



Designing A Variable Devanagari Typeface

A Summer Internship Project (P1) Report

Sanket Kapoor Gonte
M. Des. Communication Design
176450009

IDC School of Design,
Indian Institute of Technology, Bombay

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By

Sanket Kapoor Gonte

M. Des. Communication Design

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Under the Guidance of

Manoj Gopinath

Joint Director & Head of the Department, Media & Communications,
Centre for Development of Advanced Computing (CDAC), Pune

Acknowledgement

First and foremost, I thank IDC and my professors, specially Prof. G. V. Sreekumar, for providing me with the opportunity to carry out the internship at my place of interest.

I am very grateful to Mr. Manoj Gopinath for his continuous guidance and a wonderful learning experience. I feel very fortunate that I was able to work with him.

I would also like to thank my fellow mentors at CDAC, Mr. Rahul Ranade, Mr. Prashant Khairnar and Mr. Sameer Godambe for their warmth, support and keeping the ambience stress-free and light for me.

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About the Project

My project is to create a multipurpose, monolinear, variable Devanagari typeface. The aim is to provide users a better alternative to existing Devanagari fonts and flexibility to use it as per their particular requirements which non-variable typefaces may not be able to do.

The idea of developing a variable font for an Indic script occurred to Mr. Manoj Gopinath, a prominent type and visual designer himself and my guide for the project. Variable fonts is a relatively new and unexplored arena in typeface design for Indic scripts. I am very grateful to him for his faith in me and allowing me to take this project forward.

The brief was to create a variable typeface which should be multipurpose (usable in different contexts), monolinear (to maintain the readability at different sizes), aesthetically pleasant and appealing to all ages. To give it a modern feel, it should be neither too roundish nor too squarish as all Indic scripts have a characteristic roundishness.

I was able to understand the intricacies of typeface design and the sheer hard work that goes into it during the internship. I was able to complete the basic designs of 26 characters (12 consonants, 14 vowels and the corresponding maatras) which are subject to further modifications.

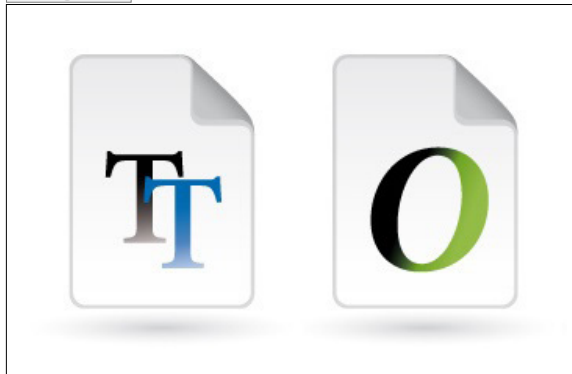
Initial Study

The start of the typeface design process involved quite a good amount of study before the actual rendering of letters. This initial study comprised:

- Understanding OpenType, the font format that was being used and reasons for using the same
- Parameters considered in Devanagari typeface design
- Comparative study of some monolinear Devanagari and Latin typefaces

OpenType Format

Image 1



OpenType is a format for scalable computer fonts, developed jointly by Adobe and Microsoft. It was built on its predecessor TrueType, retaining TrueType's basic structure and adding many intricate data structures for prescribing typographic behavior.

TrueType is a standard for digital type fonts that was developed by Apple Computer, and subsequently licensed to Microsoft Corporation. Each company has made independent extensions to TrueType, which is used in both Windows and Macintosh operating systems.

An OpenType font is a single file, which can be used on both Macintosh and Windows platforms without conversion. OpenType fonts have many advantages over previous font formats because they contain more glyphs, support more languages and support rich typographic features such as small caps, old style figures, and ligatures — all in a single font.

Version 1.8 of the OpenType font format specification introduced a new extension to the format known as OpenType Font Variations. Fonts that use these extensions are known as OpenType variable fonts.

An OpenType variable font is a single font that can behave like several fonts by using continuous interpolation between different designs, all defined within the single font.

Parameters Considered in Devanagari Typeface Design

In order to ease up the typeface design process, letters are classified into different groups with respect to a shared feature among them. They are called design parameters, which are as follows:

1. Character Parameter

Letters in any script have to be analyzed in order to identify the groups with respect to the typical common characteristics of the letters. This parameter helps to identify the letters with respect to their common groups.

In Devanagari (see adjacent picture) the letters can be grouped into three groups:

1. Letters having a vertical bar at the extreme right.
 2. Letters having a vertical bar at the centre.
 3. Letters that are hanging with a small stem from the top line.
- According to the character parameter, one can easily identify the letters in respect to their groups in any script, which helps to a great extent in designing “maatras” for proper alignment with various consonants and conjuncts.

Image 2

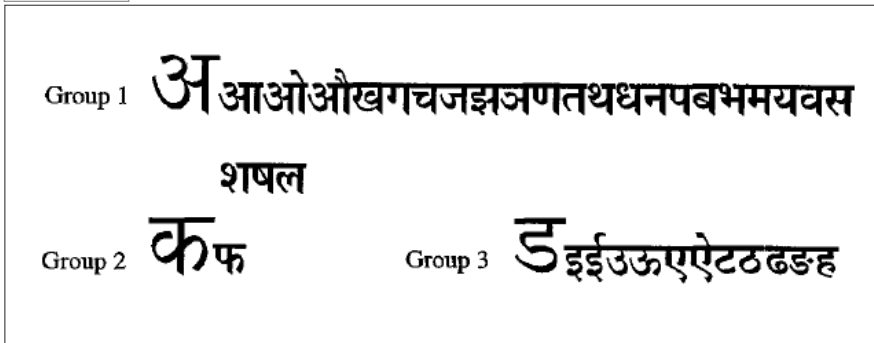


Image 3

Group 1:	अ आओऔऊ	Group 6:	ट ठढद
Group 2:	ग नमभ	Group 7:	प फषण
Group 3:	क बव	Group 8:	र सख
Group 4:	इ ईडड	Group 9:	छ घध
Group 5:	य शयथक्ष	Group 10:	ज ञच

2. Structural Parameter

Letters in any script have to be analyzed and a number of groups have to be formulated based on the common basic shapes which form the characters. This helps the designer to maintain consistency in design throughout the characters in the font.

Most of the Indian scripts are complex because of the combinations of a number of curves and straight lines either vertical, horizontal, or diagonal. Hence, the number of basic shapes is large. The situation further becomes complex when the matra combination takes place. Here the conjuncts are not included in the example. Although in many of the Indian scripts, different conjuncts form new shapes of their own, the basic element remains from the root consonants.

Image 4

Group 1 29x	र	Group 4 42x	गघधभजयशथ
Group 2 34x	वनडहइईएऐमब	Group 5 45x	चजझलसझउ
Group 3 36x	टठढदपषडत्त	Group 6 49x	कफणशक्षअ
		Group 7 52x	खऊछ

Image 5

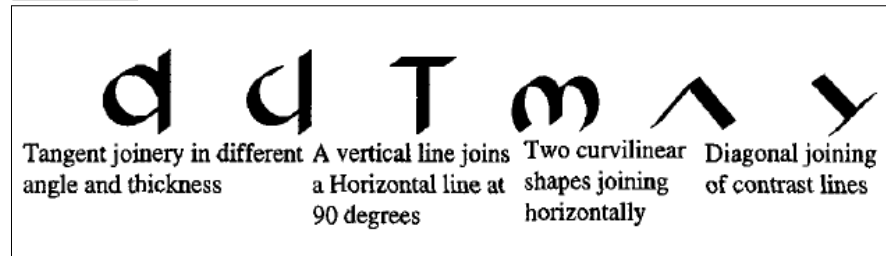
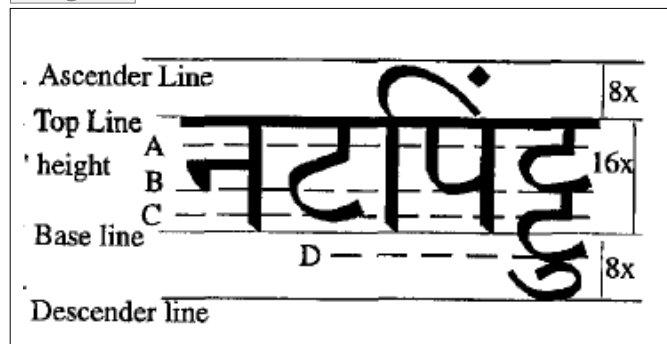


Image 6



3. Width Parameter

In any script all the letters are to be analyzed according to their actual width and the groups of letters having equal width are to be identified. This parameter especially guides the designer in defining the proper width of the character, thus ensuring desired interletter spacing, and to define the number of matras and their variants in shapes for a harmonious text composition.

In Devanagari group one is the narrowest character. The group width values are specified in the units of x, such as 29x, 34x and so on, whereas the x-height is 40x.

4. Joinery Parameter

In any script the nature of the joinery of two or more strokes in a character has to be defined and accordingly the characters can be grouped together. Three different types of joineries are normally observed in a letter form, i.e., Tangent joinery, Corner joinery and Perpendicular joinery. This helps in selecting different types of notches for improving clarity and reproduction quality.

In Devanagari, all these types of joinery are seen.

5. Proportion Parameter

This parameter determines the vertical proportions and measurements of a script. This analysis is very important for defining a well structured shape of appropriate size and form in a multi-tier letter structure. These proportions not only guide the design of the individual characters, but also help in designing the bottom and top matras with respect to the proportions of the base characters.

Image 7

जोधपुर के लिए और मिली 64 करोड़ की सौगात
विस्काँन्सिन
विस्काँन्सिन राज्य के ओक क्रीक शहर में एक गुरुद्वारे में हुई गोलीबारी की
बेल्जियम
सूचना और प्रसारण
प्रधानमंत्री के मीडिया सलाहकार पंकज पचौरी ने बीबीसी से बातचीत इस्तीफा भेज दिया है और इसे मंजूरी के लिए राष्ट्रपति के पास भेज
में इस बात की पुष्टि कर दी है कि कृष्णा ने प्रधानमंत्री के पास अपना दिया जाएगा. कृष्णा ने रविवार को संभावित फेरबदल से सिर्फ दो दिन
जट रिस्की, आफ्टर विस्की

Akhand Devanagari

Comparative Study of Some Monolinear Typefaces

After understanding the factors considered in typeface design, it is imperative to study existing typefaces to identify their merits and demerits, compare them and utilize this information to create a better design.

Some of the popular Devanagari and Latin Typefaces (all monolinear) were studied and compared on the basis of readability at different sizes, ease in differentiating certain letters or group of letters, weight, contrast and other such typographic parameters, balance between positive and negative space.

A few of following pages contain excerpts from the notes taken while studying various typefaces.

अखंड देवनागरी (ITF)
at small sizes, akhand devanagari extrabold & black might be hard to read.
there's a possibility of confusion between ख & ख (ख). This can be because of the compact nature of the font.

Image 8

जीवनाशी एकरूप झालेले

एकत्र कुटुंबपद्धति: हिंदू समाजातील एक वैशिष्ट्यपूर्ण संस्था. हिंदूमध्ये एकत्र कुटुंब हे केवळ जास्त पिढ्यांचेच असते किंवा जास्त काळपर्यंत अस्तित्वात असते असे नसून, अशा कुटुंबास एक विधिमान्य दर्जा आणि त्यांच्या घटकांस काही वैशिष्ट्यपूर्ण अधिकार प्राप्त झालेले आहेत.

एकवचन

यात्री कृपया ध्यान दे, प्लॅटफॉर्म क्रमांक ६ से, ३ बजकर ४५ मिनीटकी अंधेरी जानेवाली, फास्ट लोकल आज प्लॅटफॉर्म क्रमांक १ पर आएगी।

15 अगस्त 1947

‘दुनिया का नंबर एक खिलाड़ी बनूंगा!’
वारकरी संप्रदायातील एक सुप्रसिद्ध संत

Mukta

मुक्ता

Harder to find a flaw, more observation needed

Smoothes than संचार देवनागरी २

aesthetically more pleasant than Sanchar Devanagari

संचार देवनागरी लाईट

संचार देवनागरी रेग्युलर

संचार देवनागरी मिडियम

संचार देवनागरी सेमिबोल्ड

Sanchar Devanagari

संचार देवनागरी (ITF)

shorter knots and open loops (२)

slightly squarish than Mukta

more readability than Mukta when in smaller size (maybe because of the weight of the font)

कैलाश मानसरोवर

इसके उत्तर में कैलाश पर्वत तथा पश्चिम में राक्षसताल है। कहा जाता है कि पर्वत पर साक्षात शिव और पार्वती निवास करते हैं।

समुंद्र सतह

काठमांडू से सुबह-सुबह कैलाश के लिए सफर शुरू हो जाता है। काठमांडू से तकरीबन एक घंटे की यात्रा के बाद फ्रैंडशिप ब्रिज पर मानसरोवर यात्रियों की यहीं पर क्लियरेंस और पासपोर्ट की जांच चीनी अधिकारी करते हैं। यह पुल नेपाल

IDC Aashish

आई डी सी आशीष

has inktraps (3F)

readable at small sizes

offers alternates, various weights, metres

Image 9

In 2001 an upgrade of that type family was issued, Trajan Pro. Its glyph set was expanded: large-size small capitals were added. The latest modification of Trajan, Trajan Pro 3, features a much wider weight range (six, from Extralight to Black); its script coverage was extended into Greek and Cyrillic. The development of Trajan Pro 3 was directed by Robert Slimbach, Adobe principal designer, in consultation with Twombly who quit her full-time job at the company in 1999.

IN 2001 AN UPGRADE OF THAT TYPE FAMILY WAS ISSUED, TRAJAN PRO. ITS GLYPH SET WAS EXPANDED: LARGE-SIZE SMALL CAPITALS WERE ADDED. THE LATEST MODIFICATION OF TRAJAN, TRAJAN PRO 3, FEATURES A MUCH WIDER WEIGHT RANGE (SIX, FROM EXTRALIGHT TO BLACK); ITS SCRIPT COVERAGE WAS EXTENDED INTO GREEK AND CYRILLIC. THE DEVELOPMENT OF TRAJAN PRO 3 WAS DIRECTED BY ROBERT SLIMBACH, ADOBE PRINCIPAL DESIGNER, IN CONSULTATION WITH TWOMBLY WHO QUIT HER FULL-TIME JOB AT THE COMPANY IN 1999.

THE TRAJAN
LETTER IN
RVSSIA AND
AMERICA

Optima (Top & Black) and Trajan Pro (Bottom & Red)

Optima
in small point size
(10 pt, say) the
paragraph looks
congested. (Look at
the word 'set' in first
line.)

Century Gothic (1991)

- draws inspiration from Futura
- j has a tail (Futura j doesn't)
- higher x-height
- wider characters than Futura
- Regular M, N, V have pointed ends.

Comparing

- Myriad, 10pt, Roman & Myriad Pro, Regular, 10pt
- former seems a bit congested (not hard to read)
 - latter is better spaced than former
(But look at the end of paragraph, the space betⁿ 1 & 999 in 1999).
 - No difference in the visual form of glyph except the weight which is more for the former (very slightly)

Myriad Pro

- neutral feeling, could be used in multiple contexts
- humanist sans serif

Century Gothic

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

Optima

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

Helvetica Neue

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

Myriad Pro

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

Rendering the Glyphs

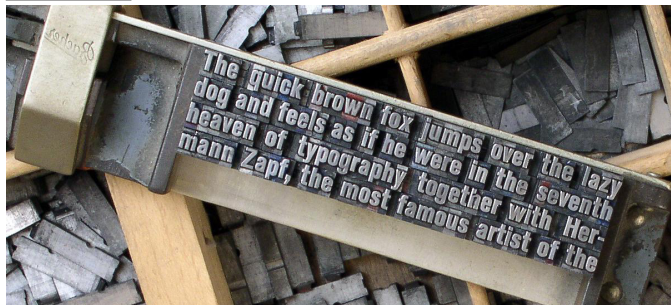
After the initial study, I started drawing letters on paper. Initially, I did several small scribbles on paper to get a hang of it.

I tried to come up with unique forms and while doing that, I deviated from the design brief quite a few times. I tried different tools to render the letters and compared the drawings. In order to get better precision, I started drawing on graph paper instead of plain white paper. Each letter was reviewed and mistakes were found out. Then the letters were redrawn. In this way, several iterations and modifications happened. The letters were drawn in a grid of height 1000 units (A general standard for type design), x-height being 500 units.

After finalizing the letter Ka, it was scanned and traced into Illustrator. Then it went into further several modifications. Similarly, a few other letters were digitized.

While importing the digitized letters into the font editor FontLab Studio 5, firstly the dimensions of the Em Square were calculated.

Image 11



What is Em Square?

In a font, each character is fitted into its own space container. In traditional metal type this container was the actual metal block of each character. The height of each character piece was uniform, allowing the characters to be set neatly into rows and blocks. The height of the type piece is known as the 'em', and it originates from the width of the uppercase 'M' character; it was made so that the proportions of this letter would be square (hence the 'em square' denomination). Initially, an em square of 1000*1000 units was taken, which was modified letter according to the changes in the design of letters.

After completing a few characters in FontLab, sample prints were taken and reviewed and further changes were made in FontLab. Thus, several iterations were done.

Following pages illustrate this whole process through images and screenshots and how the designs evolved over time with practice.

