervisor (s)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Chairman

\_\_\_\_\_ *M. K. K.*

Date : \_\_\_\_\_

## Declaration

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified 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 properly cited or from whom proper permission has not been taken when needed.

A handwritten signature in black ink, appearing to read 'K. Gharat', is written over a horizontal line. The signature is stylized with a large loop at the beginning and a long horizontal stroke extending to the right.

(Signature)

Kailash Haibati Gharat

126254001

Date: Nov 13th, 2013

## Acknowledgements

Prof. G. V. Sreekumar  
Prof. Girish Dalvi  
Prof. Raja Mohanty  
Prof. Sudesh Balan  
Prof. Ravi Poovaiah  
Prof. Santosh Kshirsagar  
and  
Shri Achyut Palav  
Master Calligrapher and Designer

# Contents

Abstract.....	7
Introduction.....	8
Background.....	9
Related work by	
<b>1. Shri Bapurao S. Naik.....</b>	<b>10</b>
Typography of Devanagari vol. 1 & 2	
Directorate of Languages, Bombay,1971	
<b>2. Prof. R. K. Joshi.....</b>	
Calligrapher and Designer	
<b>3. Script Research Institute.....</b>	<b>12</b>
CALTIS (Calligraphy, Lettering, and Typography of Indus script)	
<b>4. Shri Achyut Palav .....</b>	<b>13</b>
Calligrapher and Designer	
`Aksharanubhava` a book on Devanagari Calligraphy	
<b>5. Shri Mukund Gokhale.....</b>	<b>14</b>
Art director,	
Institute of Typographical Research, Pune Pune	
Devanagari Calligraphy and its Important.....	15
The `O` Form.....	16
Letter Proportion.....	18
Writing Sequence.....	19
Devanagari Terminalogy.....	20
Strokes by Colour Separation.....	21
Strokes by Strokes writing.....	23
Pen strokes Exercise.....	24
Devanagari Proportions by Experts.....	26
Calligraphic Explorations.....	27
Learning from Aksharnubhana.....	34
References.....	39

## **Abstract**

The report presents the importance of Devanagari Calligraphy, basic writing sequence of the script, proportion and character of the alphabets. Devanagari Calligraphy is highly appreciated in the history of writing. Learning historical hands is a method of training the hand and eye, rather than a final destination in calligraphy. This study is especially made for the undergraduate students of art and design field.

I tried to explain the writing sequence of Devanagari calligraphy, analysis of Devanagari letter design. The graphic

scrutiny of the Devanagari letters will bring out important aspects of the letter design.

The content of the report provides the perfect start for your journey into the field of calligraphy, with everything from the history of this art form to in-depth instructions on creating each letter of each featured alphabet makes the process of learning Devanagari calligraphy easy simple and enjoyable for aspiring artist, designers and other all interested students in the field art and design.

## Introduction

In the present generation, in the age of computers, mobile phones and very latest i-pads, opportunities to write by hand are quickly diminishing. When we talk about handwriting, then we realise lack of practice because of all this technical devices we are losing personal touch.

Technology is good in development but some cases its failed to maintain connectivity with our skills such as writing by hand. When it comes to calligraphy, many of us even may not know what it is, in this report I have tried to explain about art of writing “Calligraphy.

Although we live today in a high tech world, calligraphy is still relevant today. The recent upsurge in the popularity reflects the fact that designing and making things by hand is an intrinsic part of our creative nature. Writing is a long, complex history.

In ancient age writing has expressed thought and feeling in a personal way and in a variety of media, inscribed on clay, tablets, carved on stones, written

with reed pen on tadapatra, palm leaf. Though calligraphy today is continually pushing forward the artistic boundaries, the raw material remain the letter form of the past and an appreciation and understanding of the rich cultural heritage is important.

Calligraphy continues to be used today in graphic design, logo design, maps, menus, greeting cards, invitations, legal documents, diplomas, poetry, business cards and handmade presentations. The digital era has facilitated the creation and dissemination of new and historically related fonts; thousands are now in use. Calligraphy itself gives unique expression to every individual letterform, not possible with typeface technologies no matter their sophistication. The calligraphic art is no longer just about literal reproduction of historic and religious text. Written forms have become more abstract and are incorporated into works which have as much resonance with contemporary painting as they do with ancient manuscript writing.

## Background

Manuscripts are the concrete example of the humanistic and artistic activity of the past. The ancient manuscripts are supposed to serve as a source of inspiration and information to the present generation but these scripts are lock and custody in a museum. Academic institutions also are not have much interest in this subject.

The manuscript speaks of the past and reveals history, unfold perspectives and reflects the social, political and cultural scenes of that time. Such manuscript should be available to the art and design students for their interest of study this may create some sort of inclination towards art of writing, calligraphy.

This is my personal experience that roman calligraphy is more preferred than Devanagari, its cleared that lack

of awareness towards our national script Devanagari and we are running after western script. This research is an attempt to draw attention towards

This very unexplored area. An area that has great potential: calligraphic and formal study of manuscripts. Content and form of a manuscript are like soul and body. The formal aspect of a manuscript deals with structural analysis of elements related to visual and aesthetic qualities.

The calligraphy and formal study of Devanagari script will bring many fold advantages on a pure research level and will be supportive tool in the field of art and design, and will get included as core course in the syllable of art and design school in the country.

## Related work by:

### **Shri Bapurao S. Naik**

Typography of Devanagari vol. 1 & 2  
Directorate of Languages, Bombay, 1971

When we talk about history of writing, then western researchers have been appreciated; it must be admitted that they did injustice to the history of writing in India, because their insufficient knowledge about Indian scripts. Today you go any library and search about history of Indian, not enough literature available. I respect few of them of our own Indian masters who have taken pain to generate data of our Indian scripts. Because of that very few evidence we have today from which one can learn for his or her interest. With increasing progress in education, information, industries, trade and inter state communication, there is going to be a developing demand for different of Indian script especially of Devanagari. I have chosen Devanagari as the representative one because its graphics in remarkable similar to others Indian languages.

Devanagari is India's most widely used script and the solutions evolved for the Devanagari, work as useful guide for all regional scripts whose structures are very much similar to it. Let me appreciate work done by Shri B. S. Naik on the Typography of Devanagari for the standardisation of a keyboard for linotype and monotype machines requires a through examination of the typography and type founding methods of Devanagari script. Much work in this subject have been done during last few years by may scholars. Shri Naik has taken great efforts in producing this monograph, which apart from discussing problems of Devanagari script, gives a brief history of the Indian script, and deals with the construction of Devanagari script. In this book analysis and Calligraphy of Devanagari have been included very nicely(p. 212)

Related work by:

**Prof. R. K. Joshi**

Calligrapher and Designer

I came to know, about Prof. R.K. Joshi sir, in the first semester in typography class. He has made great contributions towards development of Devanagari Calligraphy and Typography was great.

Prof. Joshi, as the ace calligrapher is known 40 years in this field, has sought to extend boundaries of the notion, act as well as art, of making letters manifest. To him letter are living beings, with his happenings, workshops, poetry, lectures-demonstrations, exhibitions and his personal encounters he has always tried to open minds to the unlimited possibilities of letters as carriers of cultural. I am happy that I am sub-disciple of RK's disciples. Feeling happy one that supporting his vision or mission of for the development of Devanagari Calligraphy a hand written skills in this high tech world. Indeed RK has on the

modest scale only on one of the Indian script, Devanagari. With the dozen more scripts and equally rich treasure of manuscripts, scattered all over the country, waiting to be researched.

The task become truly formidable! May be a few generations of devoted Indian calligraphers are need.

He had a urge the students of calligraphy, they should be encouraged to copy manuscript as academic assignment and training. Professional calligraphers, Research scholars, and other specialist in the allied fields should participate in the discussion of the improve of the Devanagari script.

Related work by

**Script Research Institute,**

CALTIS (Calligraphy, Lettering, and Typography of Indus script)

CALTIS has provided a platform to the research scholars in this field. Script historians have thrown light on individuals who have done pioneering efforts on which the further process of writing communication, through writing, lettering and typography, particularly in the Indus scripts. Letter-forms and signs have functional application in education and administration, art and archaeology, engineering and architecture, health and safety, so on and so forth. This is its kind of first magazine that provides place for calligraphy and typography researchers.

I must admit that CALTIS is the main source of information behind my interest in this field of Calligraphy. For encouragement and betterment in the field let us make CALTIS our source of

inspiration and efforts for the future good of the various regional Indic scripts. Not only Devanagari but other regional scripts are also included in it.

I urge to all students of art and design background must read and get inspired yourself for betterment of the Indic script. The aspiring Calligrapher and Typographer would be benefitted directly from such an informative magazine "CALTIS".

On this basis one can execute various assignments in calligraphy and promote Calligraphy not only in Devanagari but other Indian languages also.

Related work by:

**Shri Achyut Palav**

Calligrapher and Designer

`Aksharanubhava` a book on Devanagari Calligraphy

1998

Shri Palav is a well known Calligrapher and Designer and has experience more than 25 years in this field and concentrate in his sensibility of depth of Devanagari script, and especially its variation in Maharashtra a region known for durable and enriching literary tradition. Further, he has selected to interpreters of life, namely the saint-poets of the stature of Dnyaneshwer, Sant Ramdas and Sant Tukaram. To him significance of what they say and suggest can only be communicated through the letter forms.

According to Shri Palav, calligraphy is, like speaking and singing, a kriya-yoga. One cannot have the experience of it unless one goes through the charged ritual of the entire writing process. In addition to the information, knowledge and the skill dimensions of the book, it certainly makes one hear through

eye. The book also elaborate systematic approach of Devanagari calligraphy explained along with his own work. I have undergone summer internship programme in the understanding the basic Devanagari calligraphy. During I understood the true meaning of these words revealed itself to me through his wonderful demonstrations. My attitude towards letters changed. It made me aware of the difference between normal and good handwriting. The book Aksharanubhava unfold the individual beauty of the vertical horizontal, angular lines and their continuity, which are integral part of a letter.

This book helped me a lot for pushing myself further to do a research and study towards Devanagari calligraphy, and provided me the basic knowledge of the Devanagari letter forms.

Related work by:

**Shri Mukund Gokhale**

Art director,  
Institute of Typographical Research, Pune Pune

Let me appreciate to CALTIS for introducing such a extraordinary personality who has done tremendous contribution towards development of Devanagari Calligraphy and Typography. I have read his two article published in the CALTIS issues(1983), under title of “Design Parameters of Devanagari”. Nicely explained theoretically as well as Technically, one easily understand and clear all his or her confusion about Devanagari calligraphy.

Especially he has mentioned calligraphic exercise “before proceeding lettering one must necessarily master the calligraphy of Devanagari trying reasonable variations. This will help in understanding the functional aspect of the script, legibility and aesthetics. For analysis and synthesis of elements of Devanagari, the flow of the pen. This

exercise should help the calligrapher or designer to understand the structure and anatomy of the characters and deciding on the method and tools for calligraphic variation. Without deep understanding of calligraphy and anatomy of letter forms one can not think of reasonable solution to design problems.

In addition to this, type family of Devanagari also explained nicely, importantly graphic classification of Devanagari also shown with examples.

Another issue of CALTIS(1984) through the article on `Composition and Construction of Devanagari Script` he has made tremendous contribution towards computer software and related technology.

## Devanagari Calligraphy and its Importance

Calligraphy is the branch of artistic expression means art of beautiful writing. Calligraphy is not only act of writing but it involves movement and touch, a peculiarity direct expression of thoughts and feeling through words, by the control of mind and hand. Penmanship flourishes on the advancement of Calligraphy.

The Calligraphy can be approached in many different ways, achieving this technique and skill will be more beneficial for effective communications, however Calligrapher, Graphic Artists, and Designers can use their ability to develop new type faces not only in Devanagari but other Indian languages too. Unfortunately we much more behind compare to Roman civilisation. We have lot of potential but yet to be explored at the academic level.

In India every year hundreds of fine art and design students passing out from number of art colleges, but are they really aware of this art of

Calligraphy? Actually they not at fault, education systems has to improve, syllables has to updated, and important has to given for dying art forms of Indian cultural.

I want to mention here a urge of Master Calligrapher Prof R. K. Joshi to the design students. He said that by and large, particularly here in India manuscripts are exposed to a handful of fortunate specialists such as literary scholars, historians, linguists, calligraphers, and designers, who study these works of art forms their professional view points and are obliged to draw some sort of conclusion on this basis, to enhance the historical knowledge on lay man. (CALTIS-83)

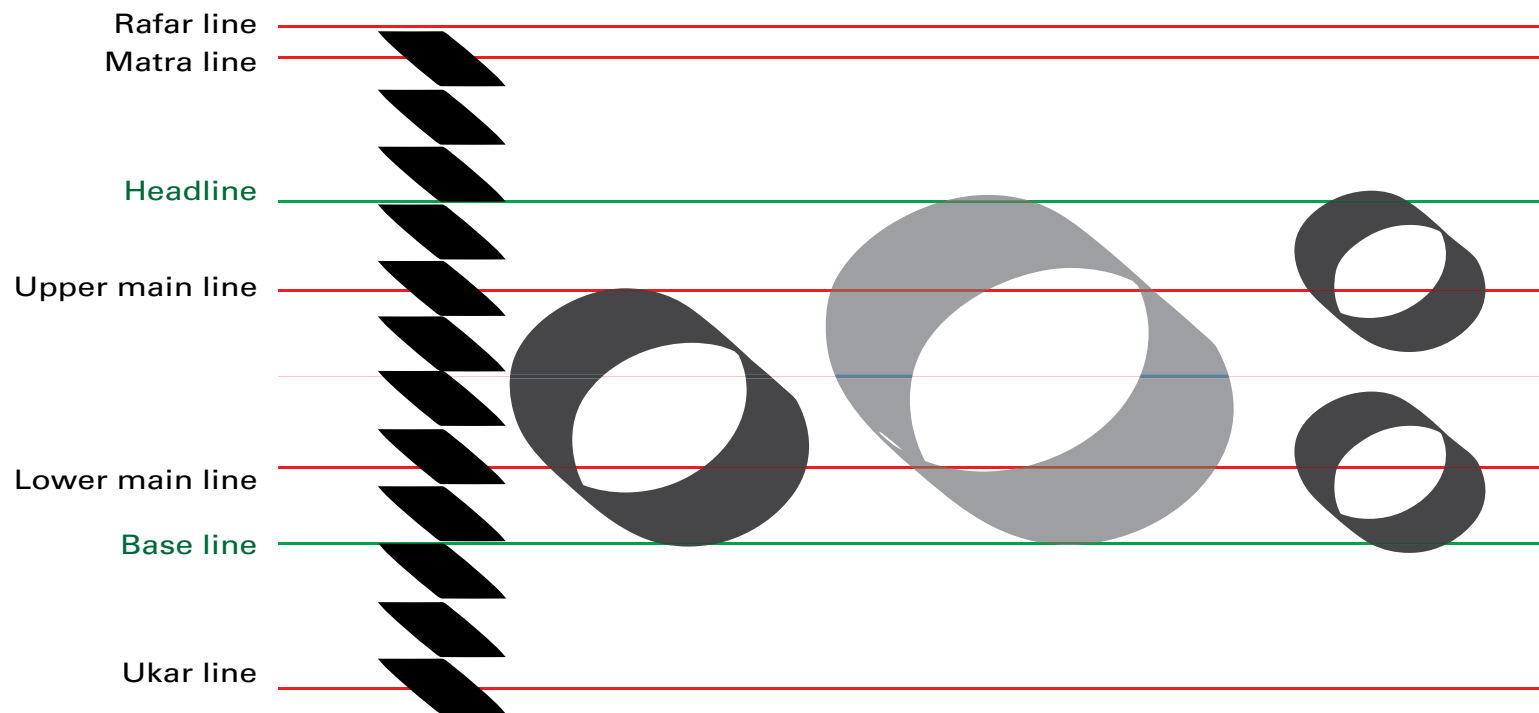
By this view point student art and design background will be able to establish new Devanagari type, which are badly needed in the commercial market. So study of Calligraphy definitely help them.