Image 13

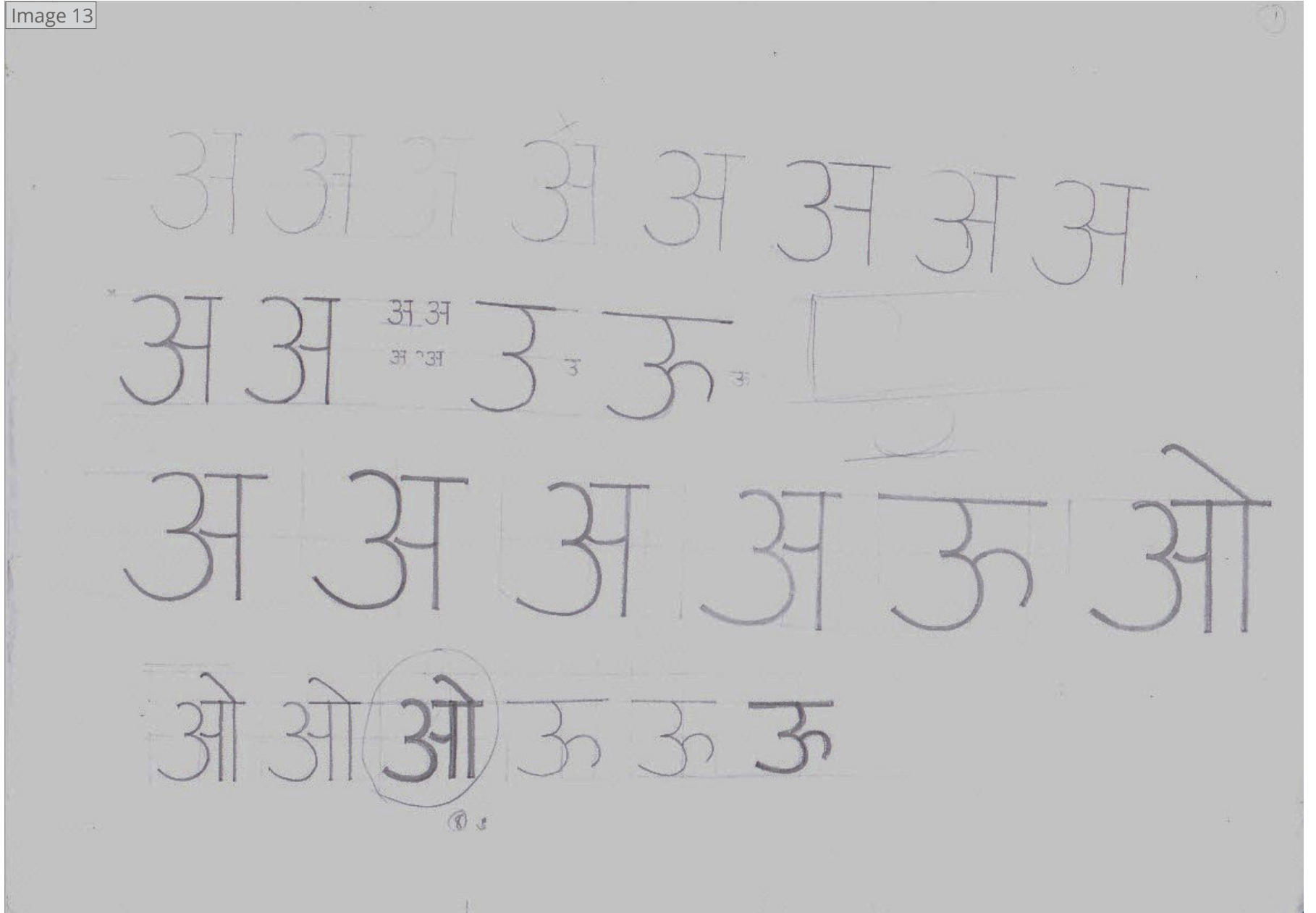


Image 13

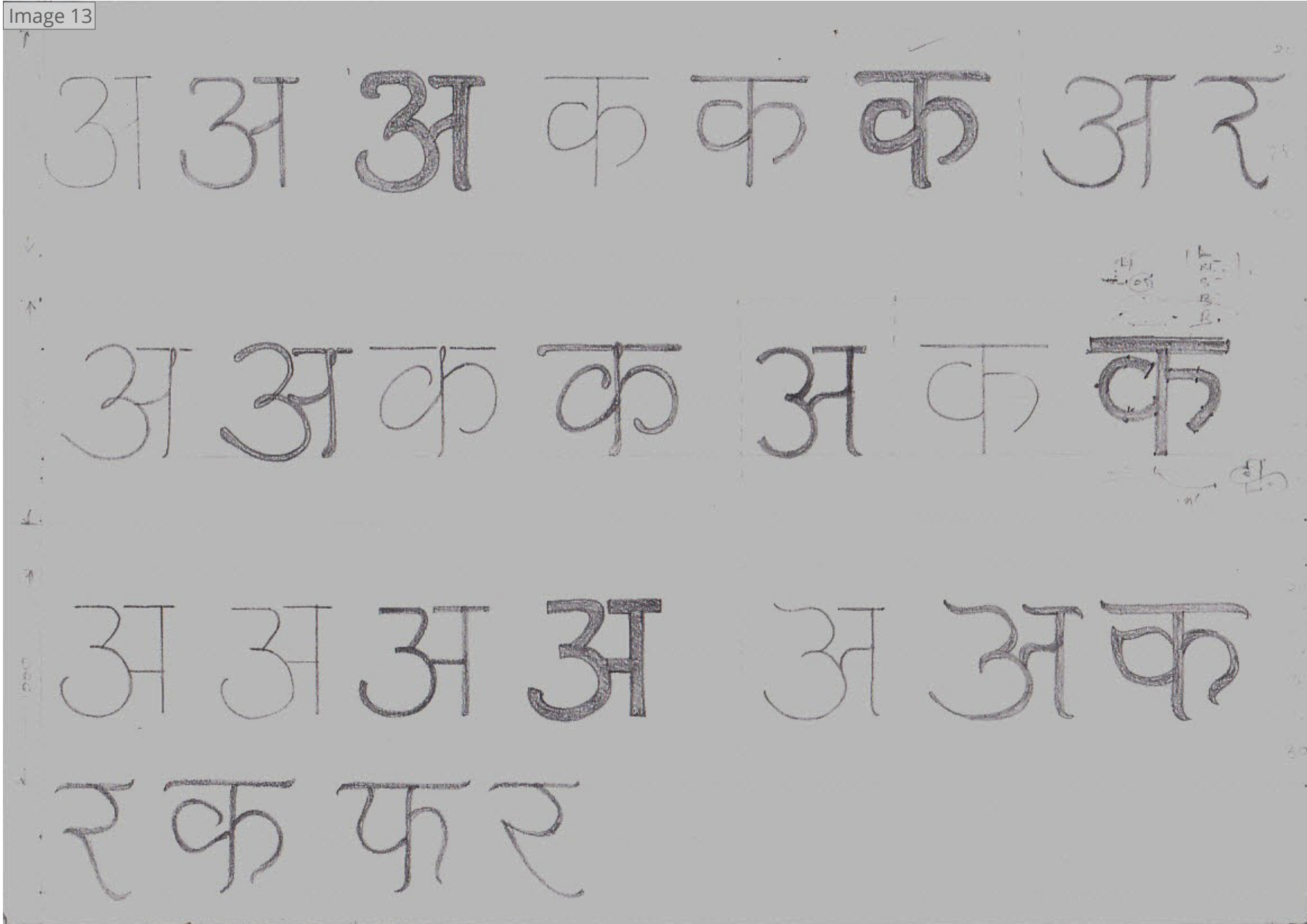


Image 14

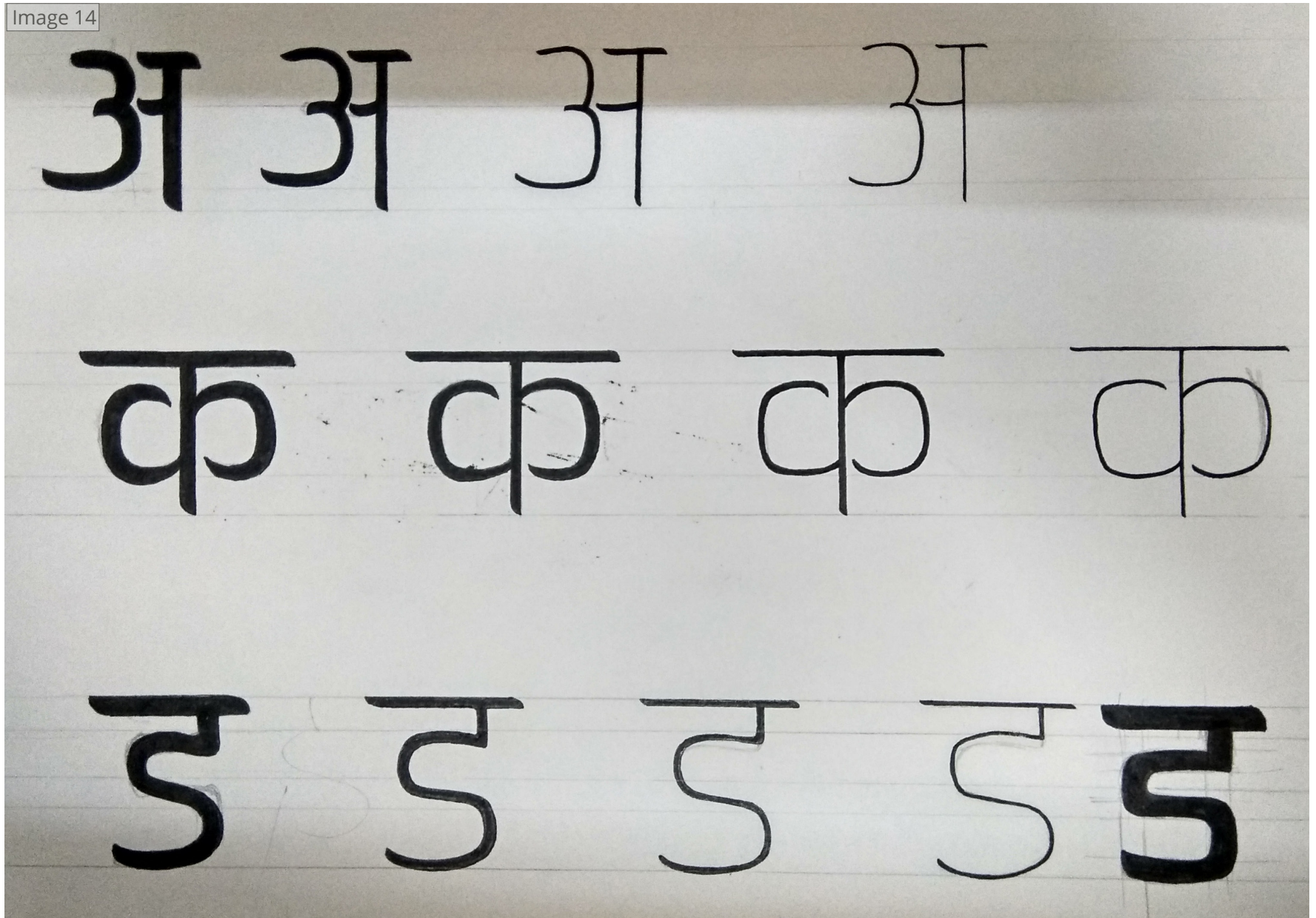


Image 15

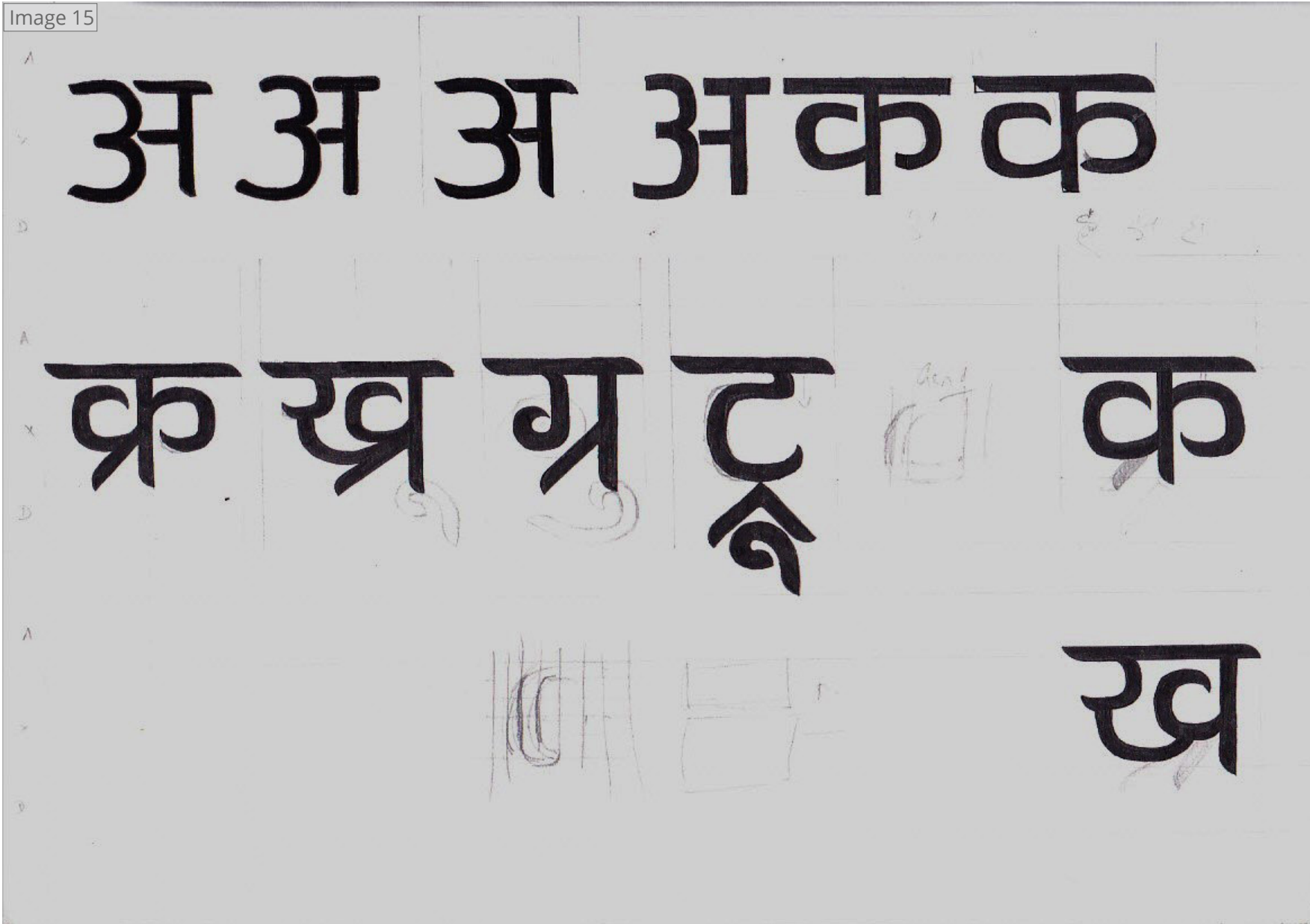


Image 18

अ अ अ अ क व र

श र स य थ ष प फ ब व

क फ ष ख स व

य थ ख ख

अशर ३ अशरस
 क ३ ३ शरस अ
 फकप य ल अ
 ष अ अ अ अ अश
 ३ अ ३ ३ अ ३ र स
 अ ३ ३ ३ ३ ३ स
 अ ३ अ ३ ३ ३ ३
 अ ३ ३ अ ३ ३ ३

अ अ क व र ब य ष फ स श य थ ख

Image 19

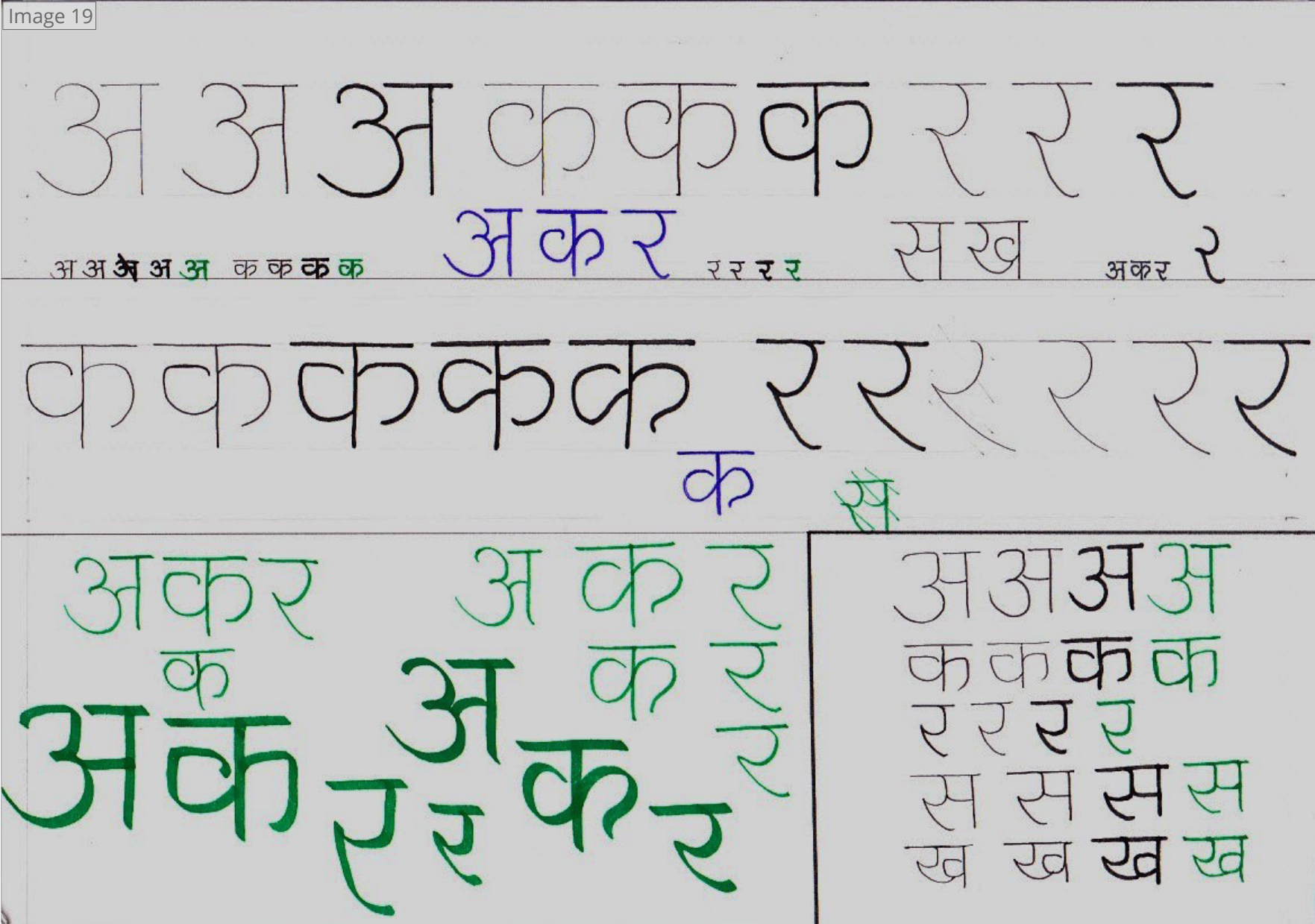


Image 20

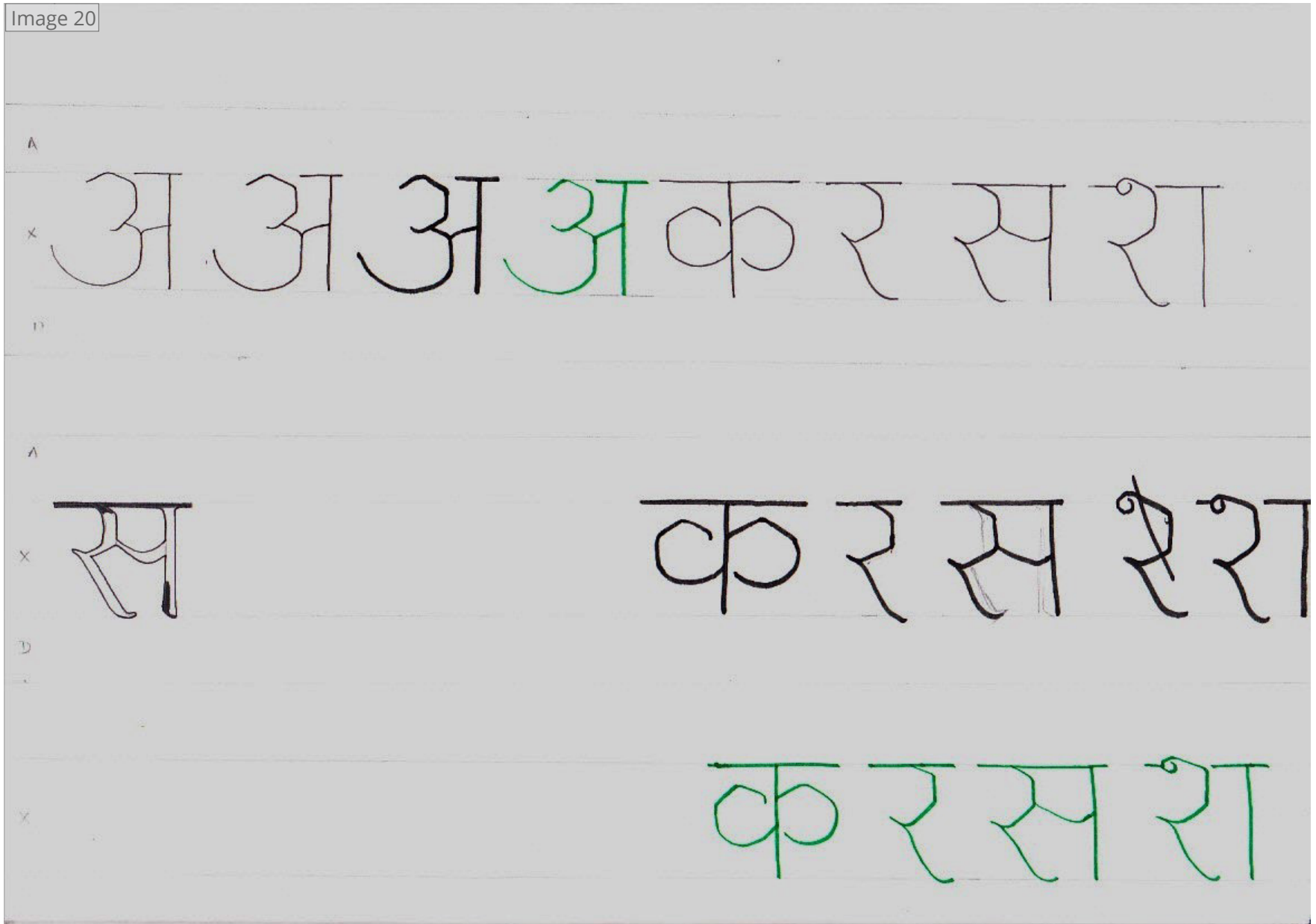


Image 21

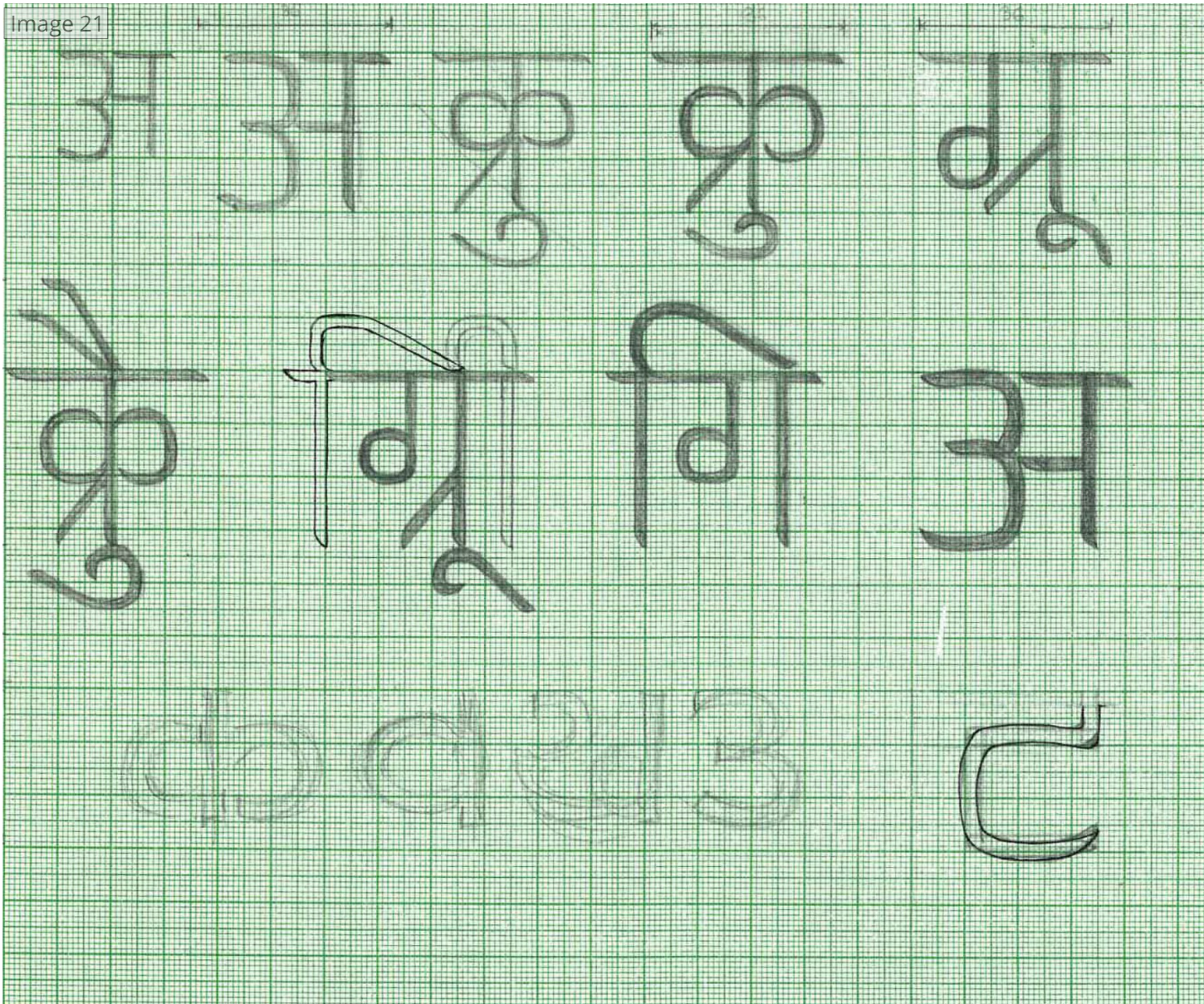


Image 22

3

अ क व ख अ

ट फ ष

image 23

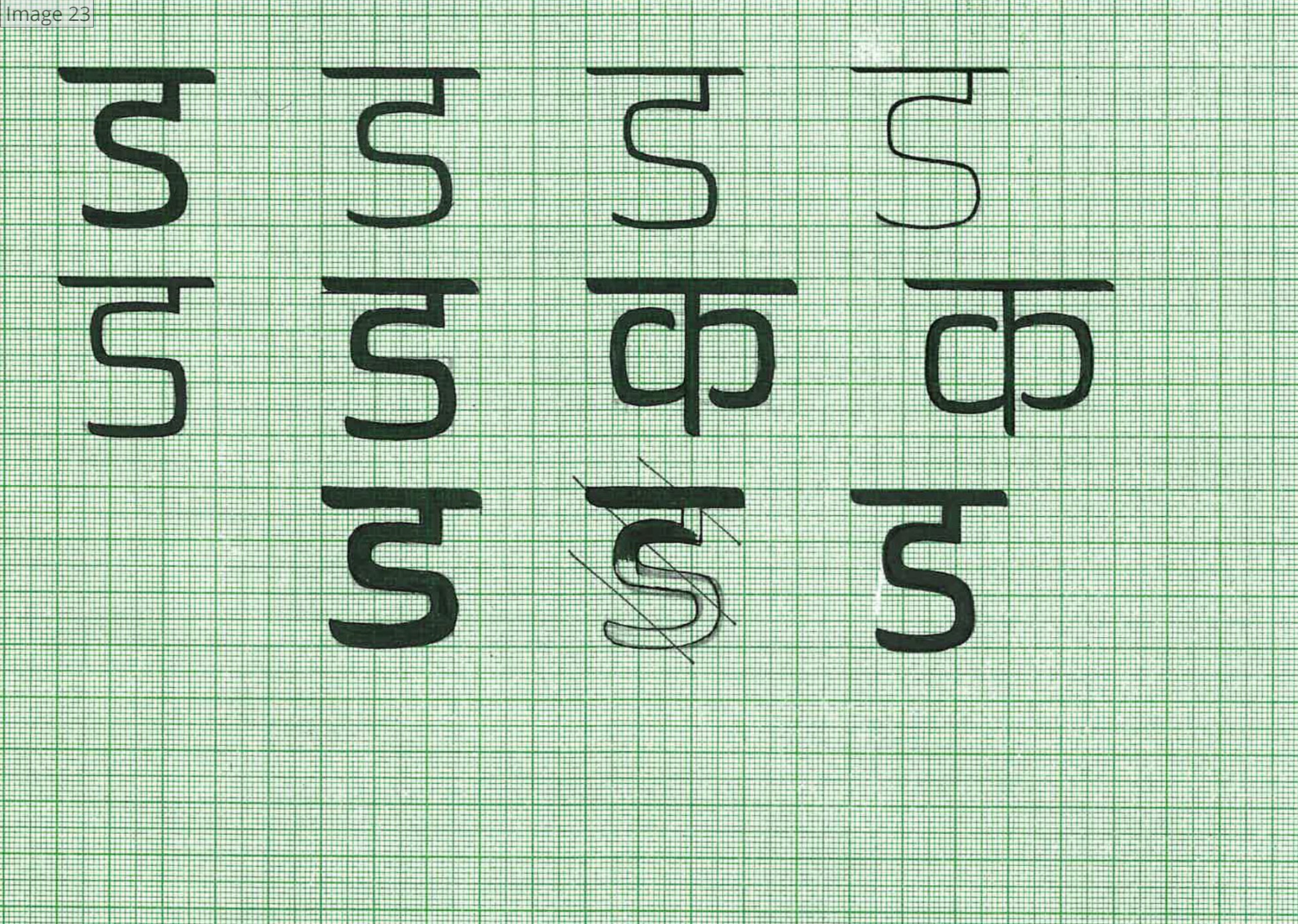


Image 24

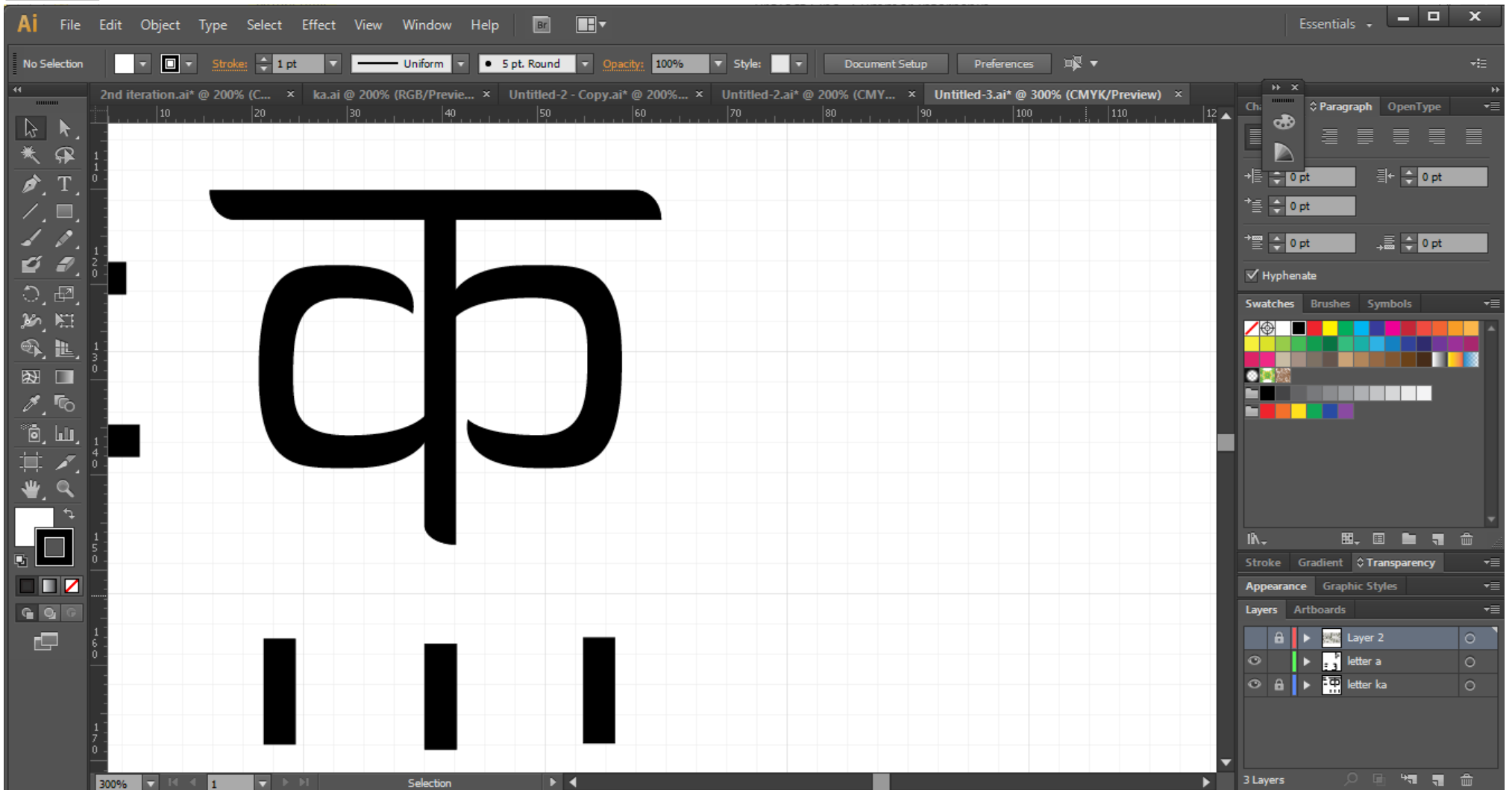


Image 25

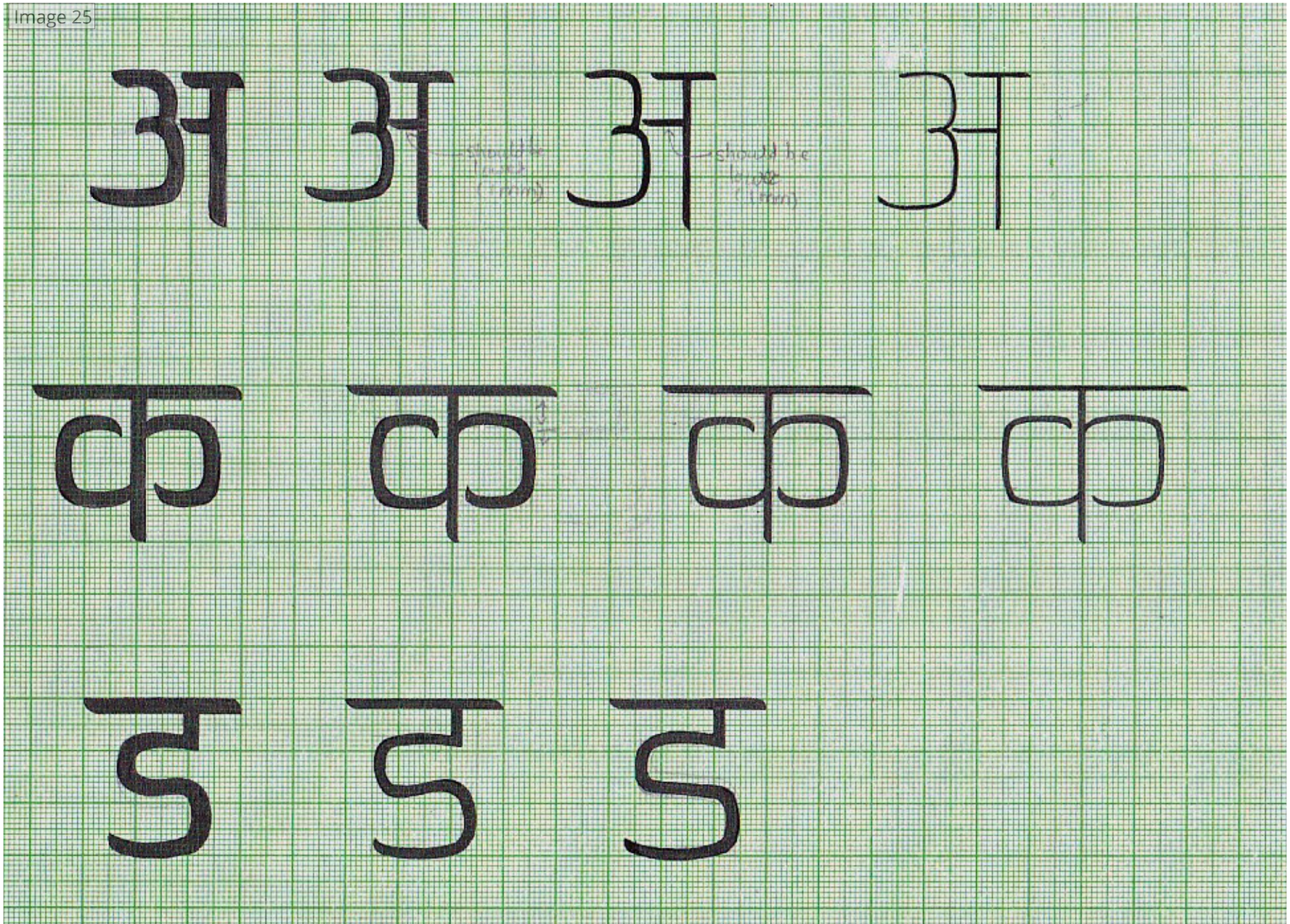


Image 26

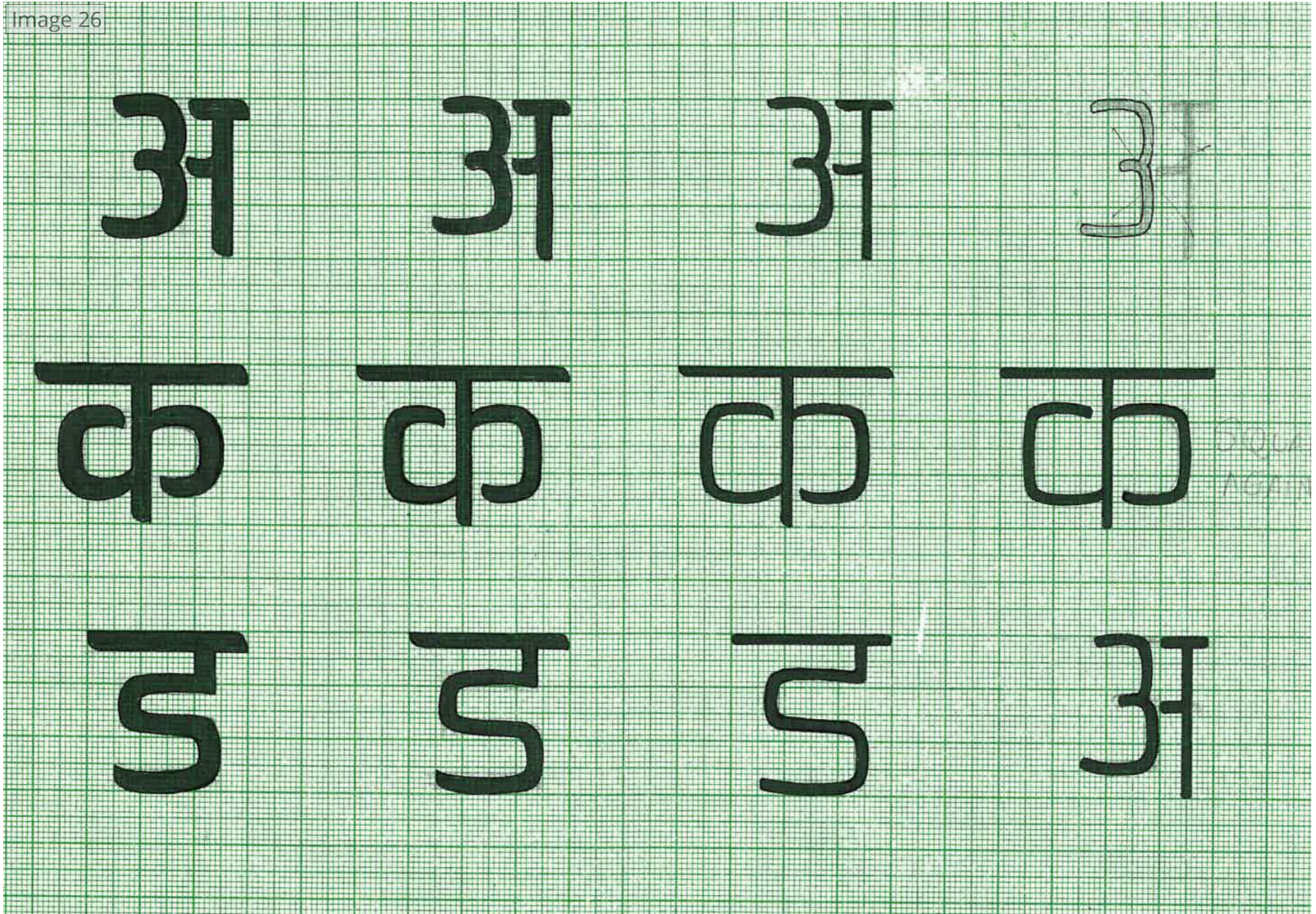


Image 27

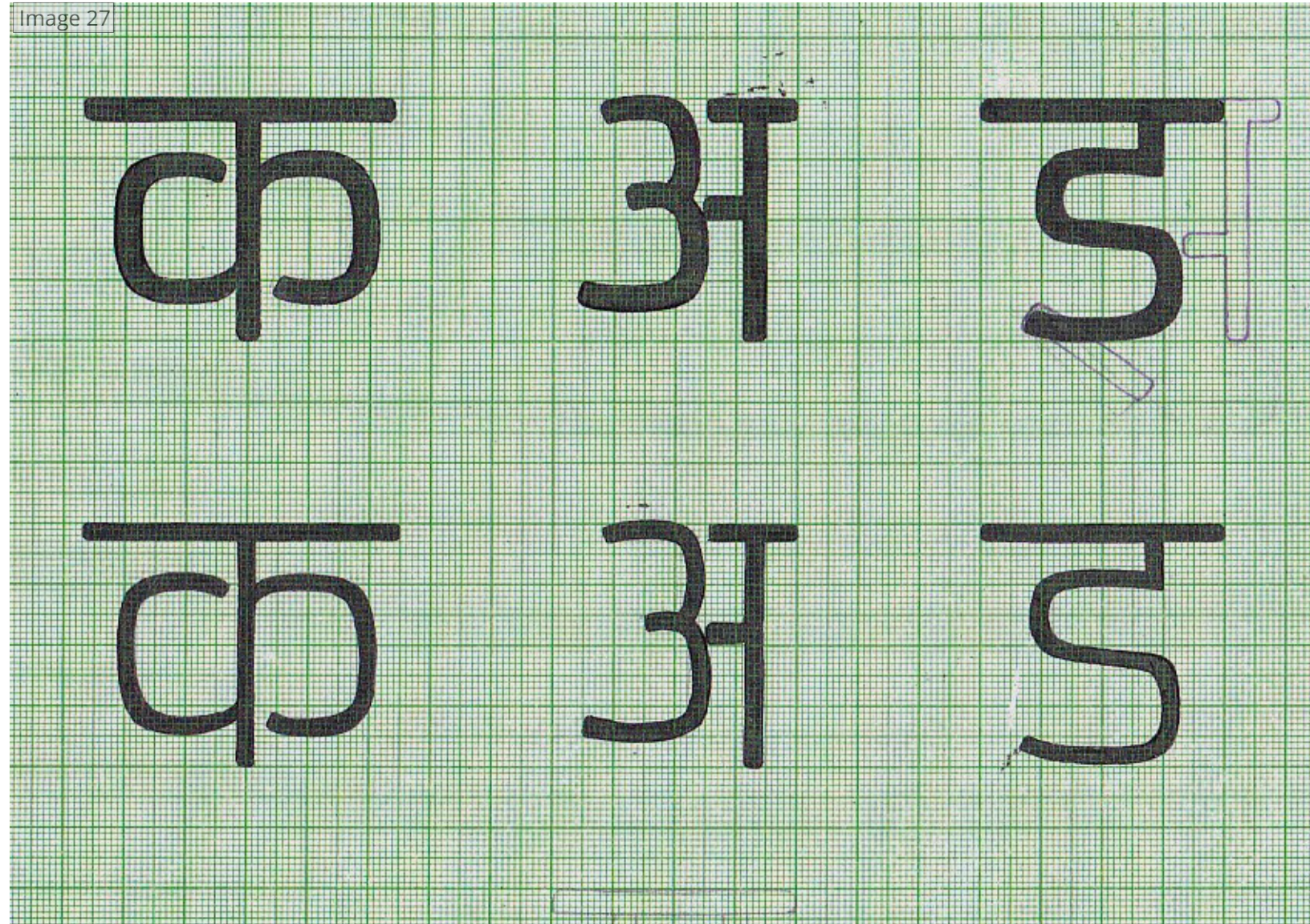


Image 27

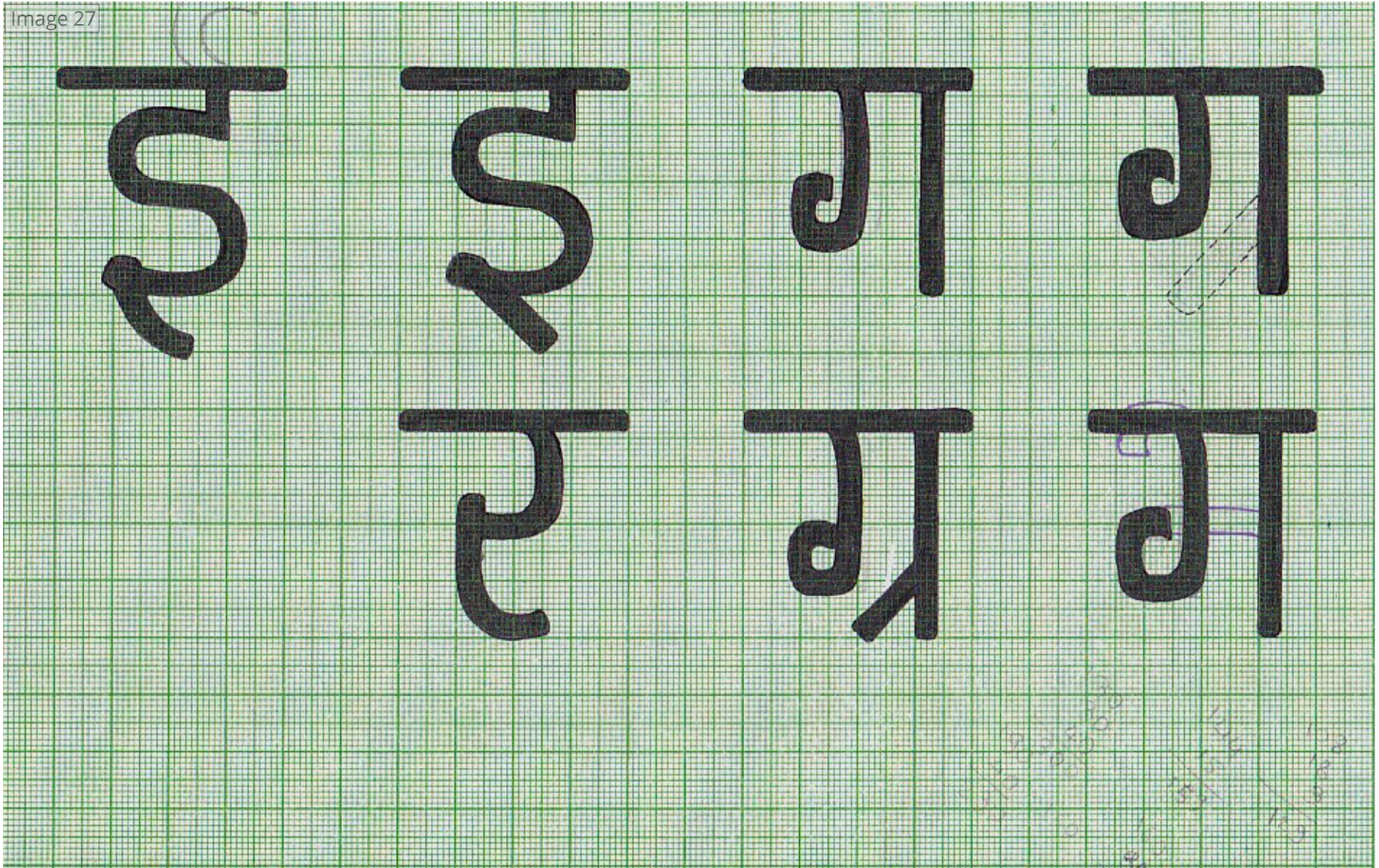


Image 28

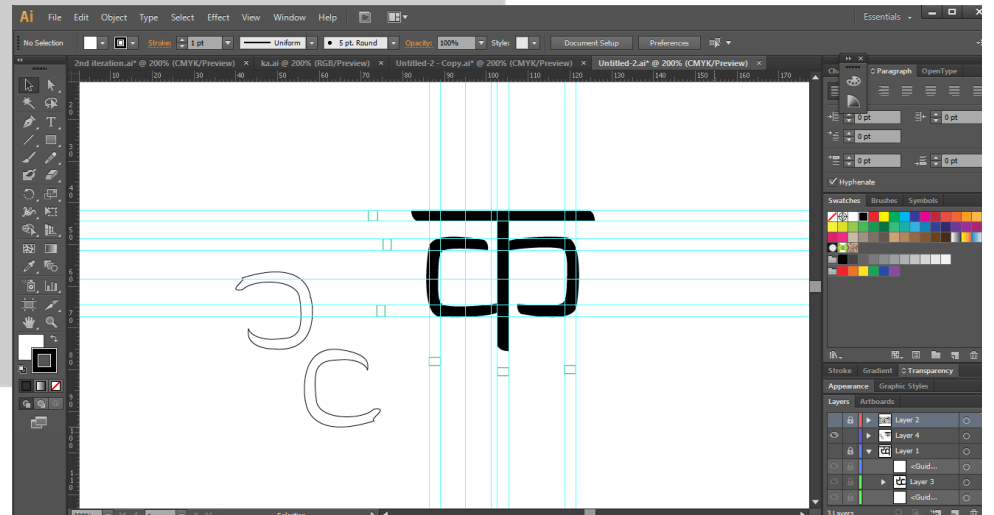