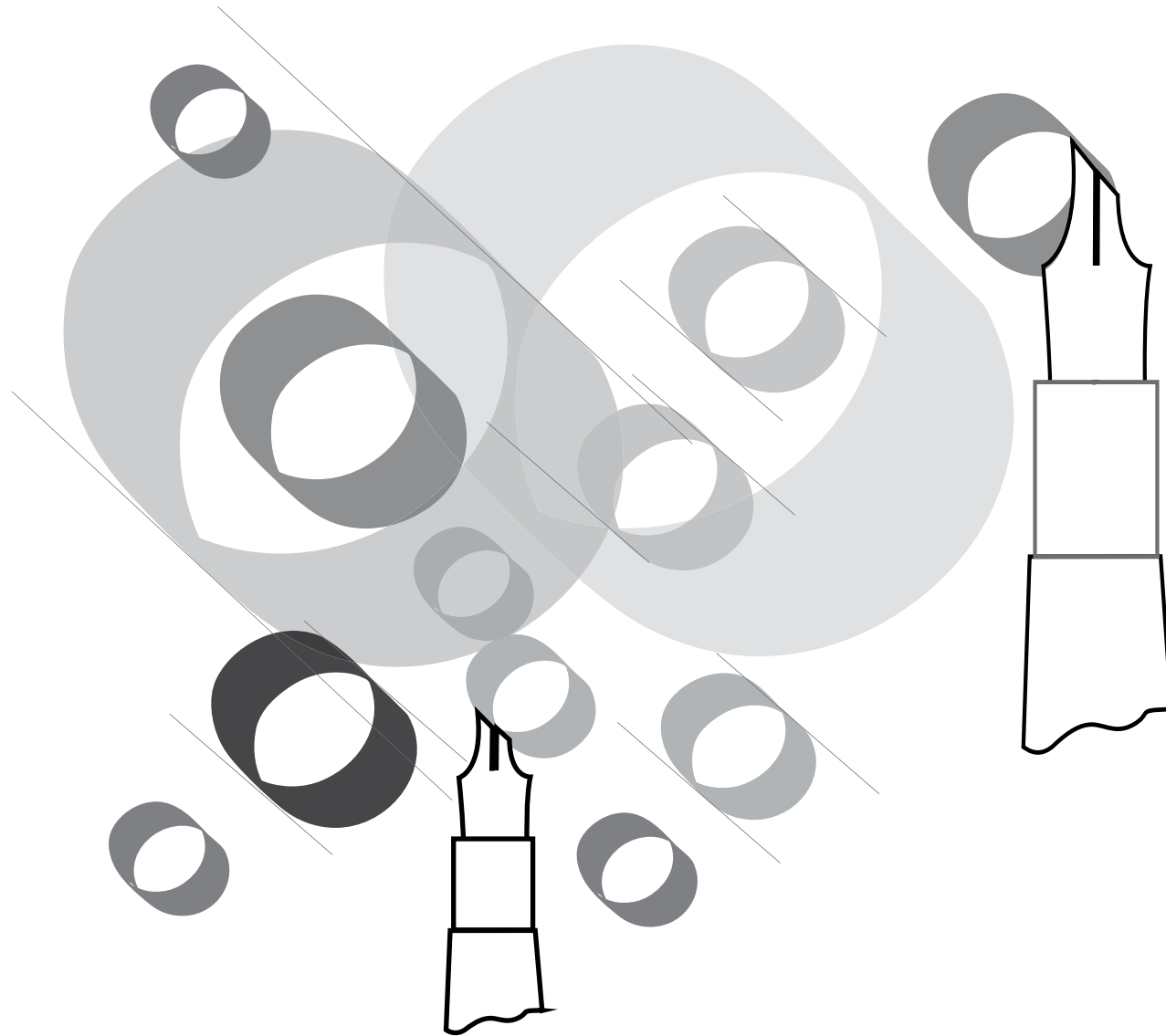
# The 'O' Form

The 'O' form written (by reed pen or ready made Calligraphy pen) at 45° angle is an aid to help to learn the proportion of Devanagari alphabets.

The diagram shown below is based of maximum height of the letter including marta, rafers and ukars.. The round form is the fundamental to the

alphabet as the horizontal and vertical lines. Practicing the exercise will help to get the exact proportion of a letter forms. The basic height of a letter is calculated by using the width of a nib 6 times. The matra line and ukar line are 2.5 the same nib width and rafar line require half nib width extra.



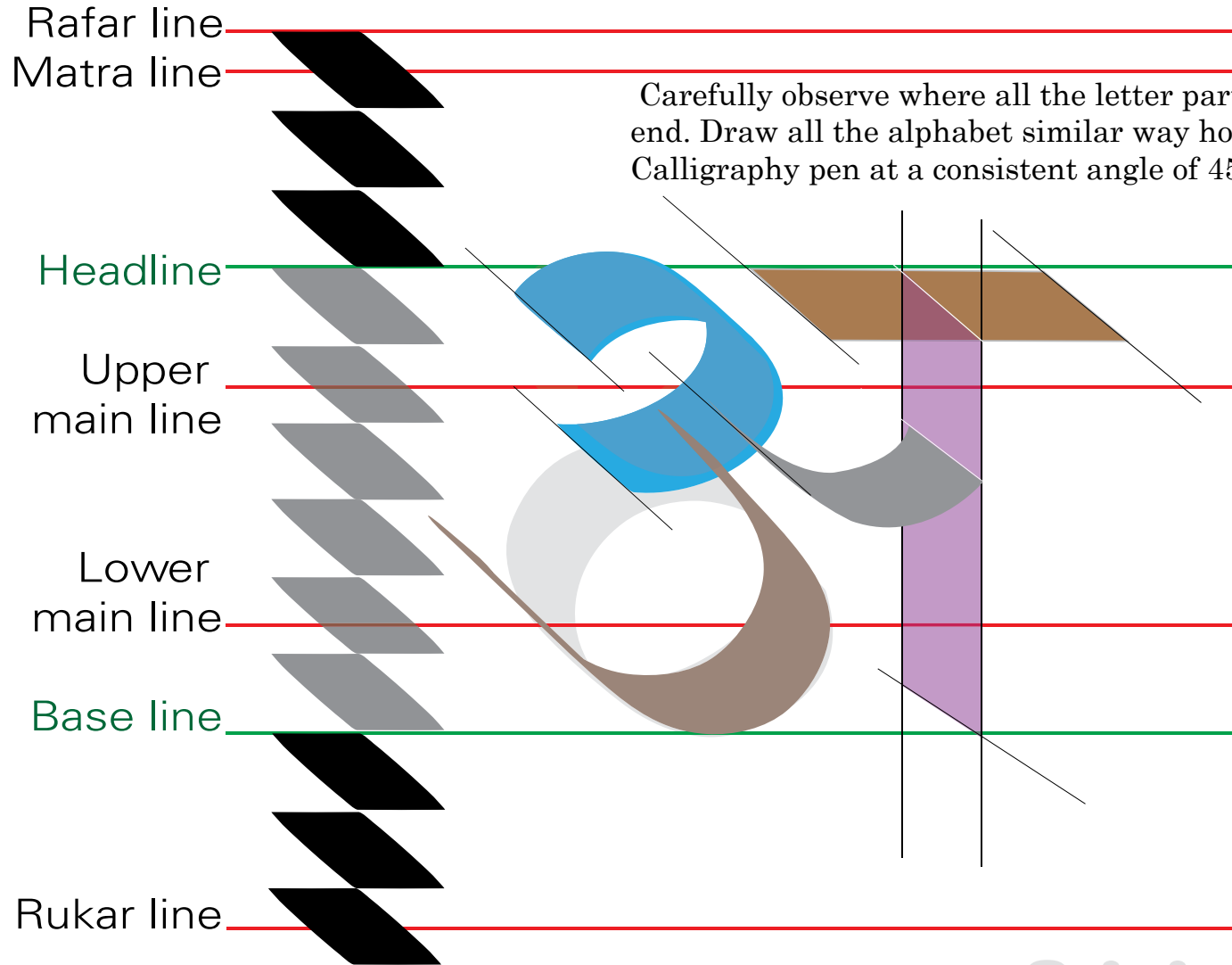


“O” form is the integral part of Devanagari letters. Calligrapher Master Shri Achyut Palav’s book on Calligraphy ‘Aksharanubhava’, emphasises the basic of Devanagari, ‘o’ is the integral of

many letters in the script. It is fundamental to the alphabet as the horizontal and vertical lines. Mastering the exercise will easy your learning and understanding of the letter forms.

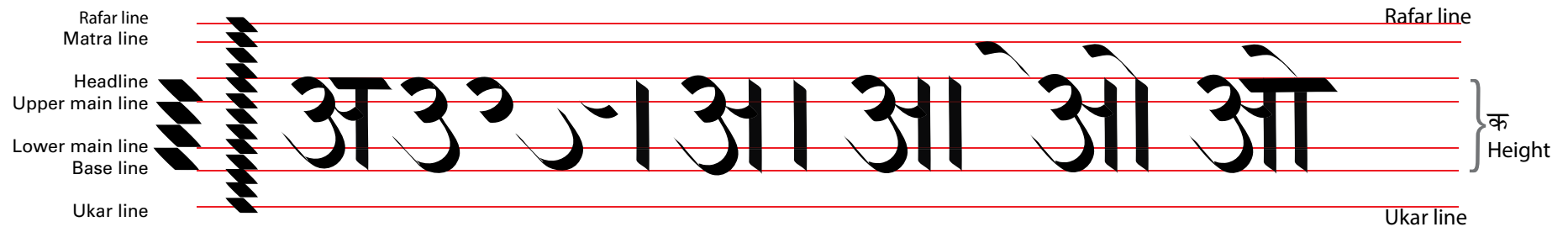
# Letter Proportion

A stroke-by-stroke Devanagari letters shown above is aid to help to learn the proportions of the Devanagari letters. Behind is the round figure, not a circle, but a flat ellipse whose width form is covered by the letter strokes.



Carefully observe where all the letter parts begin and end. Draw all the alphabet similar way holding the Calligraphy pen at a consistent angle of 45 degree.

# Writing Sequence



The construction of Devanagari Calligraphy is a step-by step process or we can say stroke-by-stroke development. Holding pen angle at 45° constantly and then the characteristic part first, the vertebra second, the bottom elements third, and top line of binding the whole word at last.

Devanagari script does not follow a square or rectangle format like Roman letters, it emphasises vertical or horizontal strokes and aims to achieve an aesthetic look. Each letter has its own individuality in terms of calligraphy. While doing calligraphy one has to lift hand at least thrice, these are not one stroke letters like Roman letters.

Top line is the unavoidable part of Devanagari letters, this hold group of letters and become a word. This is horizontal line above all the letters

Each strokes of each letter travels through 45° angle this is the form creator of each letters. 'O' form is the main graphical elements of Devanagari letter 'form'.

The letter height is calculated as calculate for Roman letters. 'x' height of a letter calculated by using the width of a nip 6 times. The ascenders and descenders are 2.5 times of the same Calligraphy pen nib width.

# Devanagari Terminology

Rafar line  
Matra line  
Headline  
Upper main line  
Lower main line  
Base line  
Ukar line

Single matra   Single matra   Hrsve velanti   Conjunct

औद्योगिक अभिकल्प केंद्र

क Height

Rafar line  
Matra line  
Headline  
Upper main line  
Lower main line  
Base line  
Ukar line

Dirgha velanti   Double matra   Hrsve velanti   Dirgha velanti   Anusvar   Loop   Kana

भारतीय प्रौद्योगिकी संस्थान

क Height

Rafar line  
Matra line  
Headline  
Upper main line  
Lower main line  
Base line  
Ukar line

lkar   Anusvar   lkar   Conjunct

पवई, मुंबई ४०००७६

क Height

Hrsva Ukar

Ascender line  
cap line  
Head line  
Base line  
Descender line

*Industrial Design*

x Height

Rafar line  
Matra line  
Cap line  
Upper main line  
Lower main line  
Base line  
Ukar line

Single matra   Single matra   Hrsve velanti   Conjunct

औद्योगिक अभिकल्प केंद्र

क Height

20

# Strokes by Colour Separation

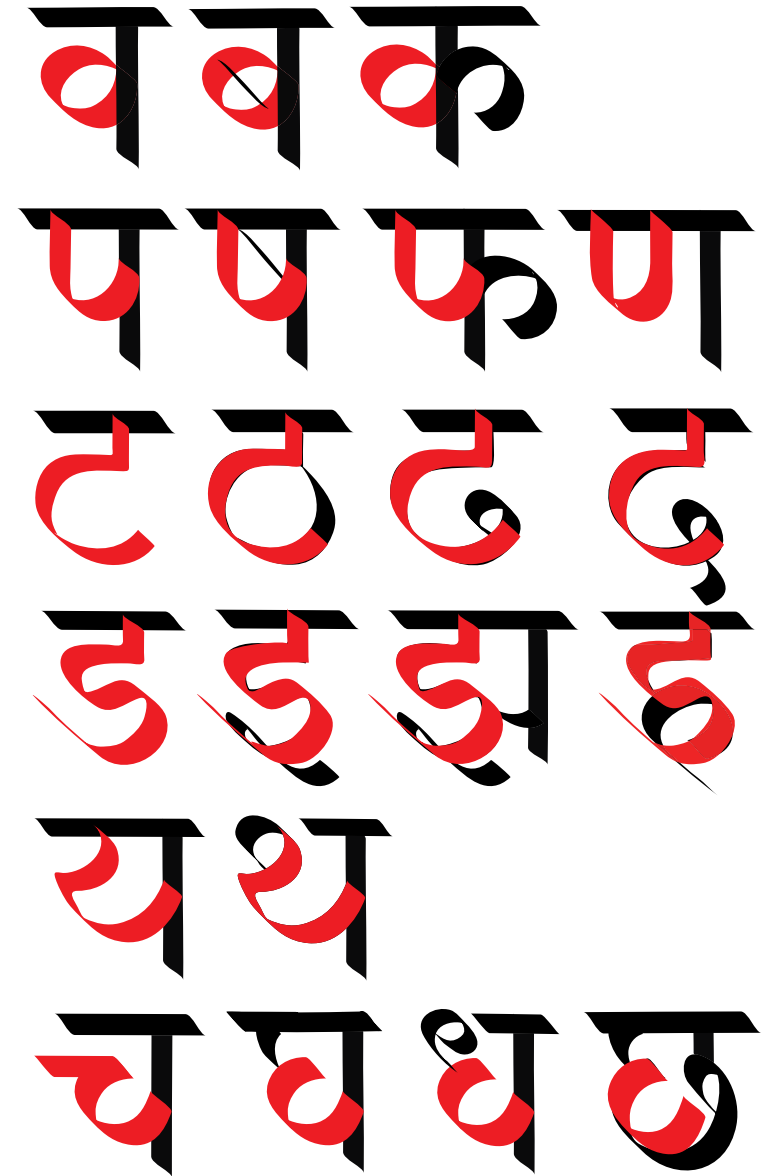
It is advantageous to draw letter form on the basis of character similarity. I have tried an attempt to classified the similar groups as they look a like. The stroke in red colour indicates that repetition of the stroke in that similar group.