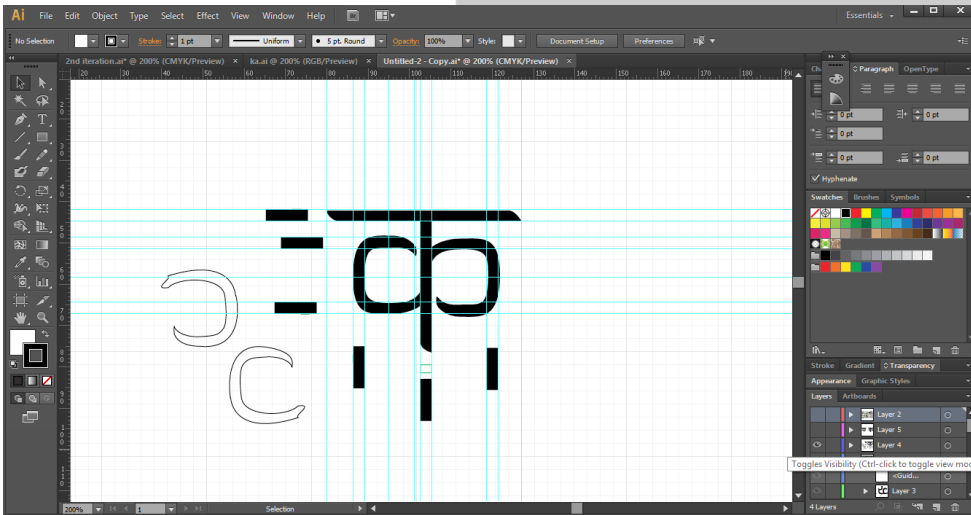
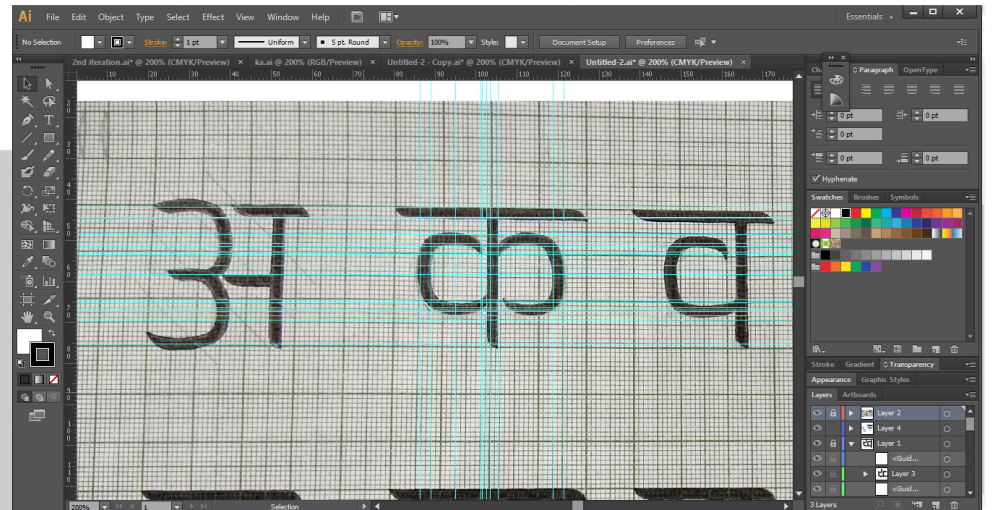
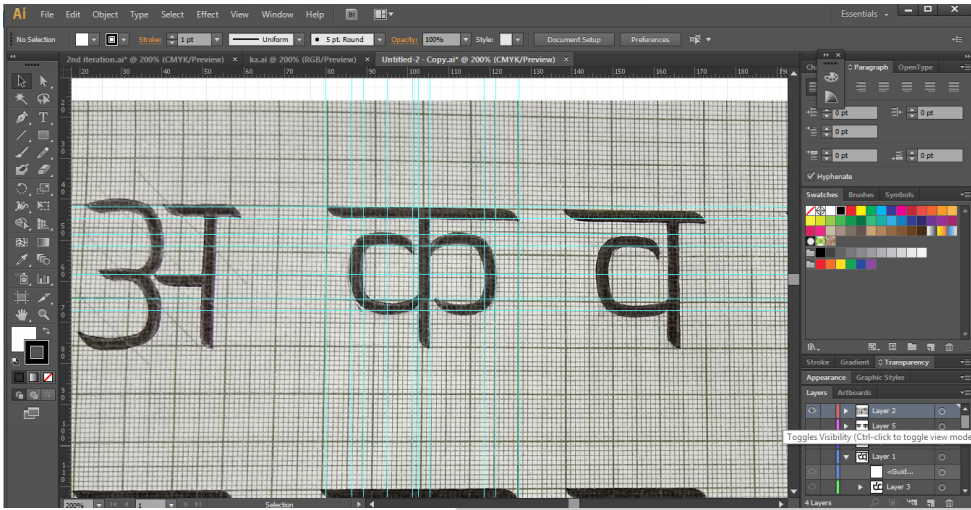


Image 29

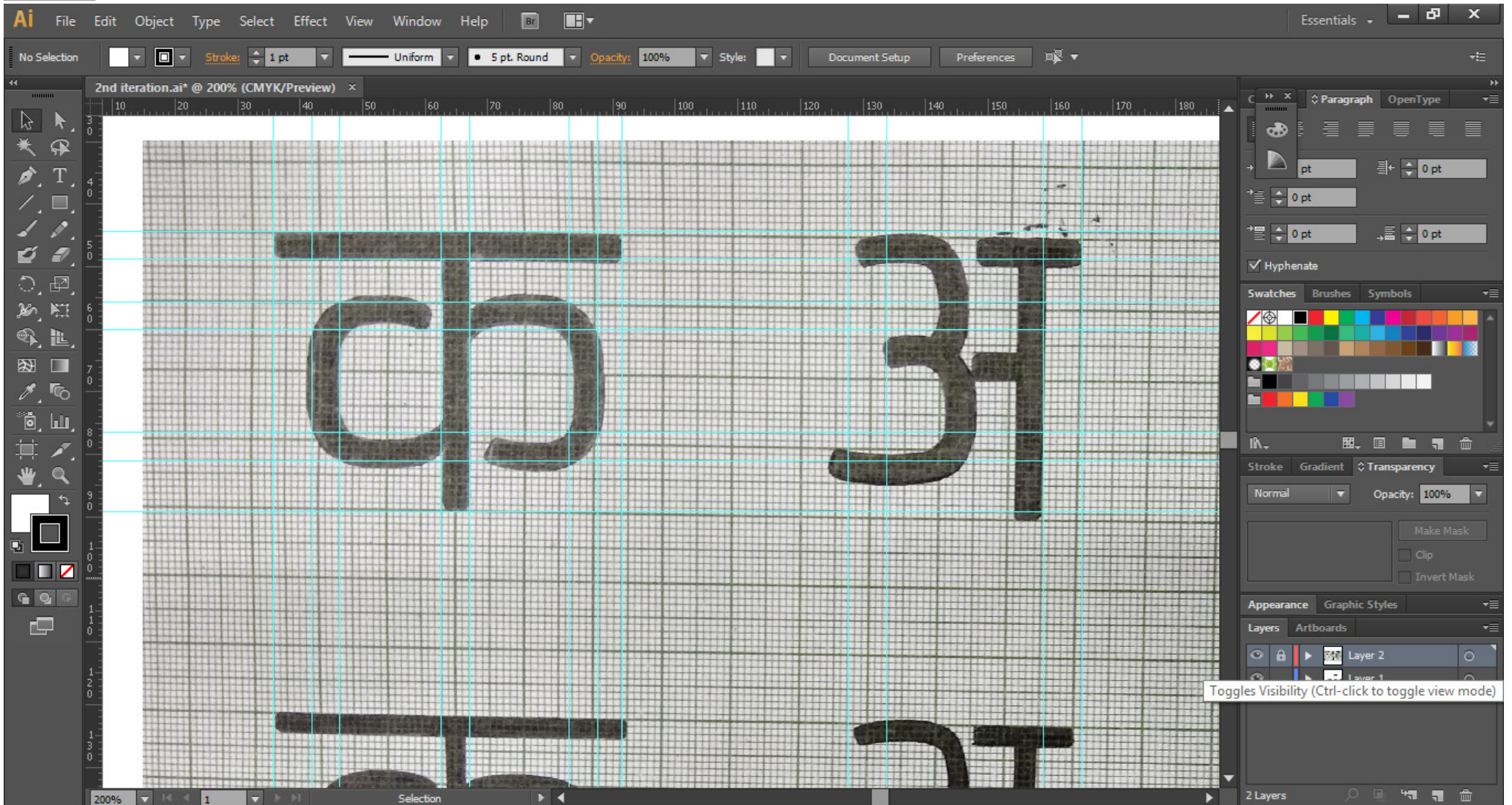


Image 30

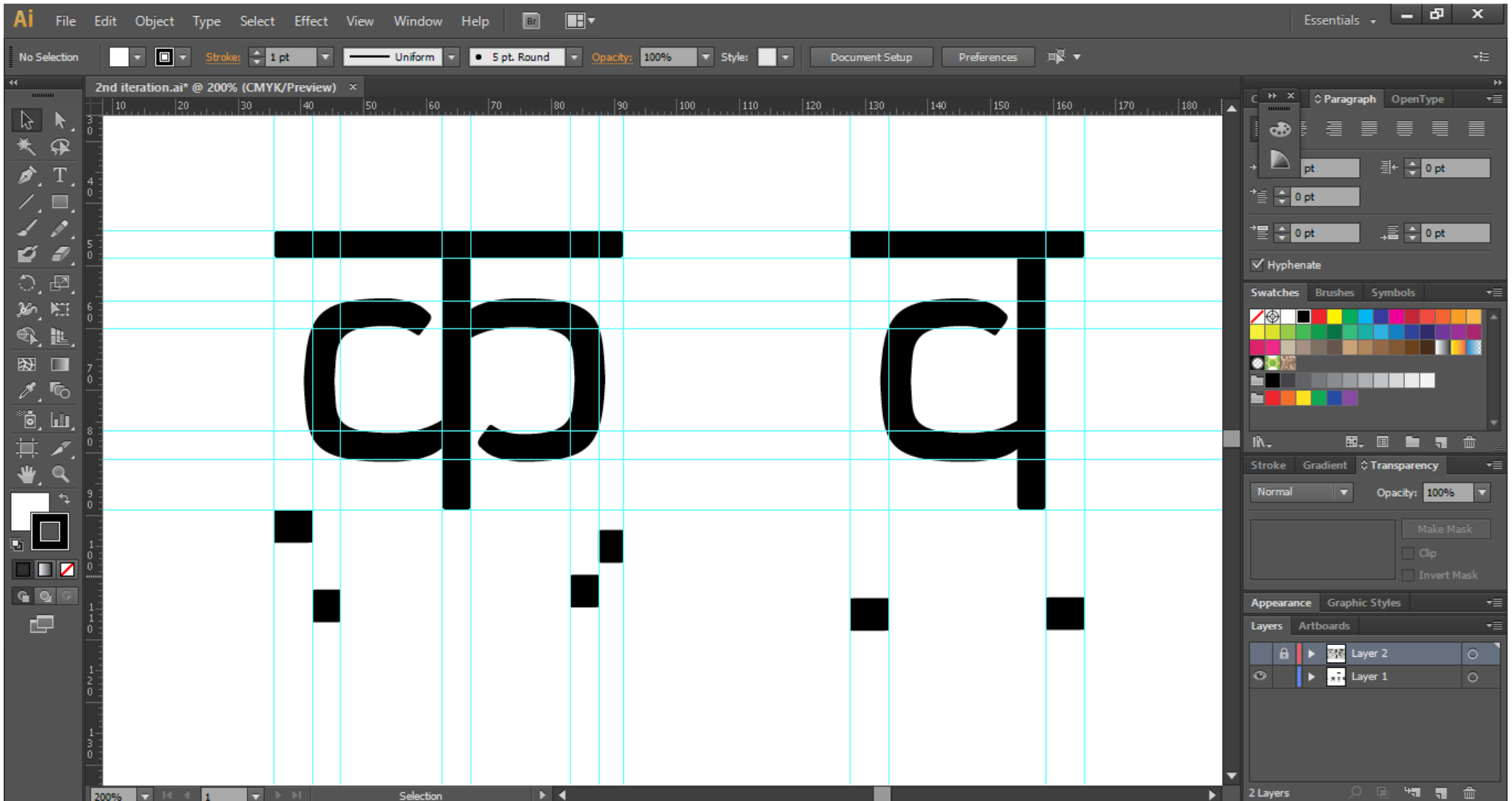


Image 31

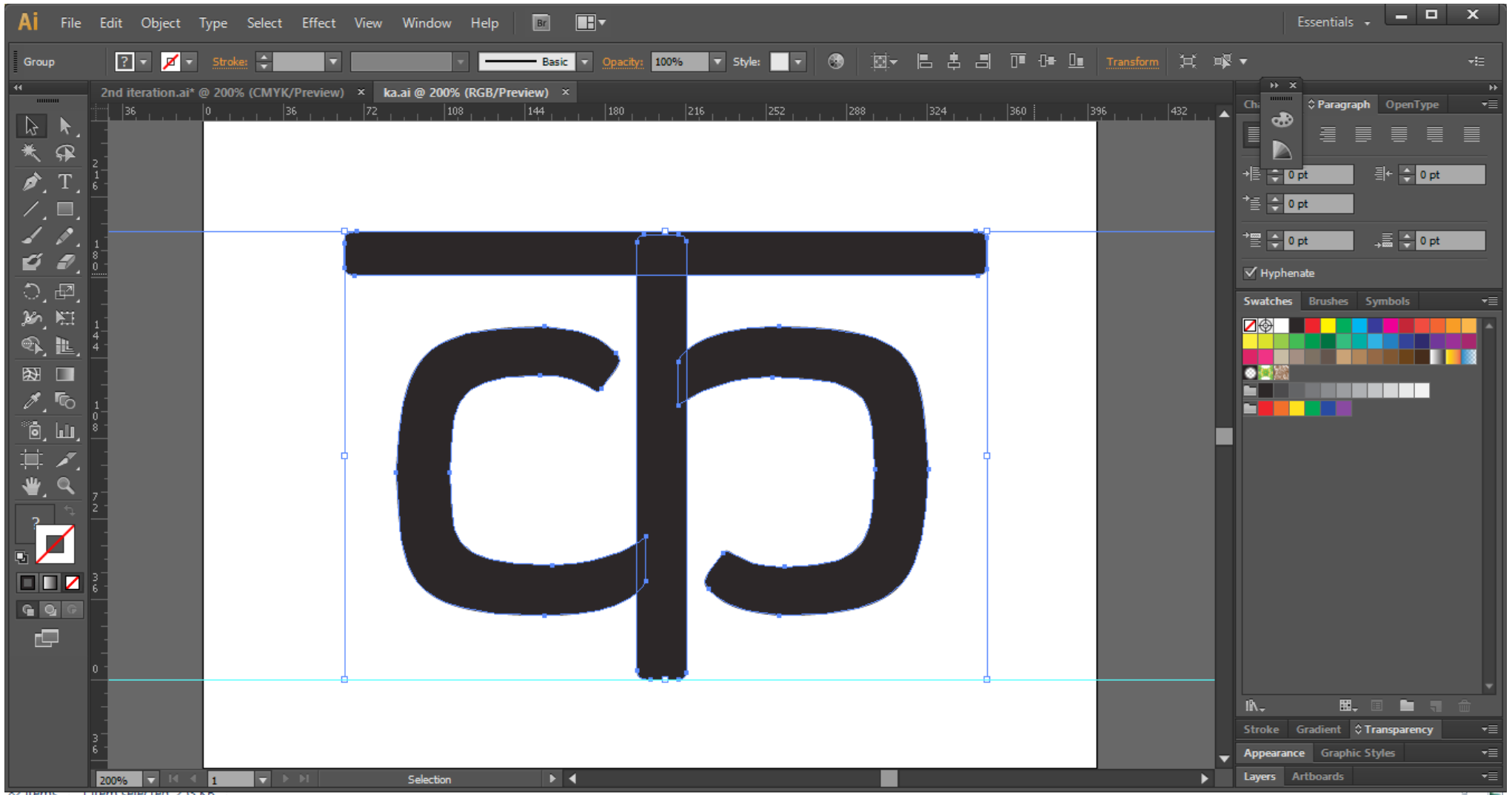


Image 32

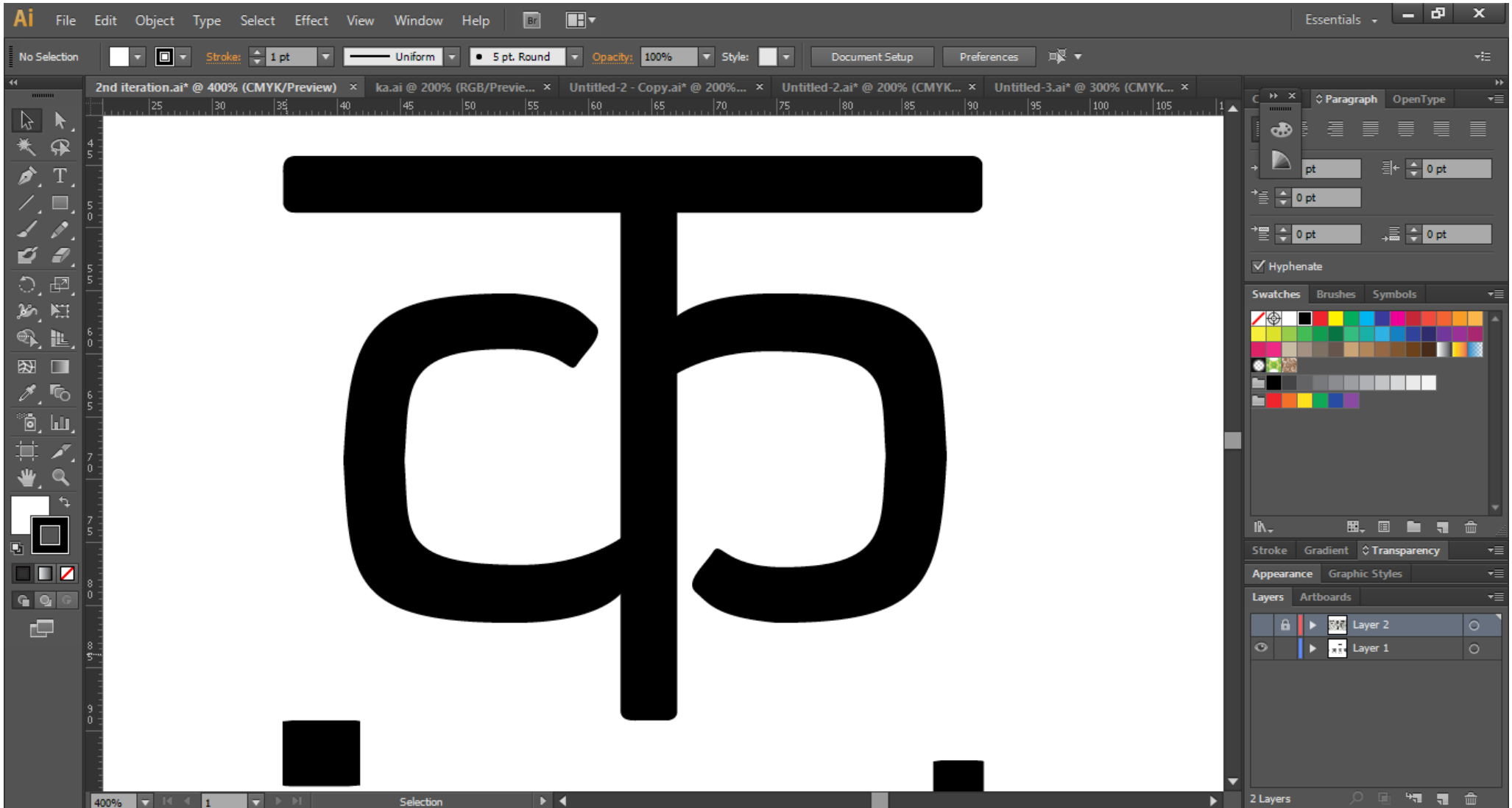


Image 33



Image 34

क

क क
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क क क क
क क क क क क
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क क क क क क
क क क क क क

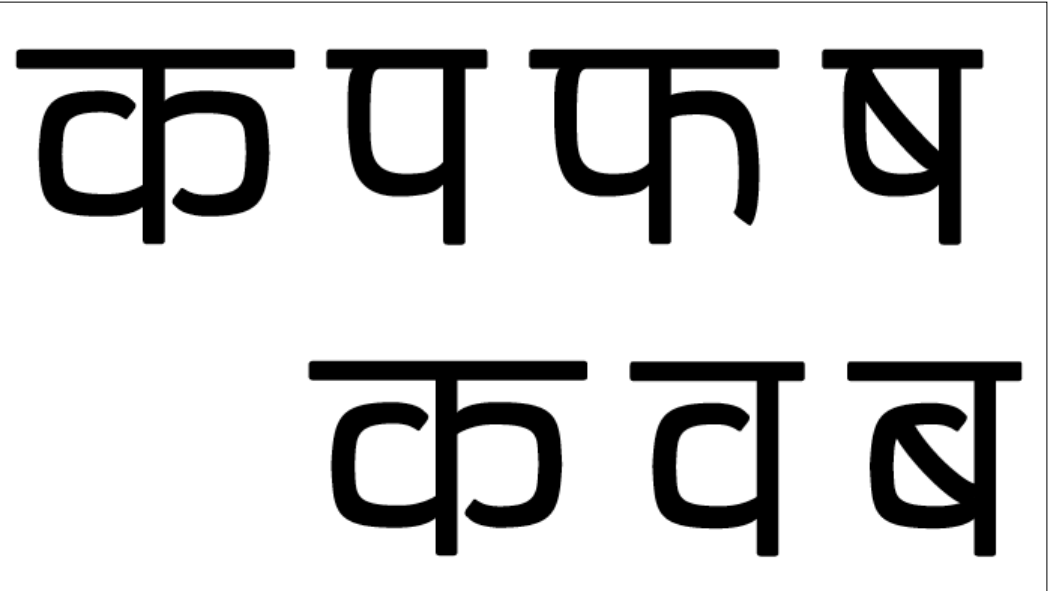
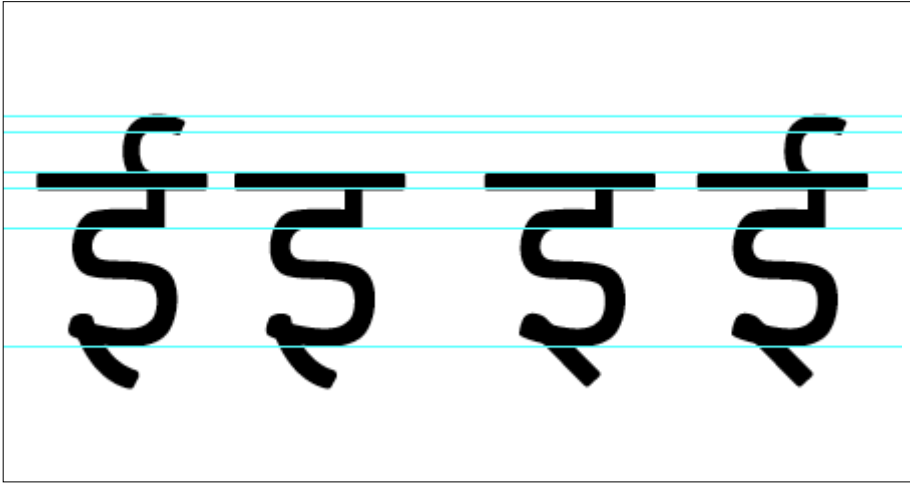