Here important is given to graphic classification of devanagari letter forms. The phono-graphic classification of Devanagari alphabet is used is school level to teach students.

But graphic similarities sequence should followed in teaching the students to write, it will be easy to understand form of similar letter.

A comprehensive study on the devanagari letter forms was carried out as part of my internship programme under guidance of Calligrapher Shri. Achyut Palav.

There are by no such unbreakable rules for good Devanagari letter form design, but as a art and design student, understanding of letter forms and their graphic similarities is essential.



This is easy method if you understand graphic similarity and make their group for practicing.

Devanagari Letters analysed on similar basis and an attempted is made to distinguish in different colour to the similar form of particular alphabet.

Devanagari Calligraphy is based on graphic similarity of the visual forms. To understand the construction of letter forms one has to see carefully which are the common elements, and their similar groups.

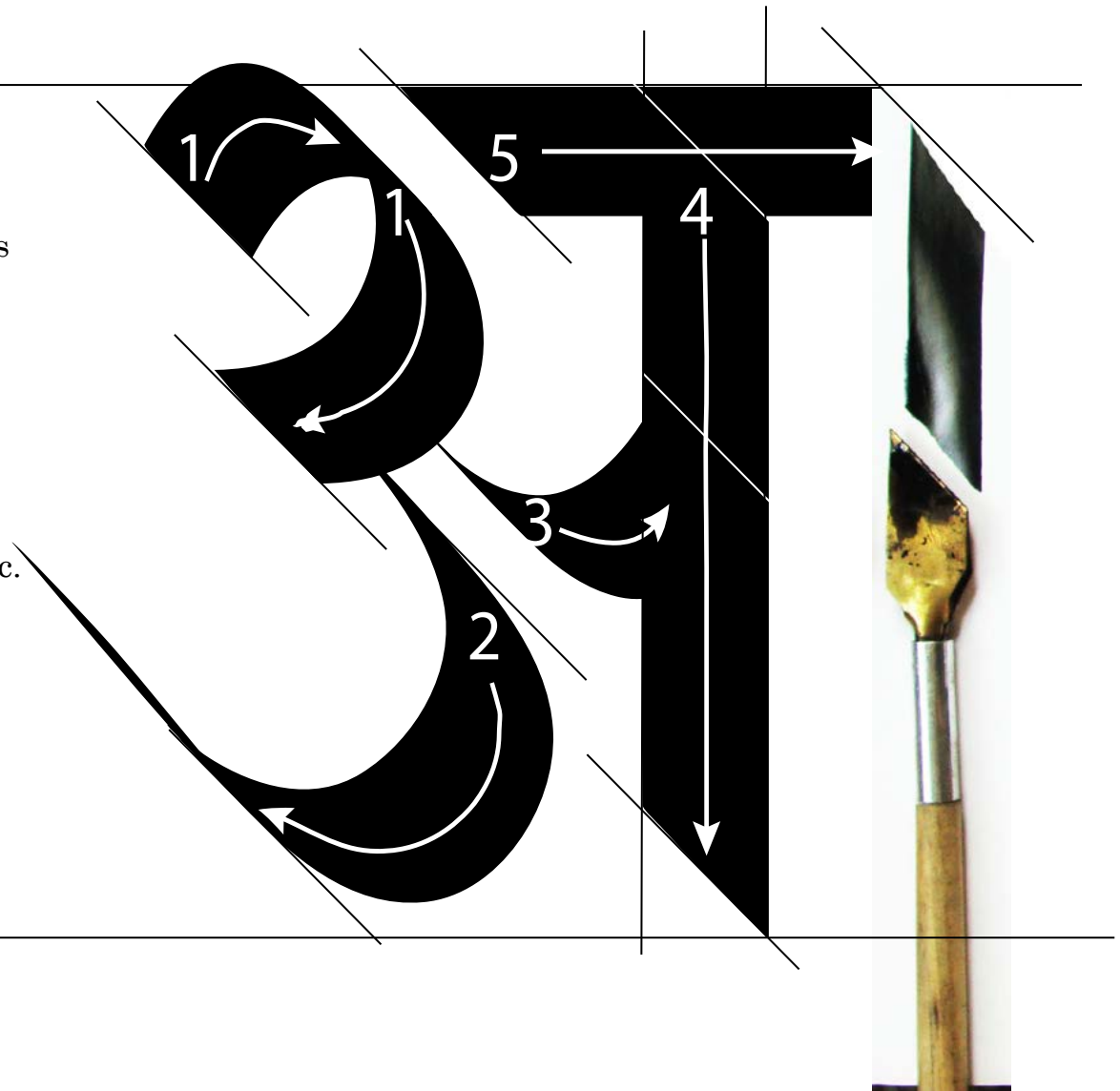
The attempt has been made here to show common elements and their groups but all letters may not have group but they may fit or stands individual.



# Stroke-by-stroke writing

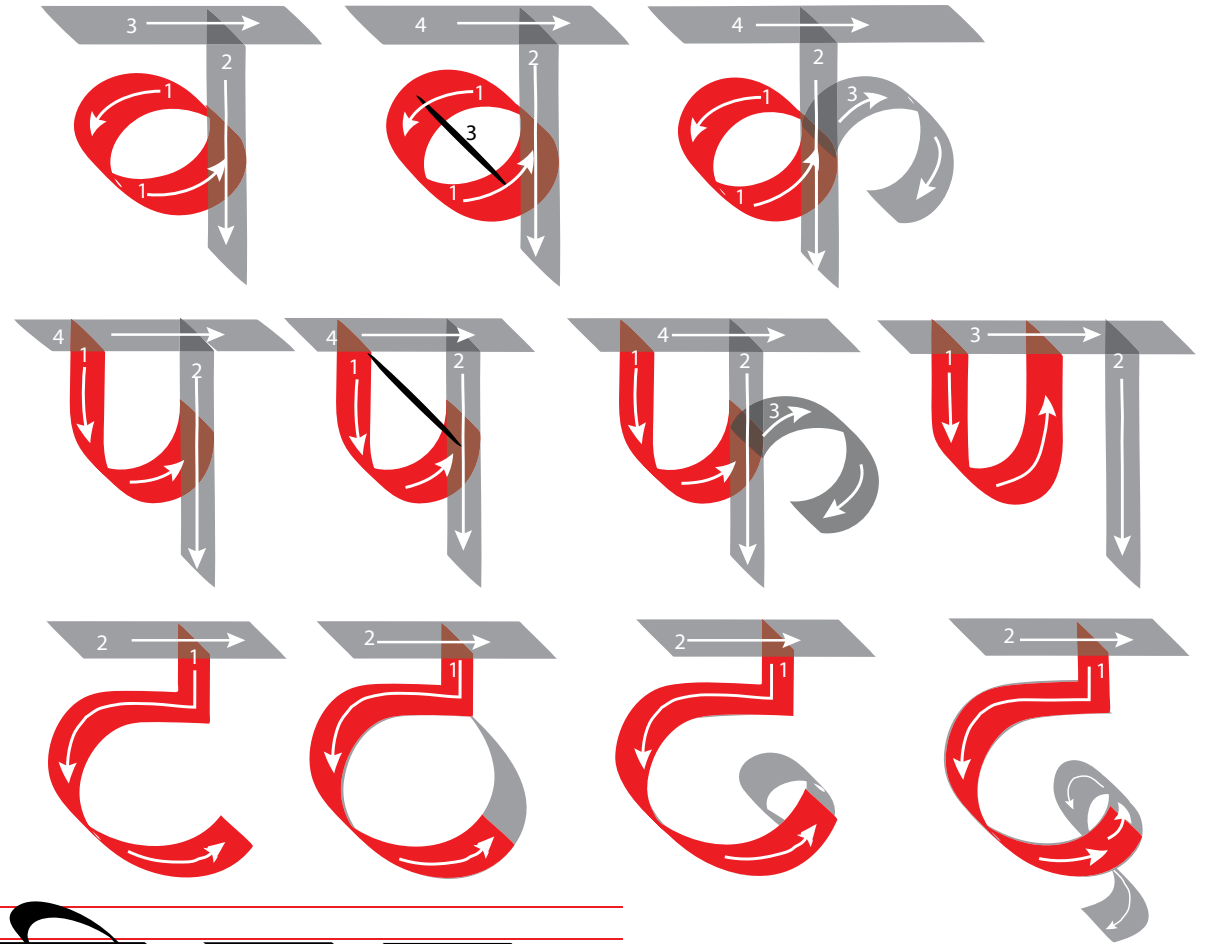
A book on “Typography of Devanagari” by Shri Bapurao S. Naik is a special gift to the students of art and design field. In the book chapter VII, ‘Analysis and Calligraphy of Devanagari Script of Devanagari’ is interesting and enlightening. The Roman script has been analysis in its graphic form into the elements such as ascender, descender, serif, counter, loop, beak, etc. The Devanagari script, unfortunately,

had not been subjected to such a graphic analysis until Dr. Bhagwat attempted an anatomical description which is interesting. He classified the Devanagari letter in groups. But these groups are without matras, velanties, rafars and ukars.



# Pen strokes exercise

During this exercise, observe carefully how the “O” form is common everywhere, how all the strokes are follow the form. Red colour strokes helps to identify groups. The strokes are made by pulling the pen across the paper. Now try writing all the consonants according their group wise using the broad pen on graph paper or lined paper which you have ruled up according to height of pen nib widths.

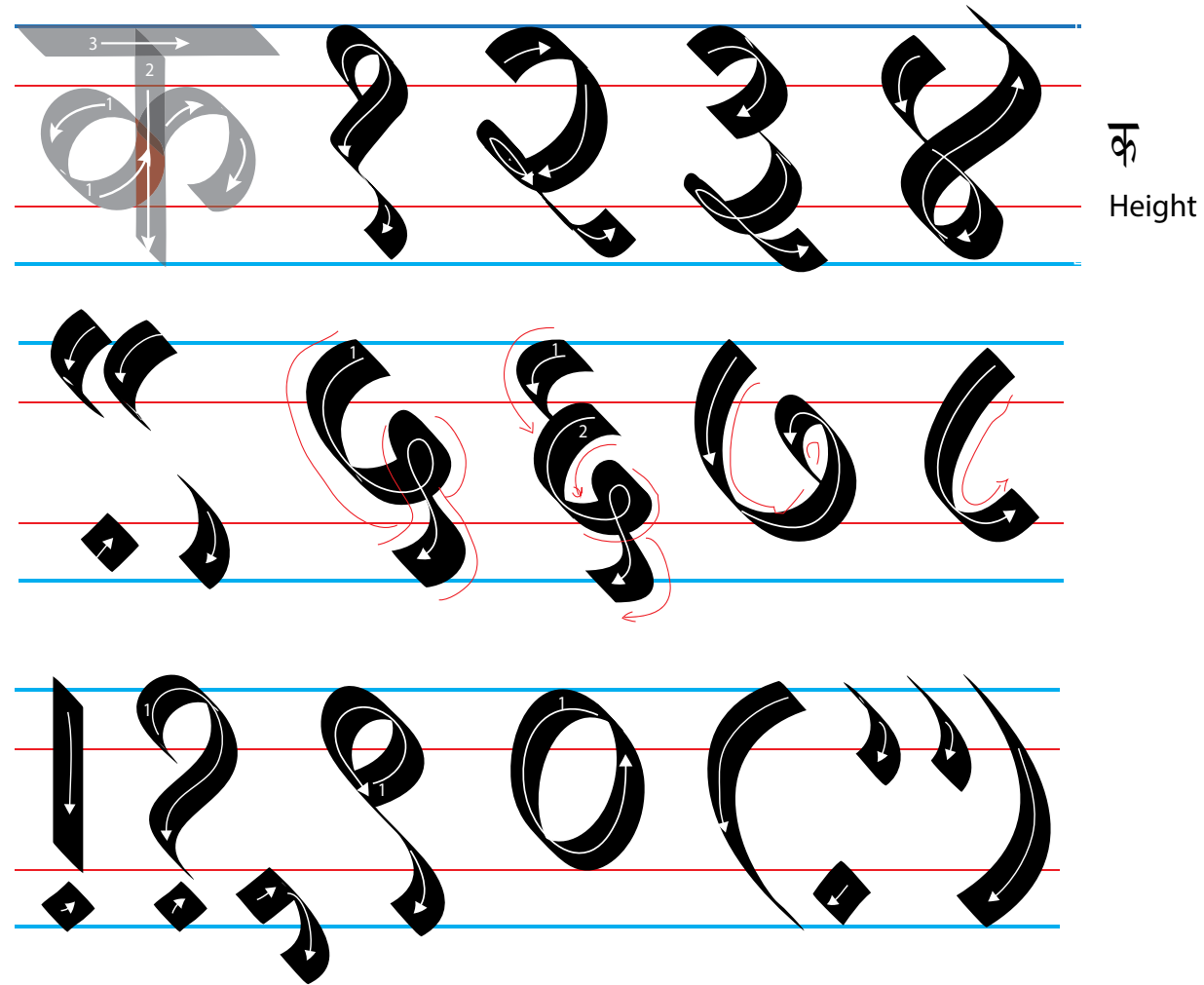


क का की कि कु कू

के कै को कौ कं कः

After practicing letters in Devanagari then comes numbers, it is not easy to write or group successfully, but one should get command like letters writing. Since they are often appear in very few places like date, street numbers or in address and so on. The simple way to write them is to keep the numbers as same height as letters.

The punctuation marks, commas, full stops, exclamation and question marks should be kept as simple as possible and not too large as letters