Image 35

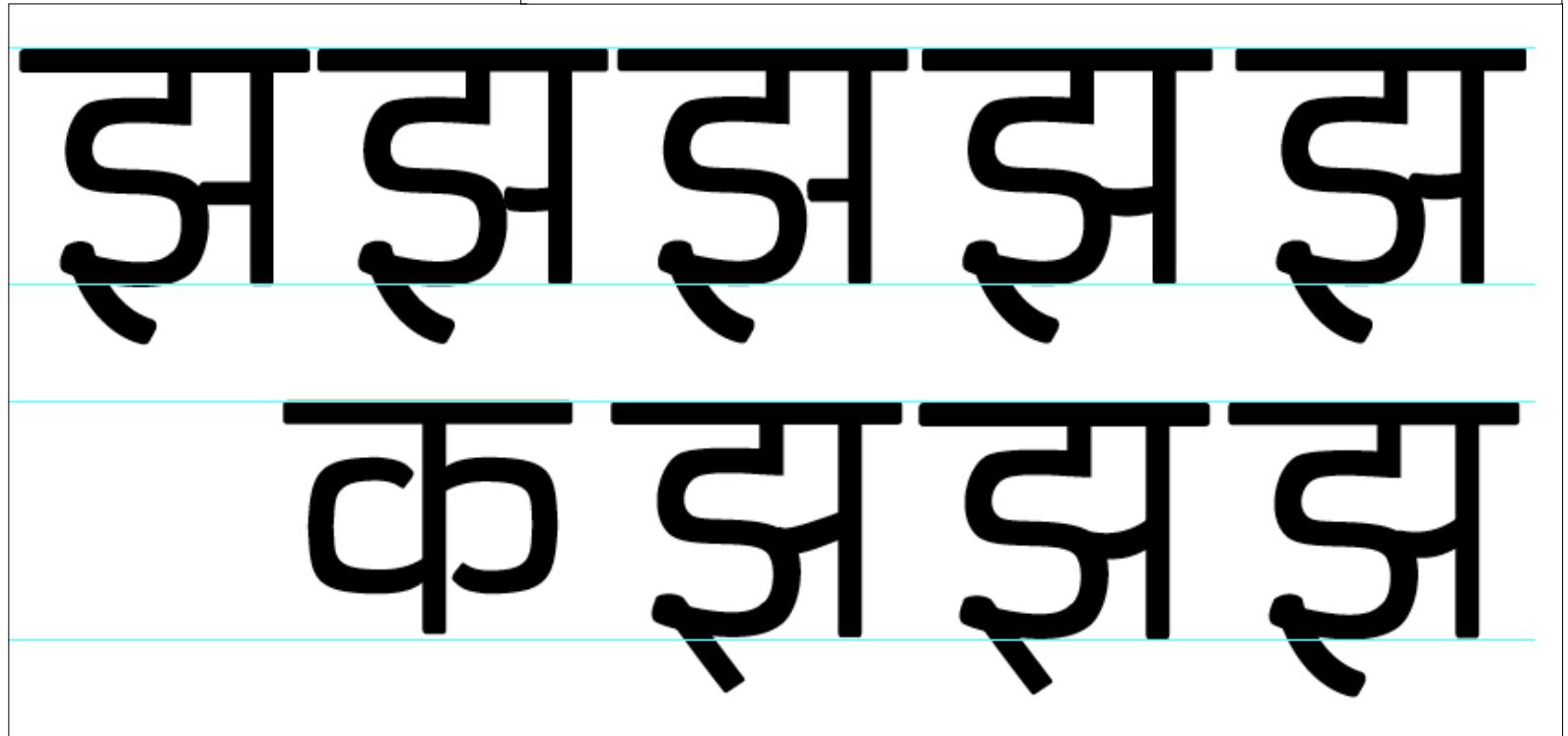


Image 36

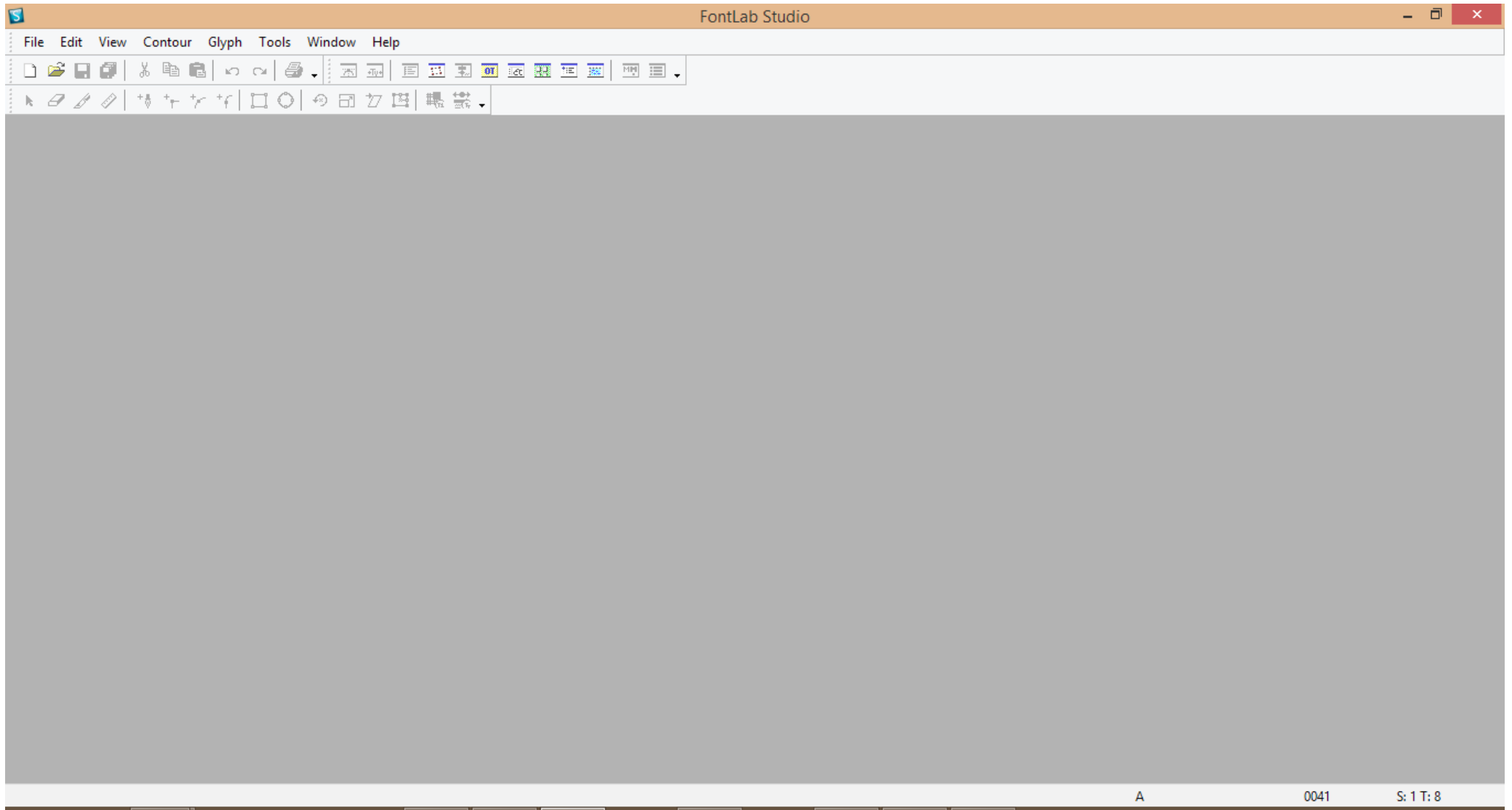


Image 37

The screenshot shows the FontLab Studio interface with a 'File' menu open. The menu items include: New (Ctrl+N), Open... (Ctrl+O), Open Installed..., Search..., Close, Save (Ctrl+S), Save As... (Ctrl+Shift+S), Save All, Revert (Ctrl+Shift+R), Generate Font... (Ctrl+Alt+G), Generate All..., Import, Export, Font Info... (Ctrl+Alt+F), and Print... (Ctrl+P). The main window displays a font grid for 'Font - Untitled 1' with 'Default Encoding' selected. The grid shows various glyphs including punctuation, numbers, letters with diacritics, and special characters. The status bar at the bottom indicates 'Creates a new font' and 'S: 0 T: 0'.

Image 38

FontLab Studio - [Font - Untitled 2 [D:\...\FontLab\ka.vfb]]

File Edit View Contour Glyph Tools Window Help

Name Default Encoding

...	...	...	...	...	breve	dotaccent	...	ring	...	hungarum	ogonek	caron	dotlessi	...	...	...	...	...	...	...	...	fraction	fi	fl	Lslash	lslash	Zcaron	zcaron	space	exclam	quotedbl	numbersig			
					˘	·		◊		˝	˛	ˇ	ı									/	fi	fl	Ł	ł	Ž	ž		!	"	#					
dollar	percent	ampersand	quotesing	parenleft	parenright	asterisk	plus	comma	hyphen	period	slash	zero	one	two	three	four	five	six	seven	eight	nine	colon	semicolon	less	equal	greater	question	at	A	B	C	D	E	F	G		
\$	%	&	'	()	*	+	,	-	.	/	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?	@	क	१	३	८	५	९	०	१	२
H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	\]	^	_	`	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	{	|	}	~	€		,	f	„	…	†	‡	^	‰	Š	<	Œ						
...	quoteleft	quoteright	quotedblleft	quotedblright	bullet	endash	emdash	tilde	trademark	scaron	guillemotleft	oe	Ydieresis	uni00A0	exclamdot	cent	sterling	currency	yen	brokenbar	section	dieresis	copyright	ordfeminine	guillemotright	logicalnot	minus	registered	macron	degree	plusminus	twosuper	threesuper	sup	
	‘	’	“	”	•	—	—	~	™	š	>	œ			ÿ		ı	¢	£	¤	¥	|	§	¨	©	ª	«	¬	–	®		°	±	²	³		
acute	mu	paragraph	periodcentered	cedilla	onesuperior	ordmasculine	guillemotleft	onequarter	onehalf	threequarters	question	Agrave	Aacute	Acircumflex	Atilde	Adieresis	Aring	AE	Cedilla	Egrave	Eacute	Ecircumflex	Edieresis	Igrave	Iacute	Icircumflex	Idieresis	Eth	Ntilde	Ograve	Oacute	Ocircumflex	Otilde	Odieresis	multiply		
´	μ	¶	·	¸	¹	²	»	¼	½	¾	¿	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×		
Oslash	Ugrave	Uacute	Ucircumflex	Udieresis	Yacute	Thorn	germandbls	agrave	acute	ccircumflex	atilde	adieresis	aring	ae	cedilla	egrave	eacute	ecircumflex	edieresis	igrave	iacute	icircumflex	idieresis	eth	ntilde	ograve	oacute	ocircumflex	otilde	odieresis	divide	oslash	ugrave	uacute	ucircumflex	udieresis	
ø	ù	ú	û	ü	ý	þ	ß	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	
ydieresis	yacute	thorn	ydieresis																																		
ÿ	ý	þ	ÿ																																		

Use left mouse button to select one or more glyphs

A 0041 S: 1 T: 8

Image 39

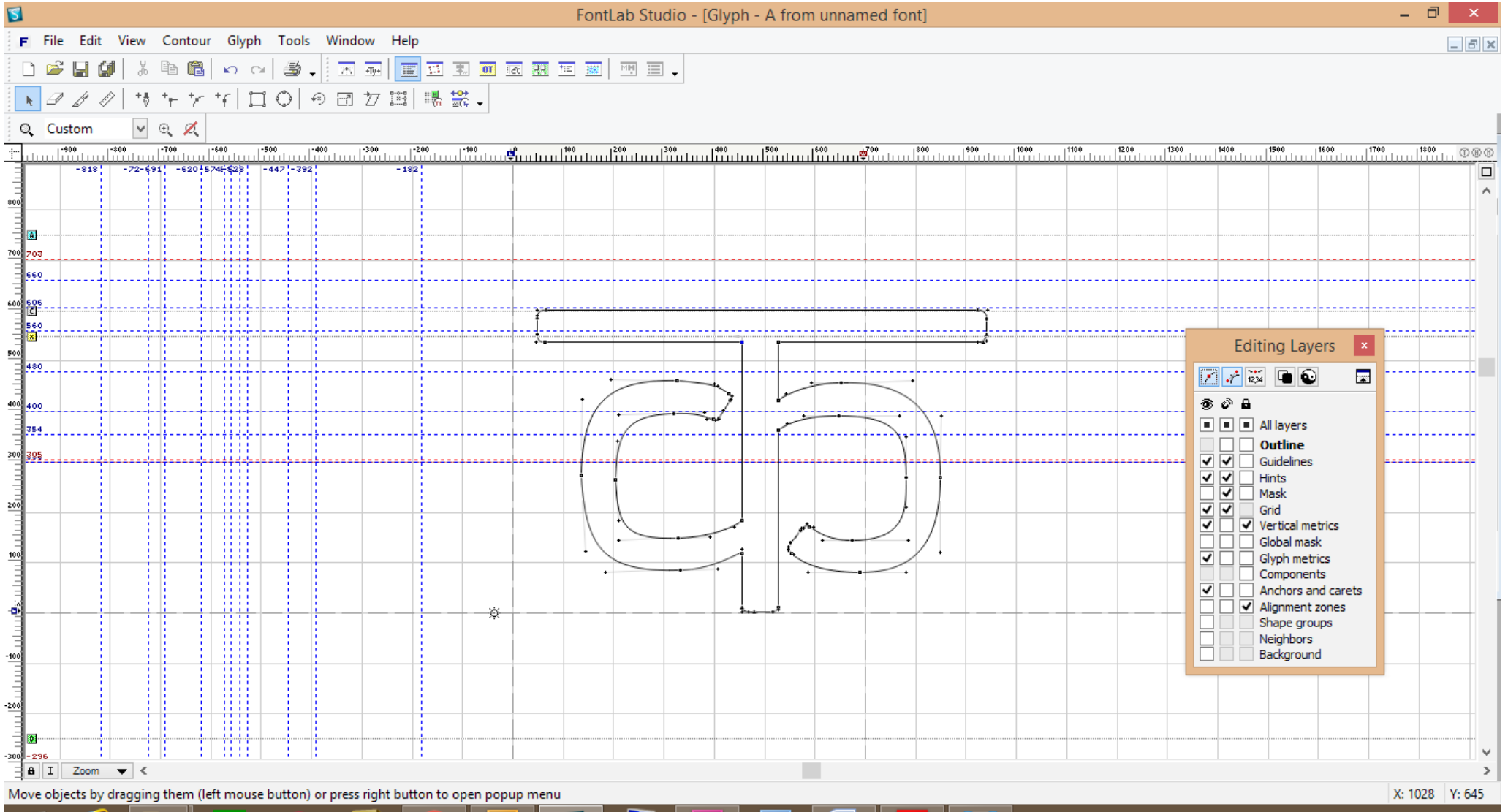


Image 40

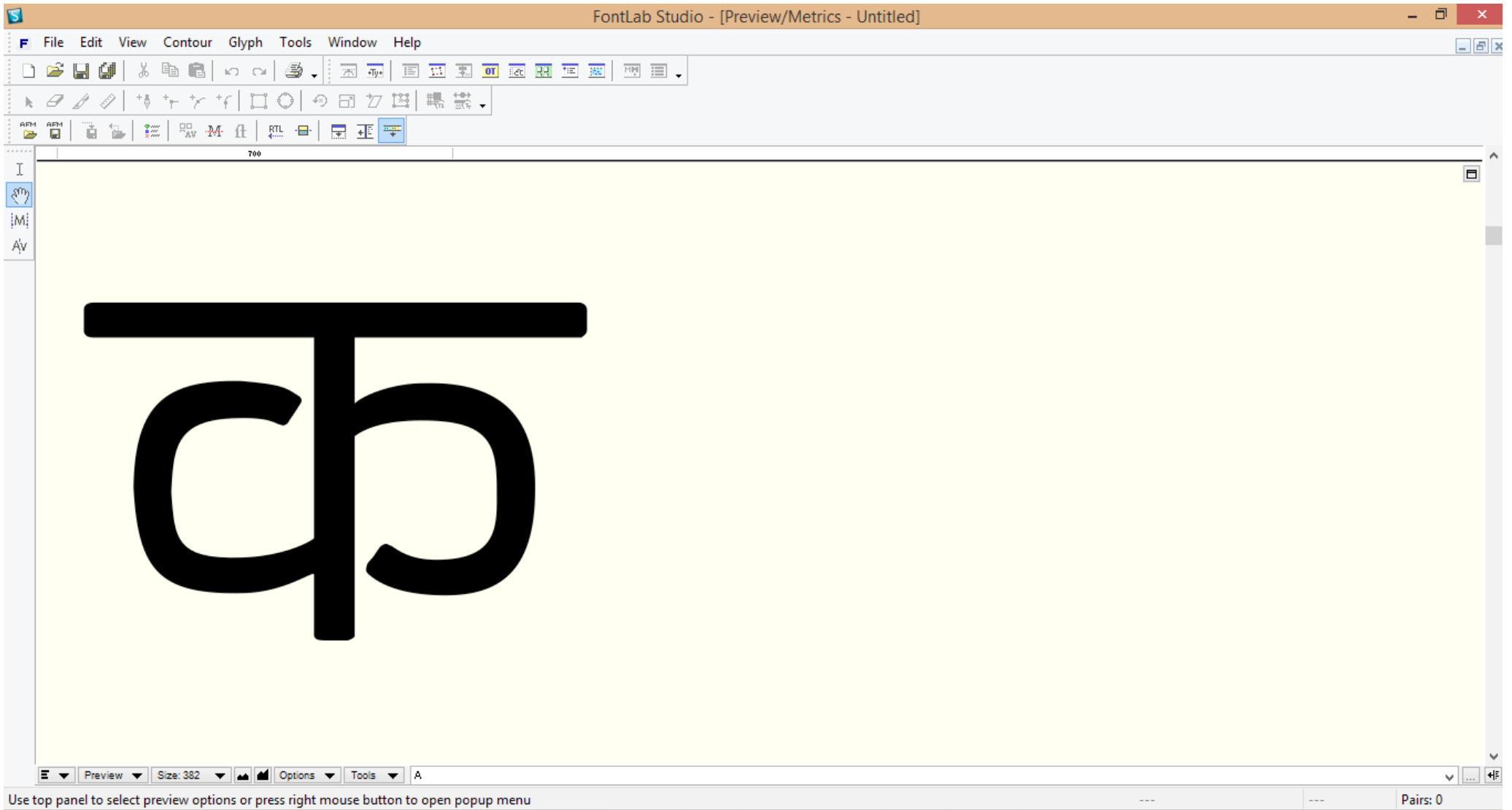


Image 41

FontLab Studio - [Font - Untitled 3 [D:\...\FontLab\new_v3.vfb]]

File Edit View Contour Glyph Tools Window Help

Name Default Encoding

...	...	...	...	breve	dotaccent	...	ring	...	hungaruml	ogonek	caron	dotlessi	...	...	...	...	...	...	...	fraction	fi	fl	Lslash	lslash	Zcaron	zcaron	space	exclam	quotedbl	numbersic					
dollar	percent	ampersand	quotering	parenleft	parenright	asterisk	plus	comma	hyphen	period	slash	zero	one	two	three	four	five	six	seven	eight	nine	colon	semicolon	less	equal	greater	question	at	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	bracketleft	bracketright	bracketleftbackslash	bracketrightbackslash	asciicircum	underscore	grave	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	{	|	}	asciitilde	...	Euro	...	quotering	florin	quotedbl	ellipsis	dagger	daggerdbl	circumflex	perthousand	Scaron	guillemotleft	OE	...	...	...
...	quoteleft	quoteright	quotedblleft	quotedblright	bullet	endash	emdash	tilde	trademark	scaron	guillemotright	oe	...	...	Ydieresis	uni00A0	exclamdown	cent	sterling	currency	yen	brokenbar	section	dieresis	copyright	ordfeminine	guillemotright	logicalnot	minuz	registered	macron	degree	plusminus	twosuperior	threesuperior
acute	mu	paragraph	periodcentered	cedilla	onesuperior	ordmasculine	guillemotleft	onesuperior	onehalf	threequarters	questiondown	Agrave	Aacute	Acircumflex	Atilde	Adieresis	Aring	AE	Ccedilla	Egrave	Eacute	Ecircumflex	Edieresis	Igrave	Iacute	Icircumflex	Idieresis	Eth	Ntilde	Ograve	Oacute	Ocircumflex	Otilde	Odieresis	multiply	
Oslash	Ugrave	Uacute	Ucircumflex	Udieresis	Yacute	Thorn	germandbls	agrave	acute	acircumflex	atilde	adieresis	aring	ae	ccedilla	egrave	eacute	ecircumflex	edieresis	igrave	iacute	icircumflex	idieresis	eth	ntilde	ograve	oacute	ocircumflex	otilde	odieresis	divide	oslash	ugrave	uacute	ucircumflex	
udieresis	yacute	thorn	ydieresis	Ka	vowelAA	Fa	Va	Ba	Dds	vowelI	vowelEE	Jha	Dnya	vowelAA	matraA	matraI	matraEE	vowelO	Shha	vowelAU	matraO	matraAO	Pa													
ü	ý	þ	ÿ	क	अ	फ	व	ब	ड	इ	ई	झ	ज्ञ	आ	ा	ि	ी	ओ	ष	औ	ो	ै	प													