# Devanagari Proportion by Experts

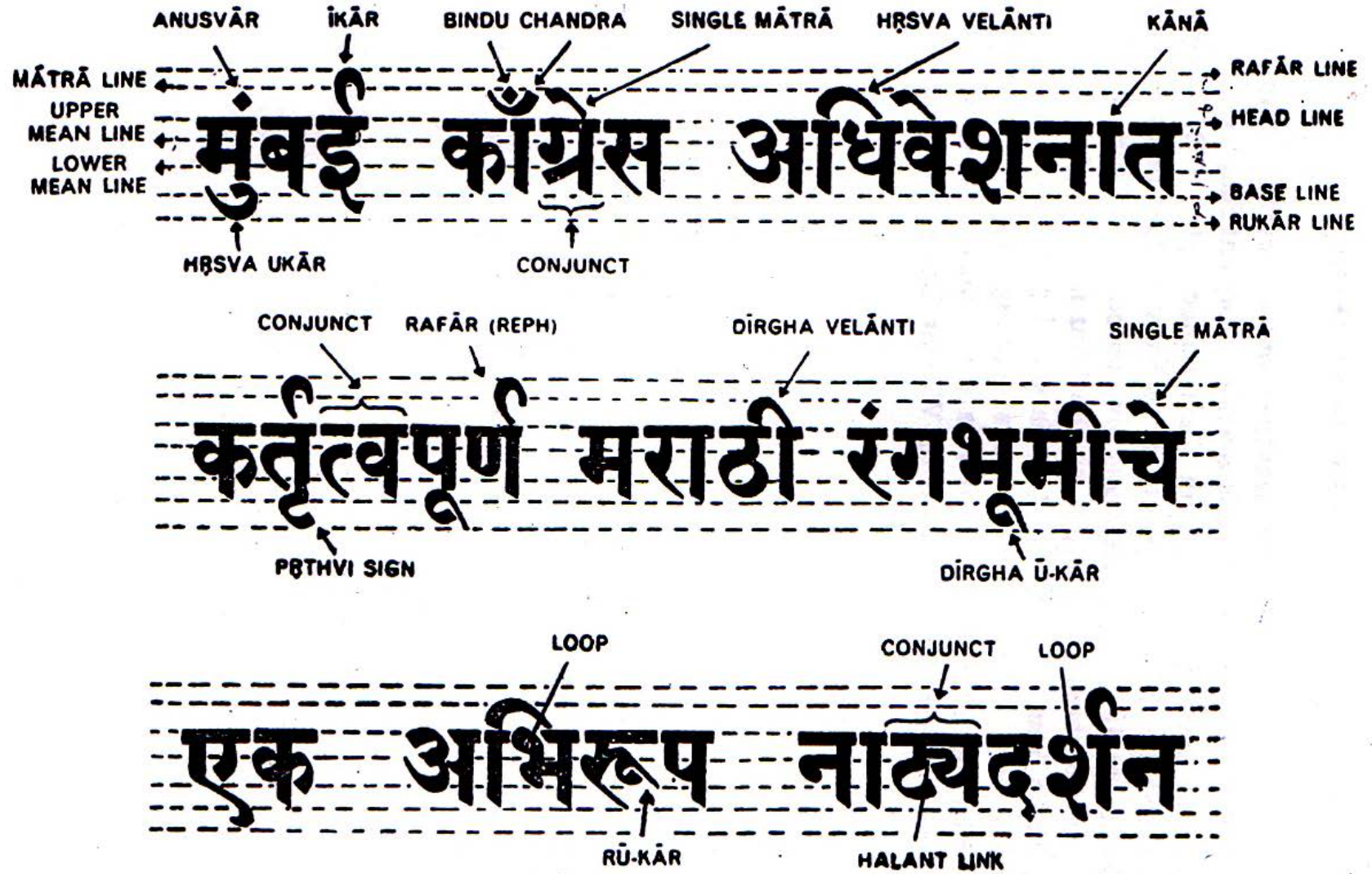


Figure 1. Typography of Devanagari by Bapurao S. Naik, 1971

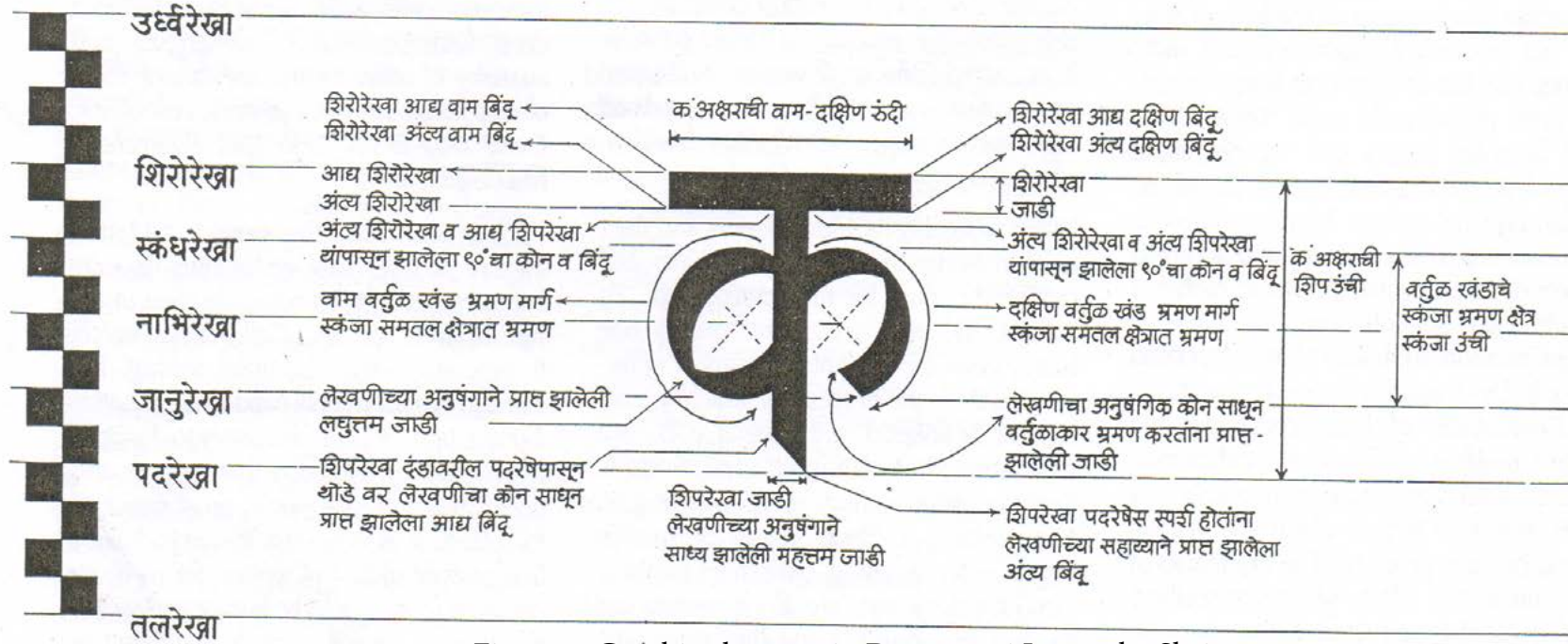


Figure 2. Graphic elements in Devanagari Letters by Shri Mukund Ghokhale, Design Parameter of Devanagari, CALTIS, 83



Figure.3. Aksharanam in Calligraphic Expressions, By Shri Achyut Palav, Master Calligrapher and Designer

# Calligraphic Explorations

In further few pages I have explored the aesthetics and the technique of this art in which rhythm, line, and structure are perfectly embodied. I have measures the slow change from pictograph to stroke to the style and shape of written characters by the great calligraphers, such as Shri Achyut Palav, Shri R. K. Joshi.

In addition to aesthetic considerations, the text deals with such more practical subjects as the origin and construction of the Devanagari characters, styles, techniques, strokes, composition, training, and the relations between calligraphy and other forms of Indian art.



देव माझा  
विठ्ठल आवळा

अक्षरयोग

आशिर्वाद  
आशा

मा



The evolution of calligraphy has naturally been guided by the tools used - the brush, paper, and ink. Normally, black may only represent one in a spectrum of colours, but for calligrapher, black forms the basis of visual art. The relationship between black and white, on the other hand, is very much a representation of the Calligraphic way of thinking.

The colour black as being strong and active, a type of union of all colours. Ink and paper are then the factors that, when merged, represent the concepts strong philosophy. In addition to ink and paper, the brush is an essential tool in calligraphy. The Indian calligraphy brush

are not specific, one can use shaving brush, threads, cold drink tin, or a foam but they are dynamic and flexible tools. The one and the same brush can be used to paint thin or thick lines just by adjusting the weight of the hand and corners of the tool. When the brush dipped in ink touches the surface of the white paper, the merging of these three elements – brush, paper and ink.

Calligraphy can, be used as a representation of the very essence of life. The ink drenched brush and empty white paper offer an endless number 30 of possibilities to recreate endless designs.





Explorations...





# Calligraphy and Music

The art of calligraphy has roots in the Devanagari writing system developed many years ago, and the resulting development of literature. Calligraphy, poetry and music have always been strongly connected in India, where poems have traditionally been rhythmically recited by producing a muted sound in the throat. This type of performance actually resembles more singing than reciting, and can be considered its own musical field.