Use left mouse button to select one or more glyphs

Pa 0050 S: 20 T: 20

Image 42

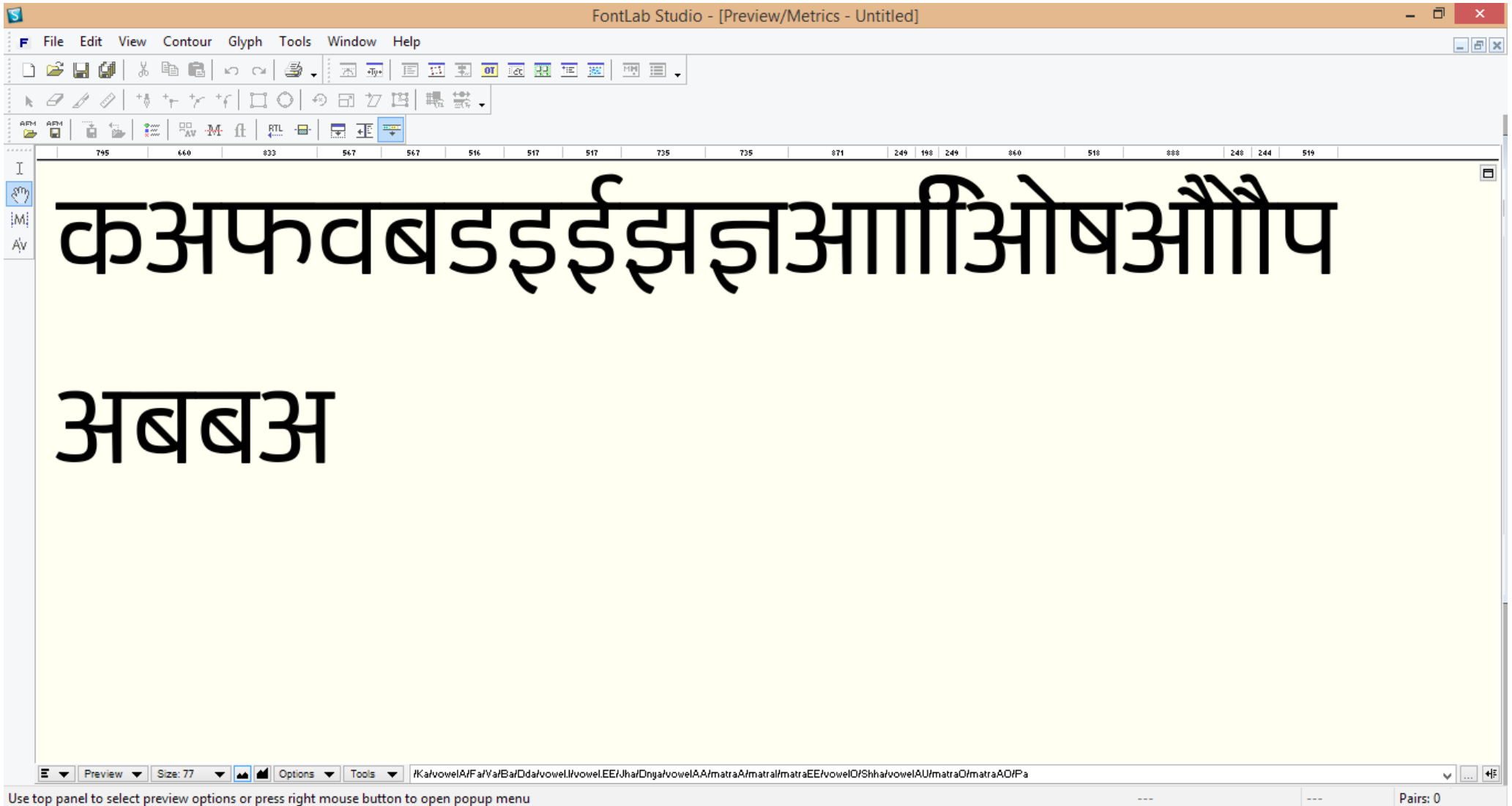
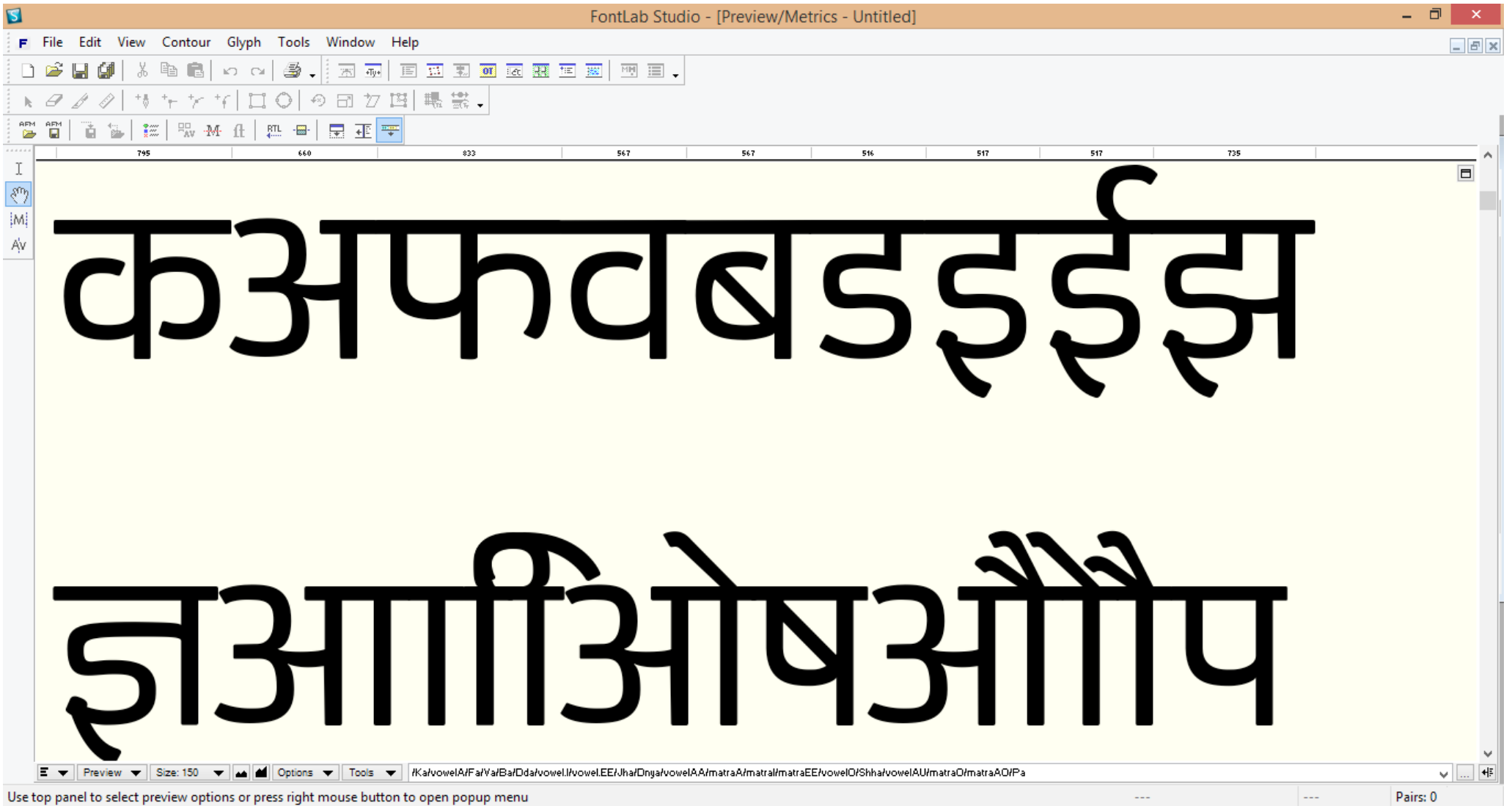


Image 43



Font: Unnamed

String: A,a,C,c,E,F,K,P,V,Z,[,],;,:z

Sizes: 10,15,20,25,30,35, 40, 42, 48, 56, 64, 72

- 10. अआओऔइफकपवझाि़ैज्ञ
- 15. अआओऔइफकपवझाि़ैज्ञ
- 20. अआओऔइफकपवझाि़ैज्ञ
- 25. अआओऔइफकपवझाि़ैज्ञ
- 30. अआओऔइफकपवझाि़ैज्ञ
- 35. अआओऔइफकपवझाि़ैज्ञ
- 40. अआओऔइफकपवझाि़ैज्ञ
- 42. अआओऔइफकपवझाि़ैज्ञ
- 48. अआओऔइफकपवझाि़ैज्ञ
- 56. अआओऔइफकपवझाि़ैज्ञ
- 64. अआओऔइफकपवझाि़ैज्ञ
- 72. अआओऔइफकपवझाि़ैज्ञ

FONTLAB FONT WATERFALL

Font: Unnamed

06/19

String: A,a,C,c,E,F,K,P,V,Z,[,],:;z

Sizes: 10,15,20,25,30,35, 40, 42, 48, 56, 64, 72

lower stroke appears thinner than upper ones

10. अ आ ओ औ इ फ क प व झा ि िै ज्ञ

thinner

15. अ आ ओ औ इ फ क प व झा ि िै ज्ञ

20. अ आ ओ औ इ फ क प व झा ि िै ज्ञ

25. अ आ ओ औ इ फ क प व झा ि िै ज्ञ

30. अ आ ओ औ इ फ क प व झा ि िै ज्ञ

35. अ आ ओ औ इ फ क प व झा ि िै ज्ञ

40. अ आ ओ औ इ फ क प व झा ि िै ज्ञ

42. अ आ ओ औ इ फ क प व झा ि िै ज्ञ

48. अ आ ओ औ इ फ क प व झा ि िै ज्ञ

56. अ आ ओ औ इ फ क प व झा ि िै ज्ञ

64. अ आ ओ औ इ फ क प व झा ि िै ज्ञ

72. अ आ ओ औ इ फ क प व झा ि िै ज्ञ

or make this a little thin

knot could be better smoother

either make this a little thick

smoother

smoother

Font: Unnamed

06/19/18 18:23:57

String: /vowelA/Dda/vowel.I/vowel.EE/Jha/vowelAA/vowelO/vowelAU

Sizes: 5,10,15,20,25,30,36, 40, 48, 56, 64, 72,80

5. अडइइझआओऔ
 10. अडइइझआओऔ
 15. अडइइझआओऔ
 20. अडइइझआओऔ
 25. अडइइझआओऔ
 30. अडइइझआओऔ
 36. अडइइझआओऔ
 40. अडइइझआओऔ
 48. अडइइझआओऔ
 56. अडइइझआओऔ
 64. अडइइझआओऔ
 72. अडइइझआओऔ
 अडइइझआओऔ

Font: Unnamed

06/22/18 18:25:24

String: /vowelE/vowelAVisarga/vowelChandraO/vowelChandraA/Chha/Dha/matraU/Gha/matraOO/vowelAI/vowelU/vowelAAnuswar/vowelOO/Gha/matrachandraA

Sizes: 10,20,30,40,50,60,70,80

Page 1/2

10. एअःआँअँछधुघूऐउअंऊघँ

20. एअःआँअँछधुघूऐउअंऊघँ

30. एअःआँअँछधुघूऐउअंऊघँ

40. एअःआँअँछधुघूऐउअंऊघँ

50. एअःआँअँछधुघूऐउअंऊघँ

60. एअःआँअँछधुघूऐउअंऊघँ

70. एअःआँअँछधुघूऐउअंऊघँ

Font: Unnamed

06/20/18 18:20:19

String: /Ka/vowelA/Fa/Va/Ba/Dda/vowel.I/vowel.EE/Jha/Dnya/vowelAA/vowelO/Shha/vowelAU/Pa/matraO/Dda/matral/Ka/matraAO/Dda/matraA/Pa/matraEE/Shha/matraEE

Sizes: 10,15,20,25,30,36, 40,48, 56, 64, 72

Page 1/2

10. कअफवबडइईझअओषऔपोडकिौडापीषी

15. कअफवबडइईझअओषऔपोडकिौडापीषी

20. कअफवबडइईझअओषऔपोडकिौडापीषी

25. कअफवबडइईझअओषऔपोडकिौडापीषी

30. कअफवबडइईझअओषऔपोडकिौडापीषी

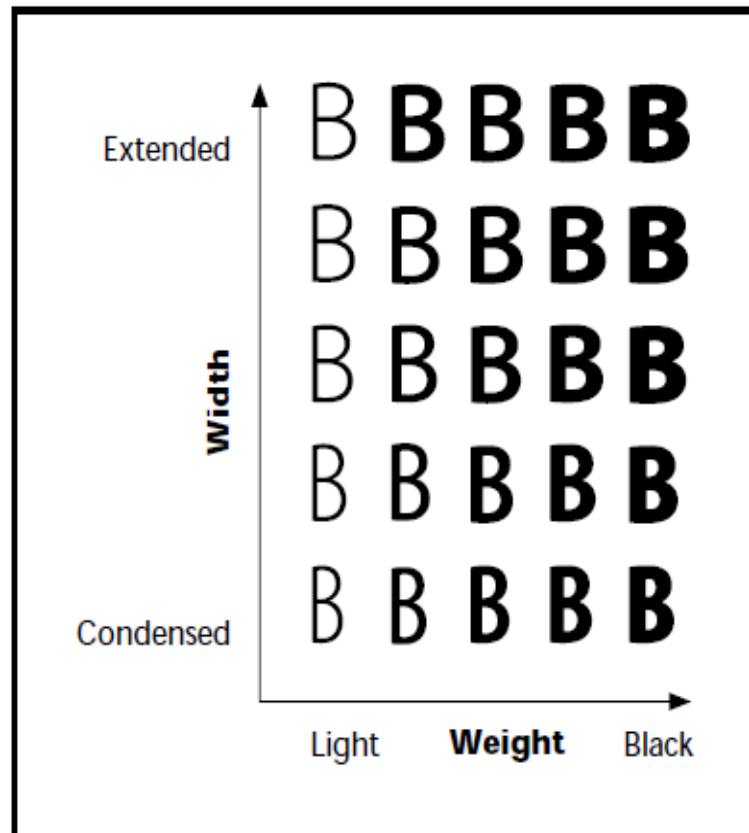
36. कअफवबडइईझअओषऔपोडकिौडापीषी

40. कअफवबडइईझअओषऔपोडकिौडापीषी

48. कअफवबडइईझअओषऔपोडकिौडापीषी

56. कअफवबडइईझअओषऔपोडकिौडापी

Image 50



Making the Font Variable using Multiple Masters in FontLab

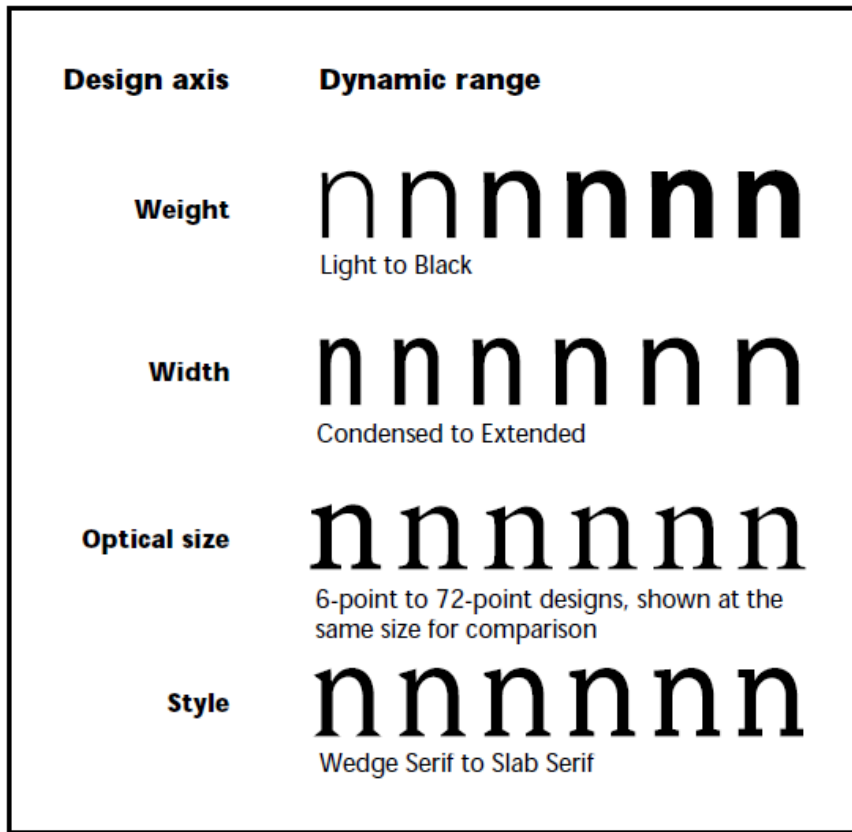
Version 1.8 of the OpenType font format specification introduced a new extension to the format known as OpenType Font Variations. Fonts that use these extensions are known as OpenType variable fonts. An OpenType variable font is a single font that can behave like several fonts by using continuous interpolation between different designs, all defined within the single font.

An OpenType variable font can define continuous variation of its design along one or more independent axes, such as weight or width.

These axes can include a set of well-known (or registered) axes of variation, such as weight and width, but they can also include arbitrary, custom axes of variation defined by the font developer.

By selecting a set of variation axes for a font, the font developer defines an abstract, n-dimensional space of design variation for the font. Text engines can specify potentially any position, or “instance”, within that continuous space for laying out and rendering text.

The font developer can also select and assign names to particular instances within the design-variation space; these are referred to as “named instances”.



For example, a font with weight variation may support continuous variation between very light and very heavy strokes, while the font developer has selected particular weights along that continuum and assigned names to them, such as “Light”, “Regular” and “Semibold”. To generate instances using the interpolation process, all master designs incorporated into a multiple master typeface must be compatible. In other words, there must be a one-to-one correspondence between the elements comprising the characters in one master design and those in the other master designs. Hence, it is very important to place control points (on the outlines of glyphs) at appropriate position which would give better result after interpolation.

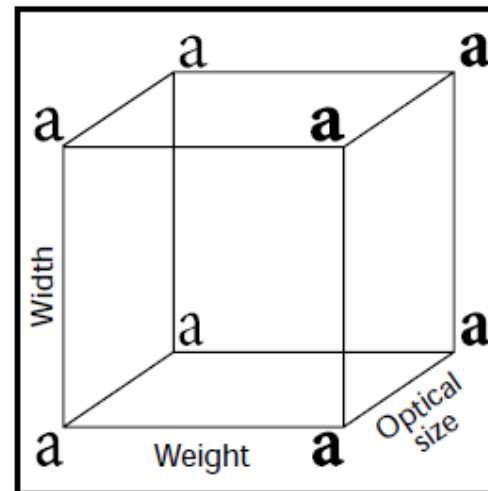
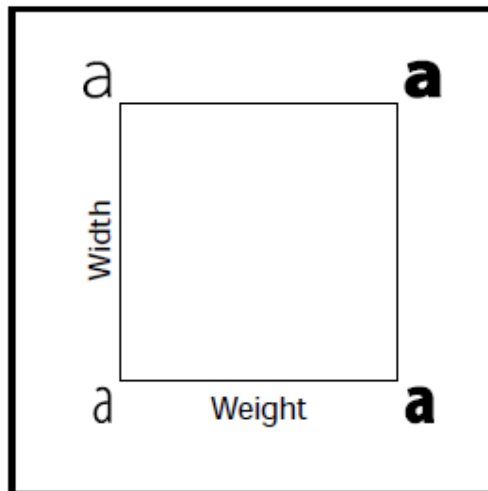
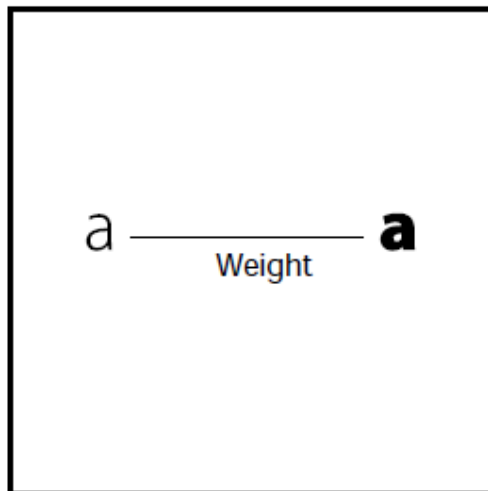


Image 51

Image 52

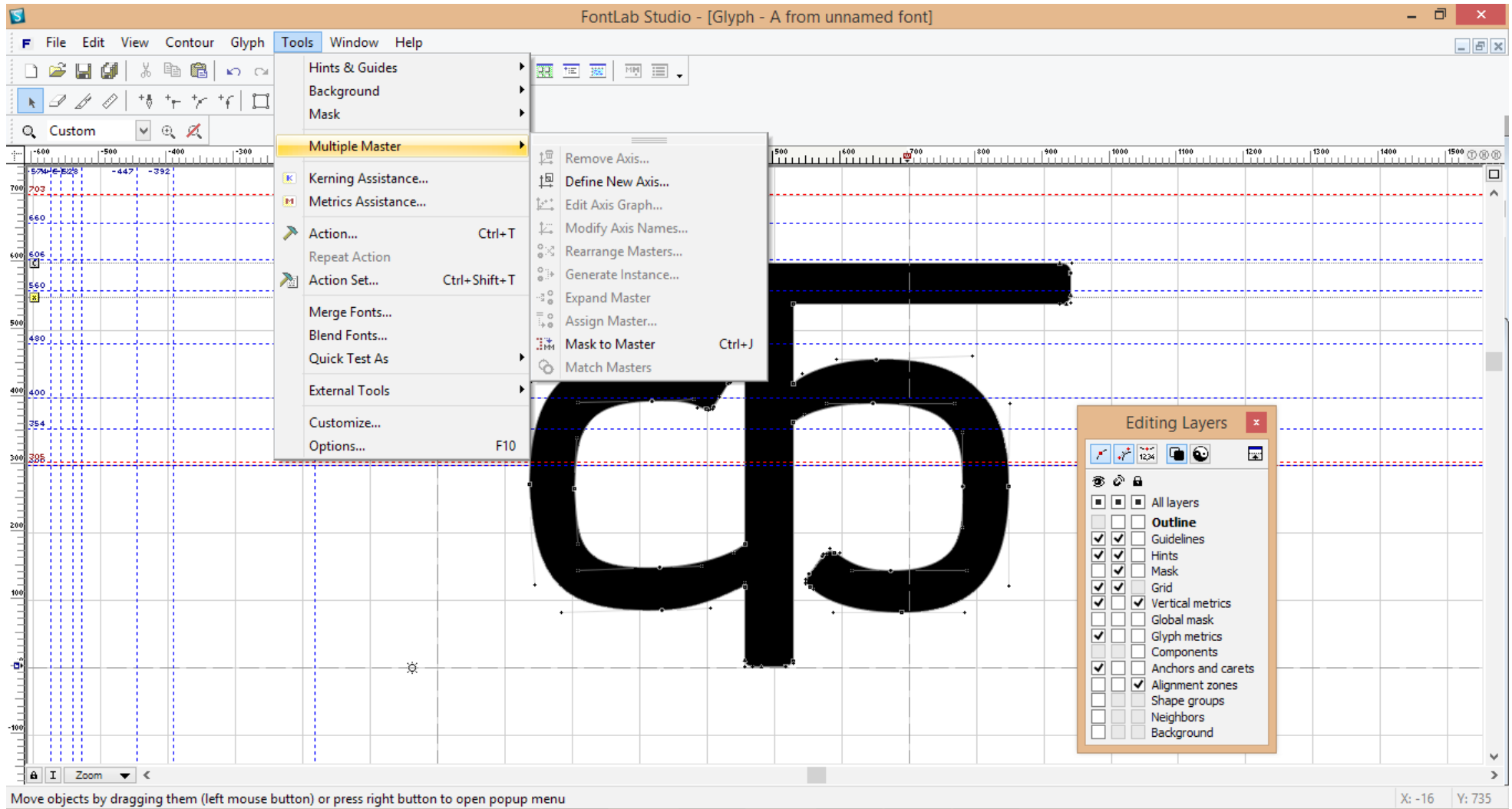


Image 53

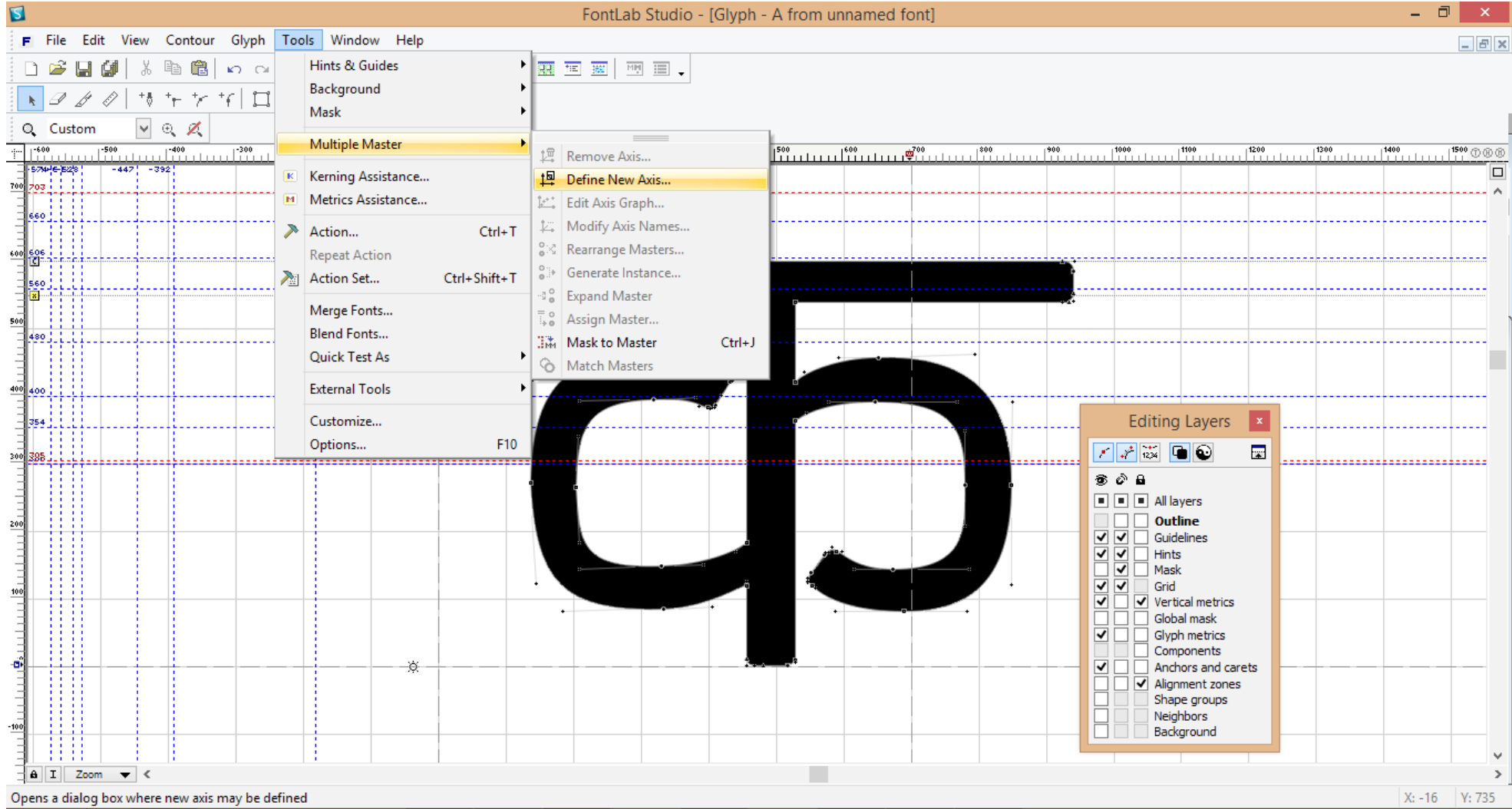


Image 54

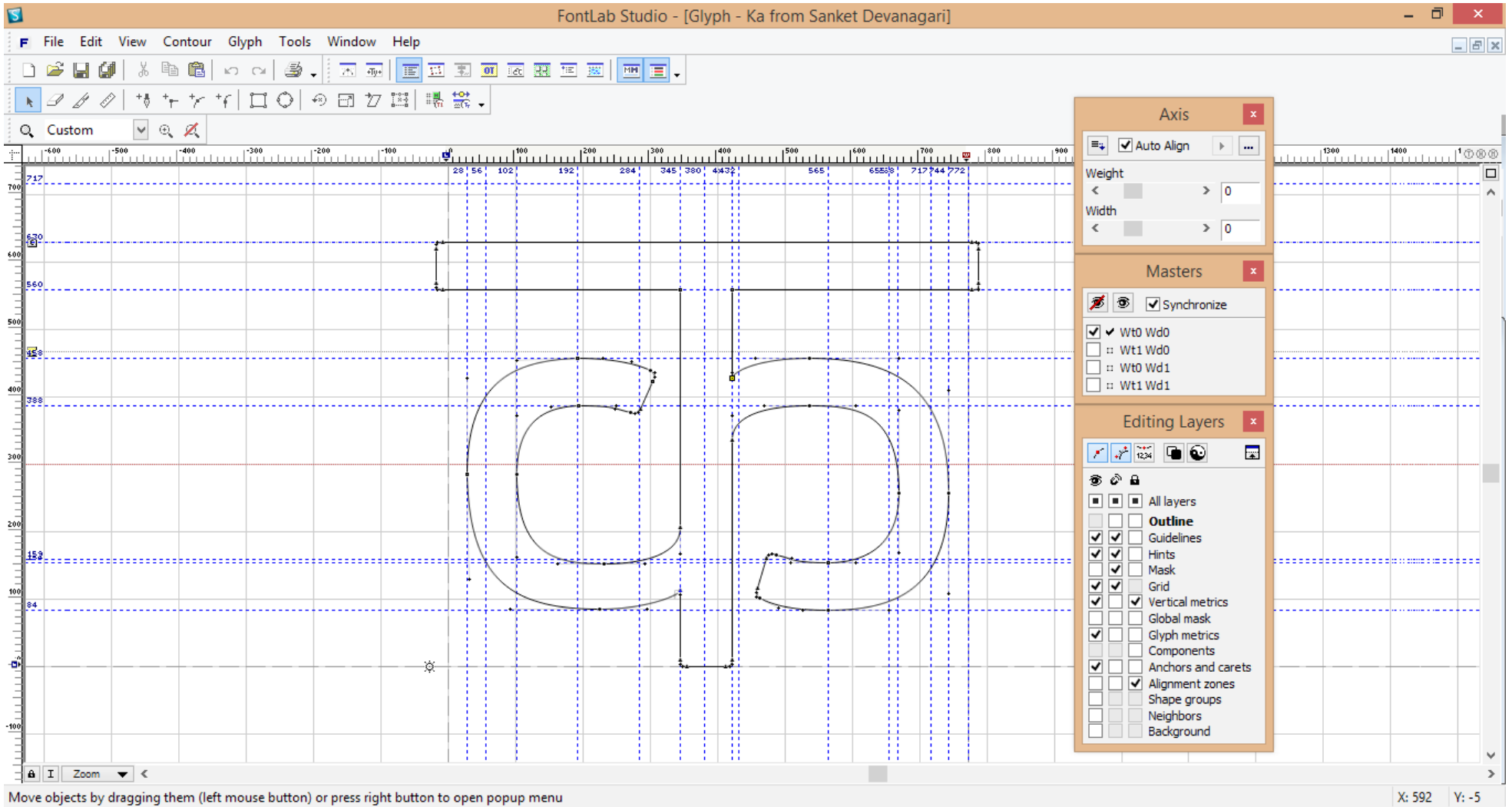


Image 55

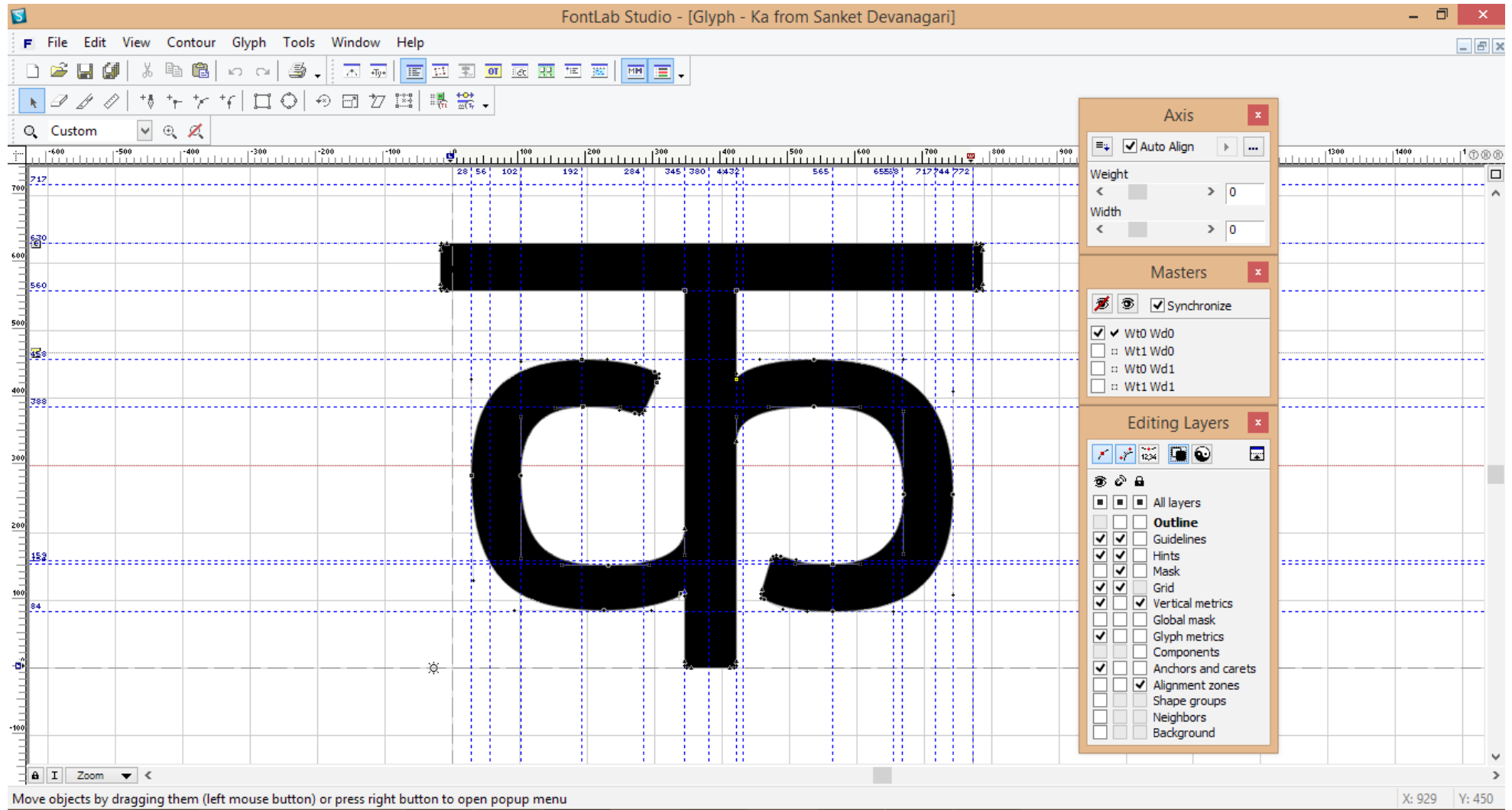


Image 56

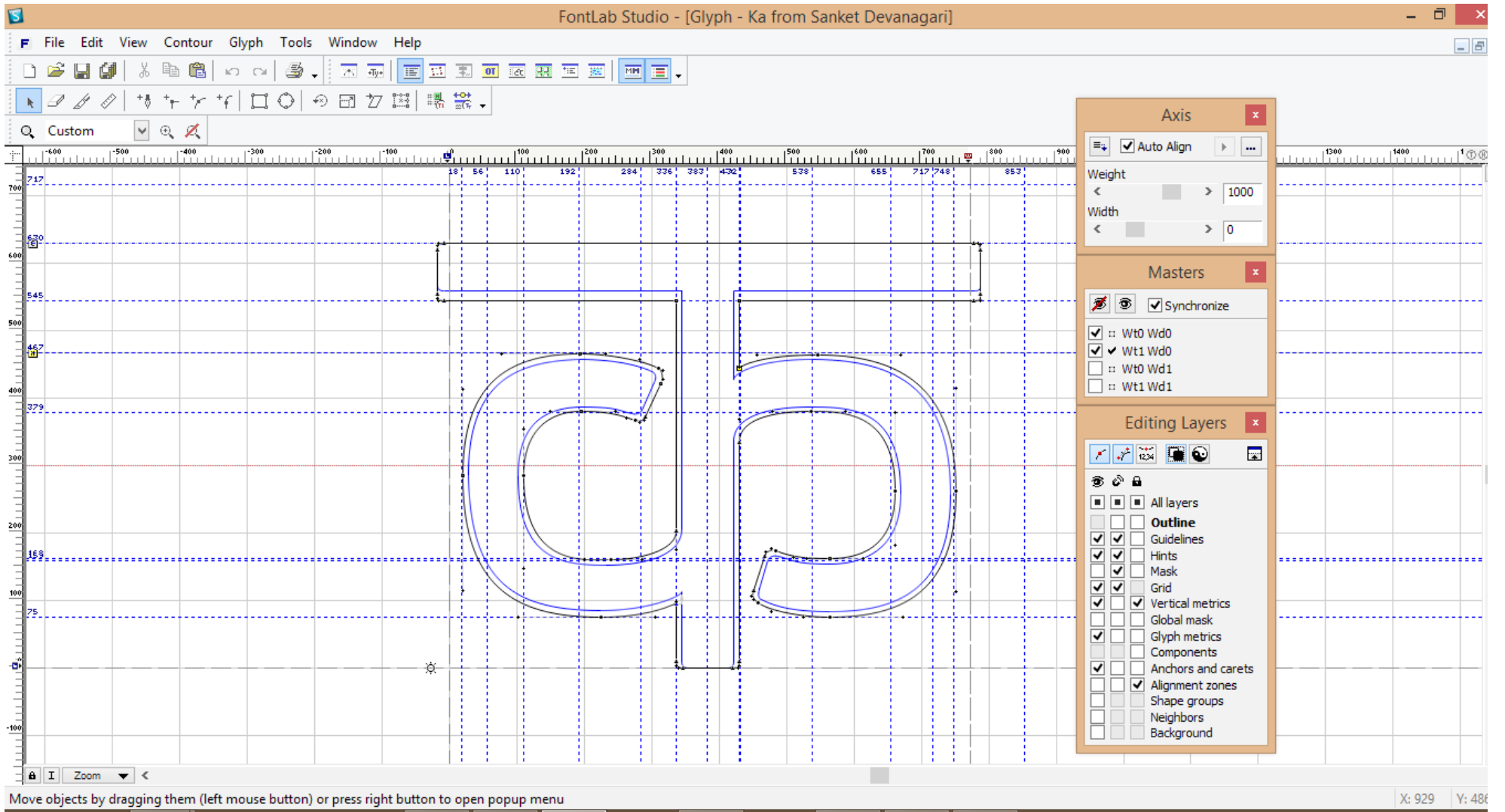


Image 57

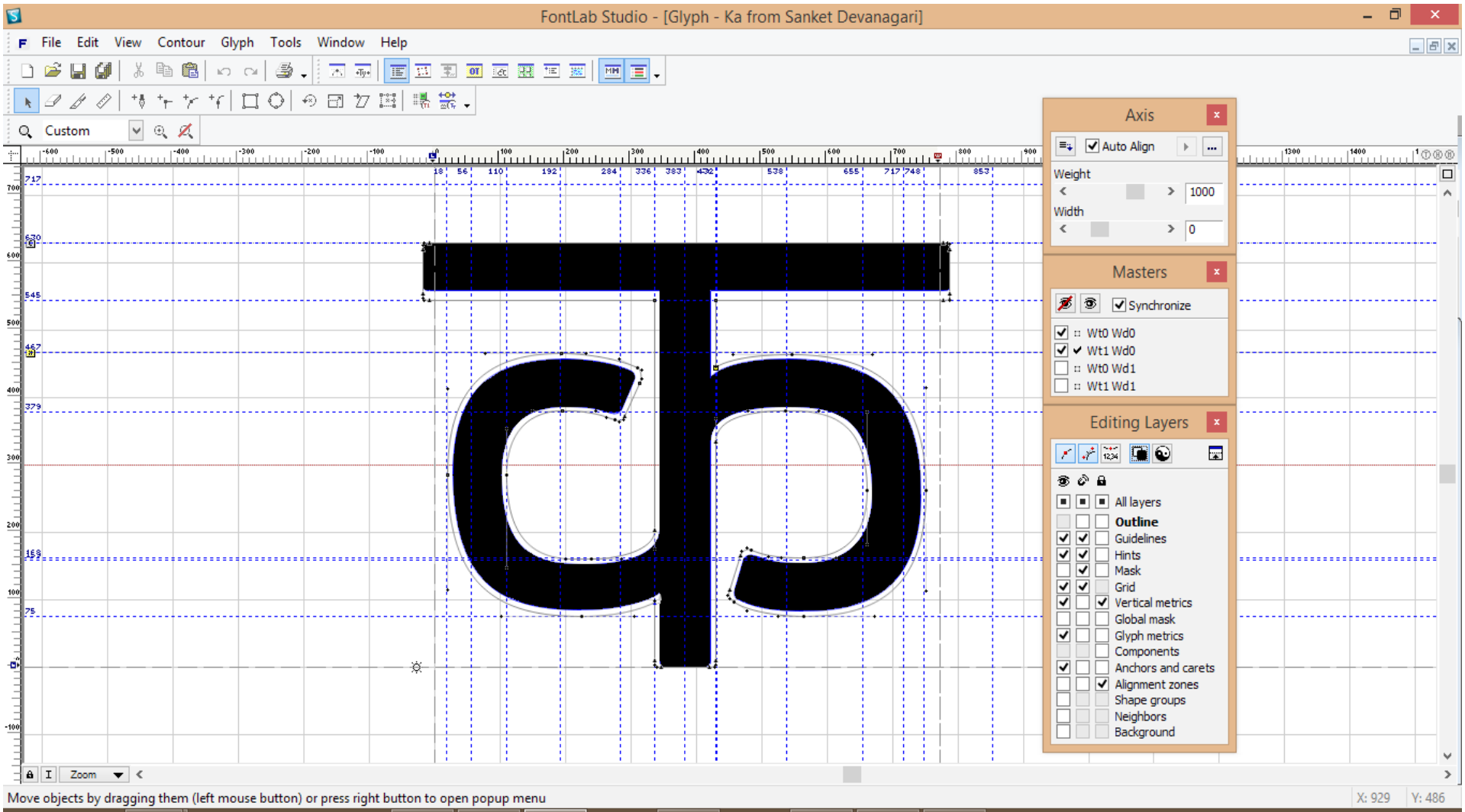


Image 58