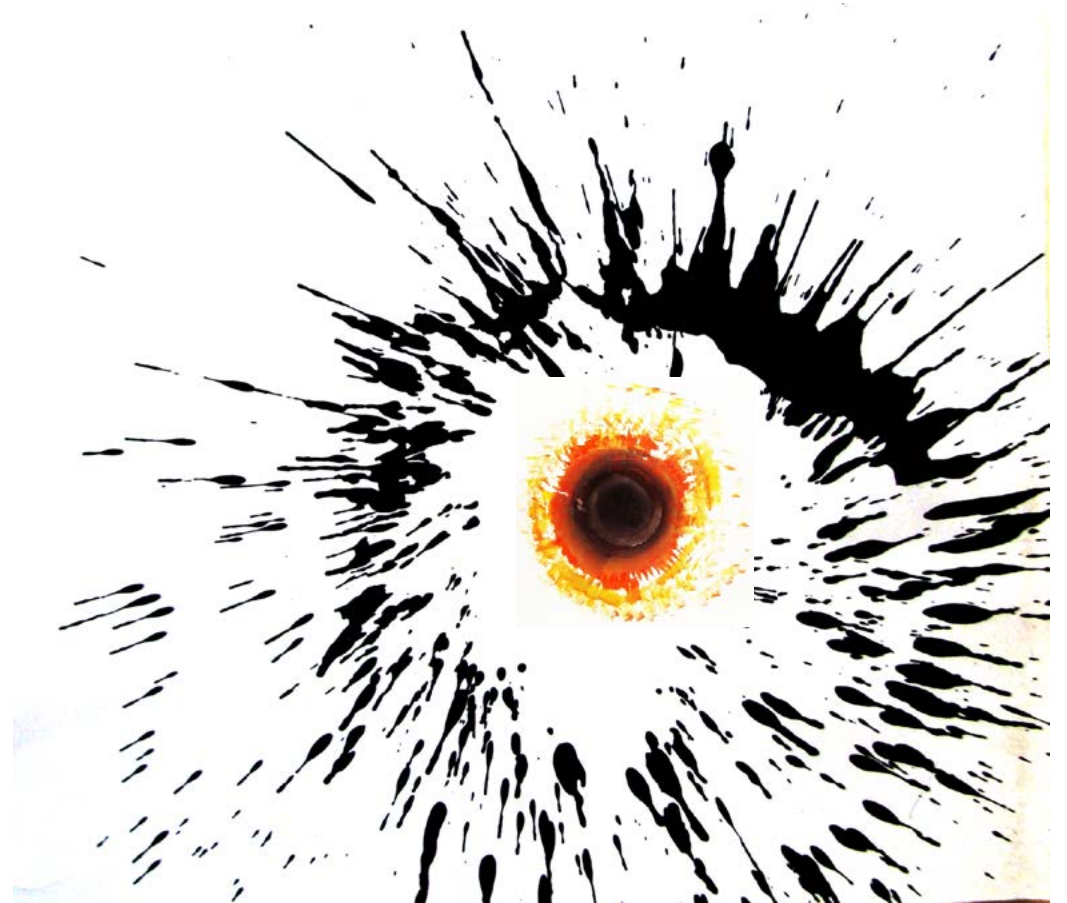
Between ink and music, as the world of music has also opened up to me through Aksharyadnya, a residential calligraphy workshop, organised by Master Calligrapher Achyut Palav. There I was asked to draw Devanagari characters on paper with ink. I was engaged in this activity, my ears became sensitized to the music made by musician. In the silence of the nature, the music of the instruments moved to my soul so greatly, I was fully started to really listen to calligraphy, the relationship between ink and music



# Calligraphy and Emotion

The evolution of calligraphy has naturally been guided by the tools used - the brush, paper, and ink. Normally, black may only represent one in a spectrum of colours, but for calligrapher, black forms the basis of visual art. The relationship between black and white, on the other hand, is very much a representation of the Calligraphic way of thinking.

The colour black as being strong and active, a type of union of all colours. Ink and paper are then the factors that, when merged, represent the concepts strong philosophy. In addition to ink and paper, the brush is an essential tool in calligraphy. The Indian calligraphy brush are not specific, one can use shaving brush, threads, cold drink tin, or a foam but they are dynamic and flexible tools. The one and the same brush can be used to paint thin or thick lines just by adjusting the weight of the hand and corners of the tool. When the brush dipped in ink touches the surface of the white paper, the merging of these three elements – brush, paper and ink.



# Calligraphy and Ink, Paper and Brush

Calligraphy is an art form. It catches viewer attention, while normal reading may be in the newspapers, magazine, poster or on roadside hording, than computerised text. In the workshop we were asked to use calligraphy as a tool to express an event 26/11 in Mumbai.

These was the mine expressions on that bloody, horror day, no one wants to remember. Calligraphy has a great emotional impact as you express it may be happy or a sad, the way what you feel. Calligraphy is beyond words it is a way of expressing emotions. We in the India, differentiate between pictures and the written word. We say “A picture is worth a thousand words.” We consider that painting and calligraphy are both “the work of the brush”. The same aesthetic is used to judge both. In judging them one looks at calligraphy and is moved not just by the meaning of the words but by the rhythm of the strokes. We are also moved by the sounds they represent.

The style of the calligraphy conveys another message, one of antiquity and history. These are intellectual responses to the calligraphy. The emotions are touched and aroused by the beauty of the “picture” of the calligraphy.



## Summary

The Devanagari script is the most impressive writing system that will add further extension in learning process of Calligraphy and Typography to the under graduate students of art and design background.

Graphical proportion is very important for the purpose of calligraphic applications. Graphic similarities helps to construct alphabets, words, and sentences. Writing sequence helps stroke by stroke construction of the Devanagari script. Constant pen angle at 45° provide interesting form of a alphabet.

I also found Devanagari is very beautiful script. I have not touched other phonetic classification of the script, only graphic explanations were covered for use of artist and designers. In this report I have also presented views of the eminent calligraphers, the writing sequence of Devanagari has been explain in this report and exploration of Devanagari Calligraphy also added along with the expertise.

## References:

CALTIS 1983,1984,  
Aksharanubhava:Calligraphic Expressions  
by- Achyut R Palav, 1998;  
Typography of Devanagari vol.1&2  
by- B. S. Naik,1971;  
Basic of Basics'- Calligraphy Workshop. 2011  
by Prof Santosh Kshirsagar, (AKSHARAYA)  
Calligraphy Tips  
by- Bill Gray, 1989  
<http://www.smashingmagazine.com/> dt. Sept,03, 2013  
<http://www.oweis.com/Calligraphy-tools.pdf> dt. Sept,03, 2013  
Calligraphy Careers | Calligraphy as a Career :TheArtCareerProject.com dt. August 25, 2013  
History of the Devanagari Script and Its Basics | Babel's Rosetta Stone dt. Sept,12, 2013  
Cambridge Journals Online - Journal of the Royal Asiatic Society -  
Abstract - The Origin of the Devanagari Alphabet dt. Oct,09, 2013  
Teachers' resource: Exploring calligraphy through the Jameel Gallery of Islamic Art -Victoria and Albert Museum  
Ancient Scripts: Devanagari  
Scripts and Conservation - About the Artist - Tashimannox.com Tibetan Art and Calligraphy  
Chinese painting : Flower painting – Encyclopedia Britannica. dt. sept 25, 2013  
Significance of Learning the Devanagari script  
devanagari - Google Search  
In praise of the painted word - the dying art of calligraphy | South China Morning Post  
Saleh gives calligraphy a new expressive form | Oman Observer  
main.omanobserver.om  
RELATED TIBETAN SCRIPTS: Calligraphy workshop report.  
calligraphy schools in india - Google Search  
<http://www.oweis.com/Calligraphy-tools.pdf>