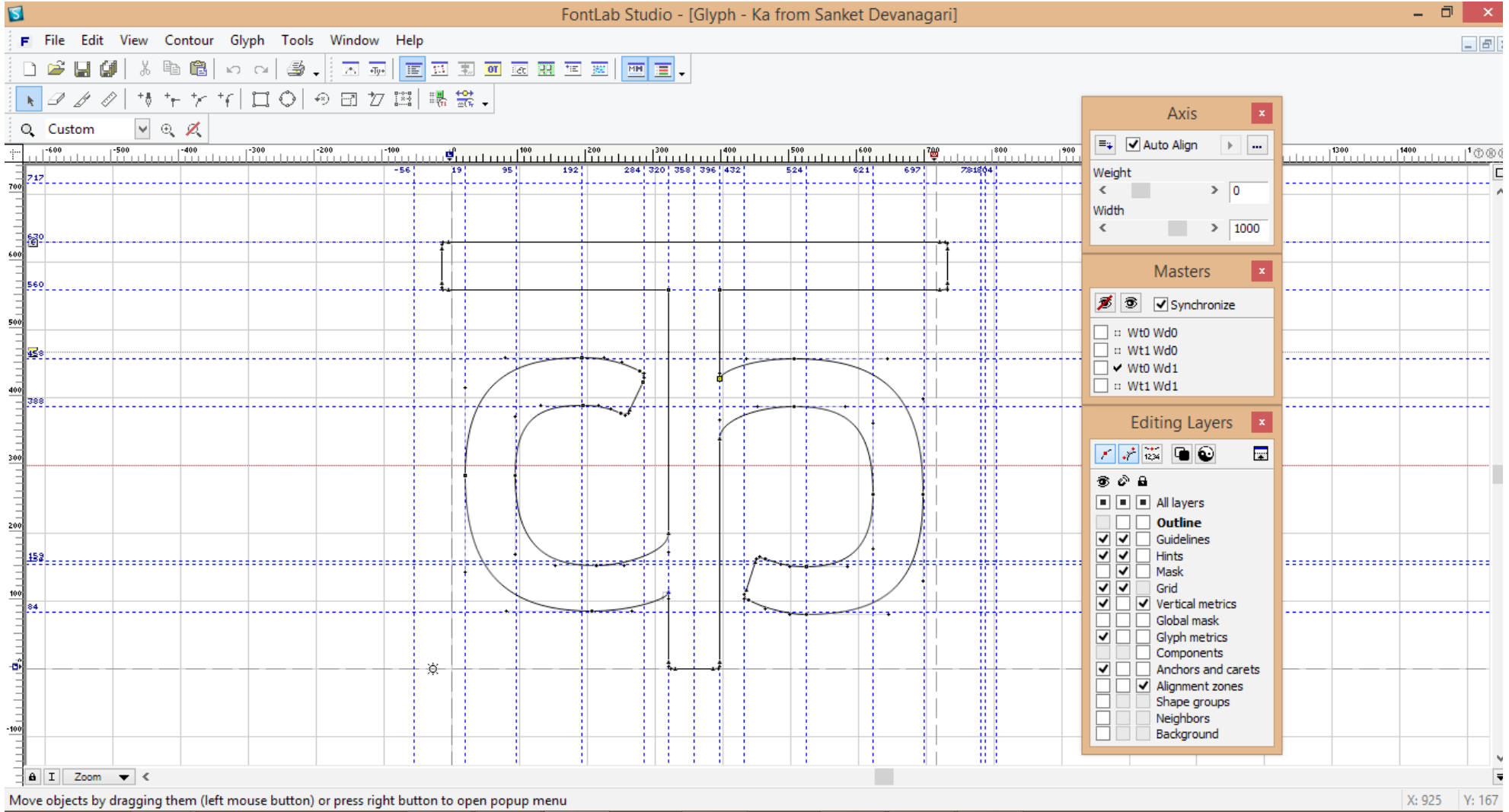


Image 59

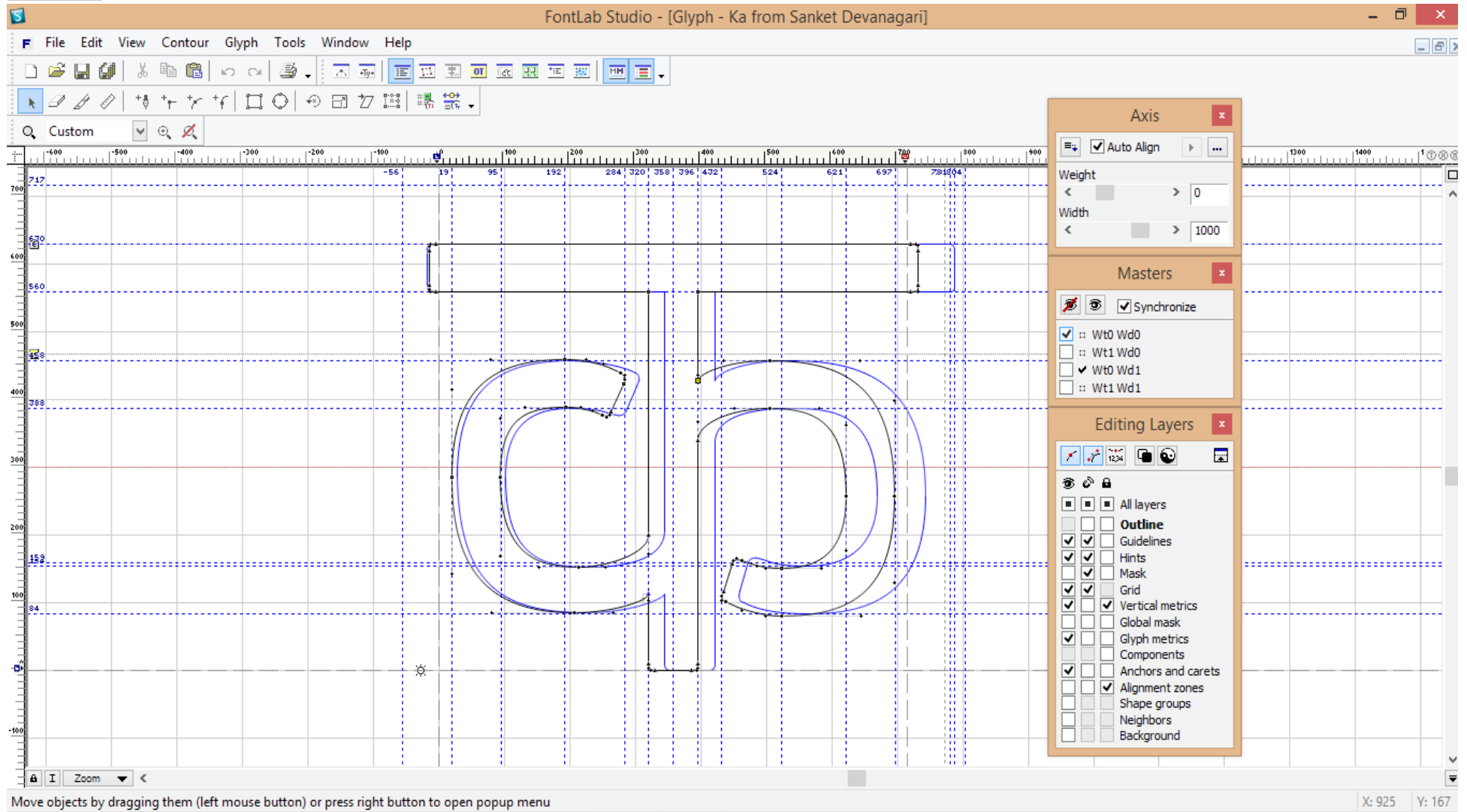


Image 60

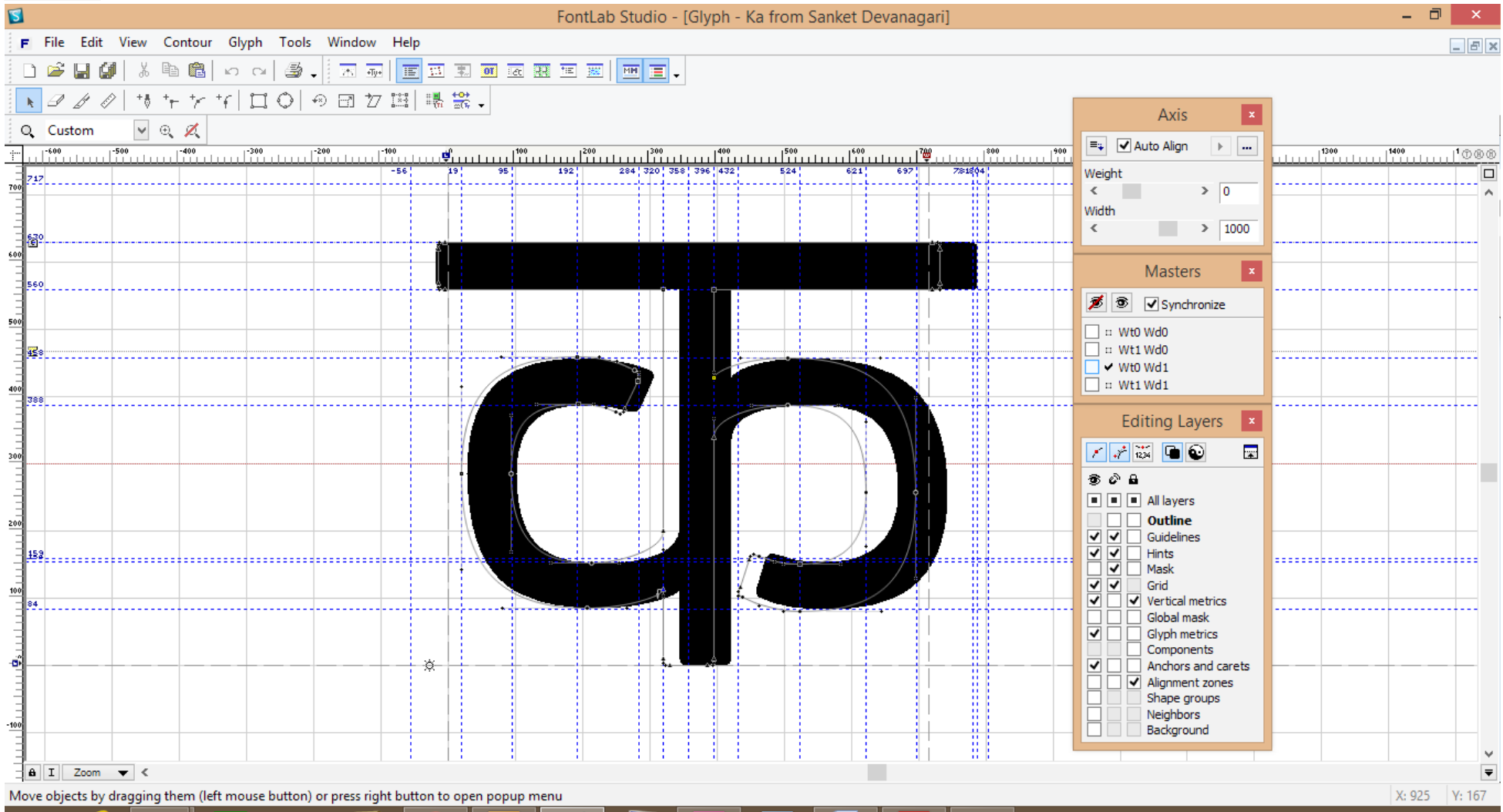


Image 61

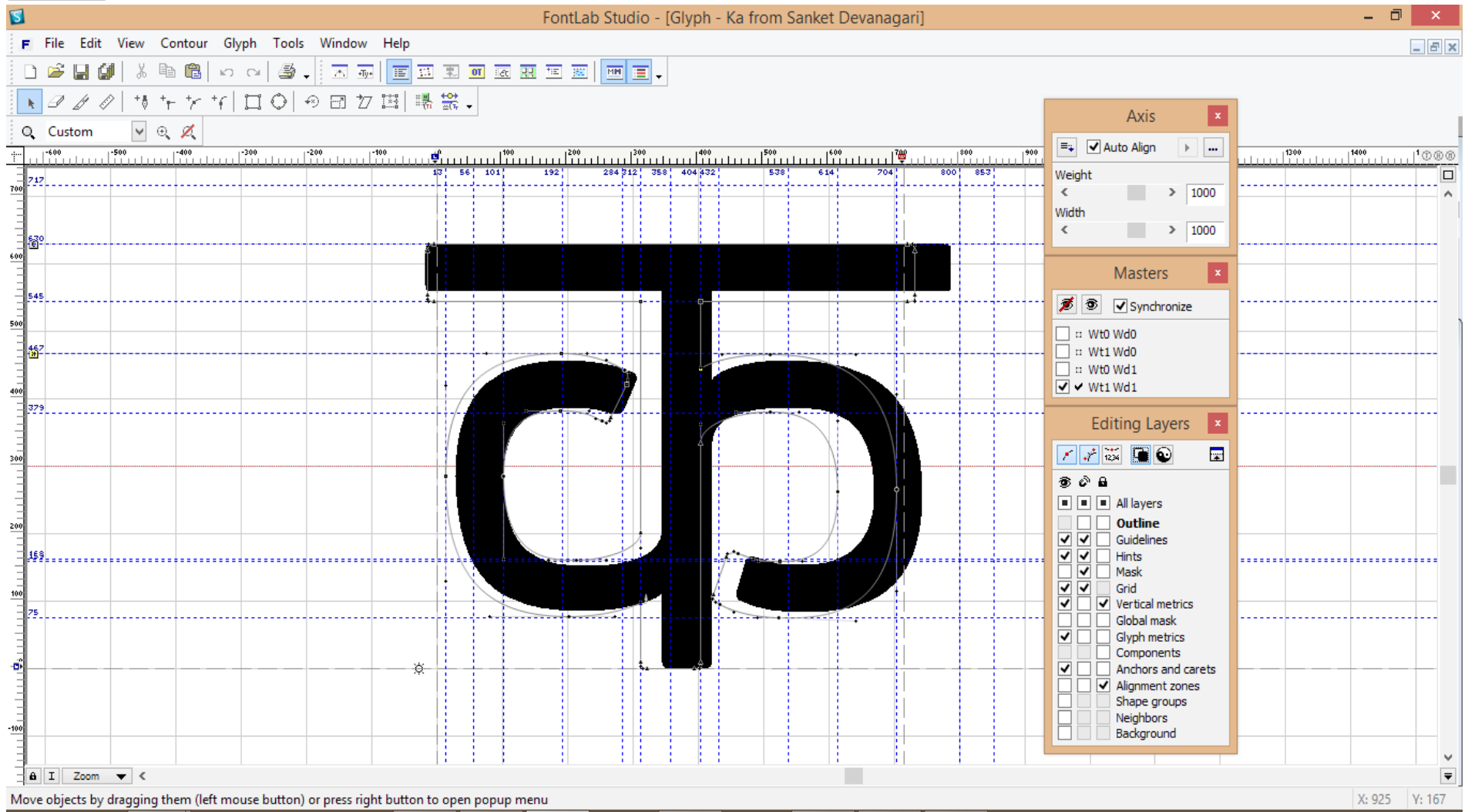


Image 62

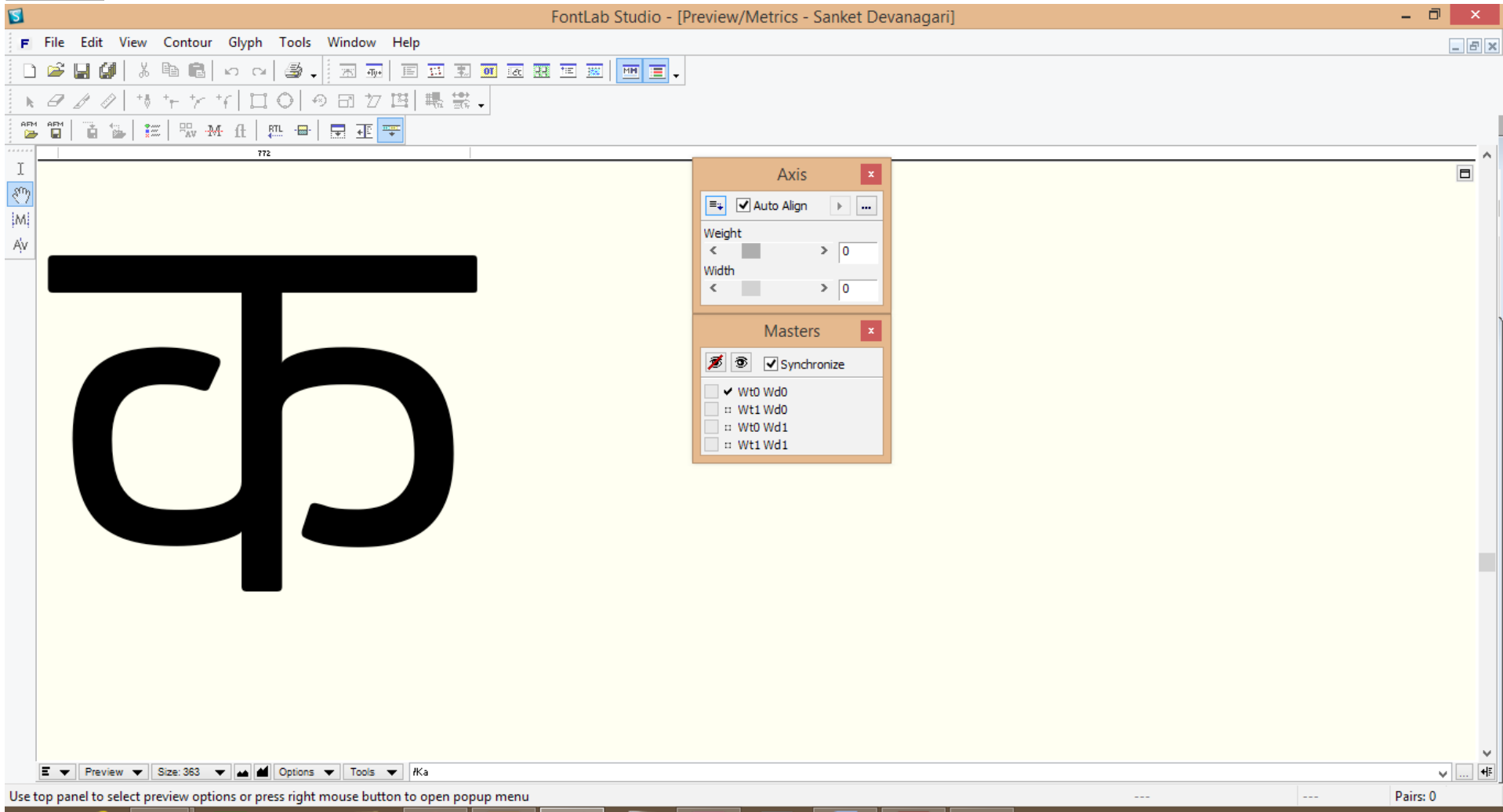


Image 63

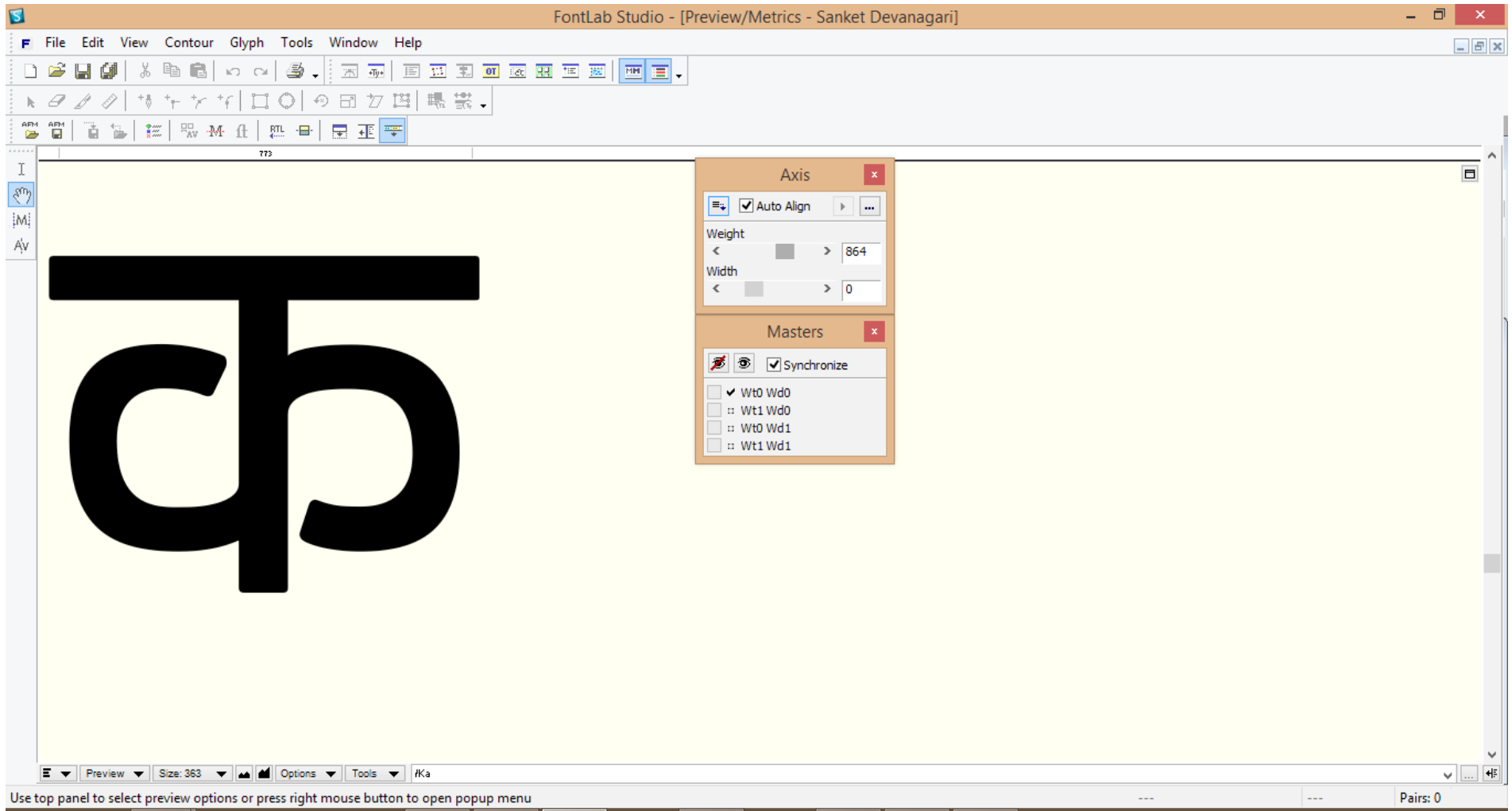


Image 64

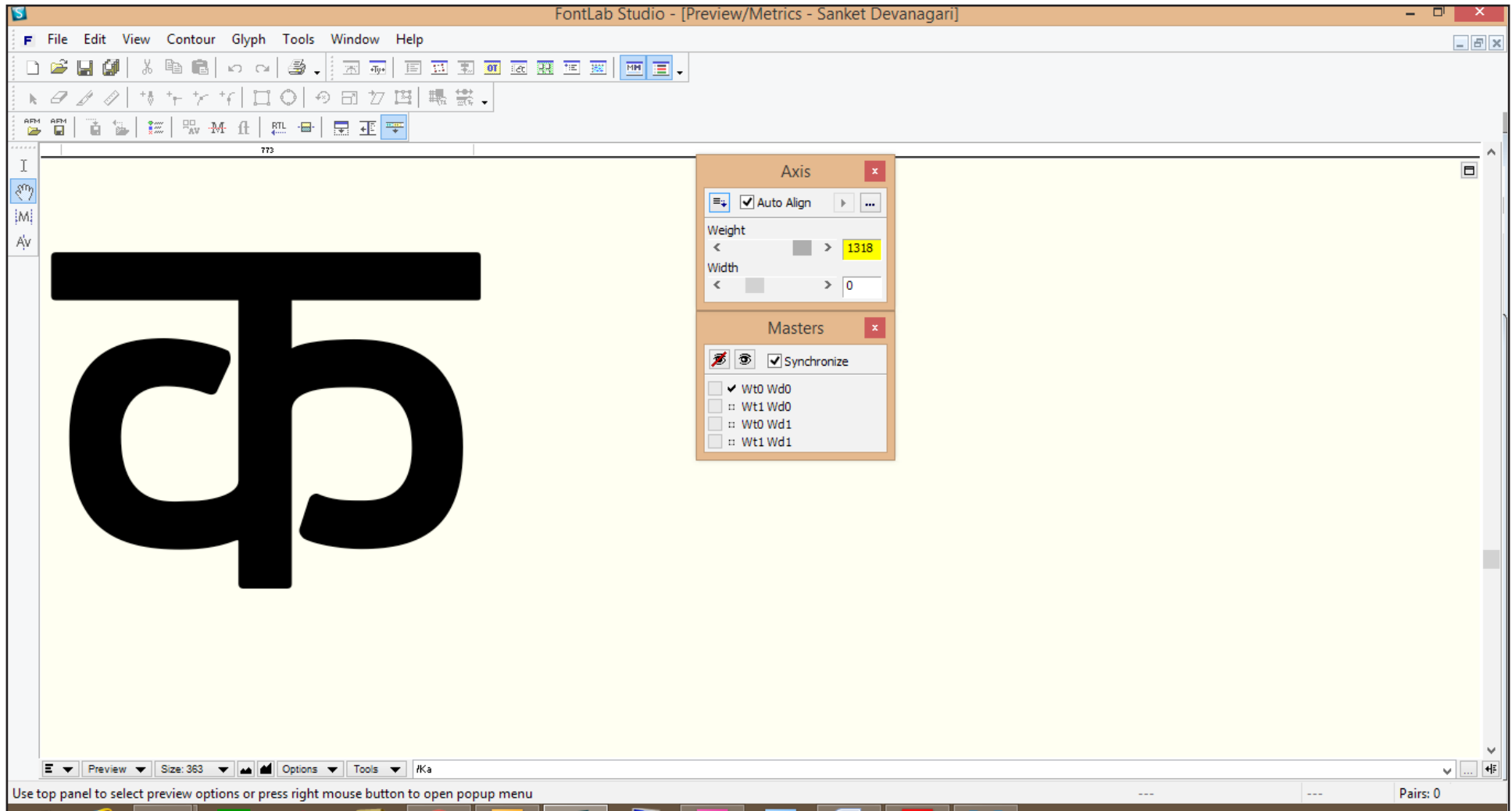


Image 65

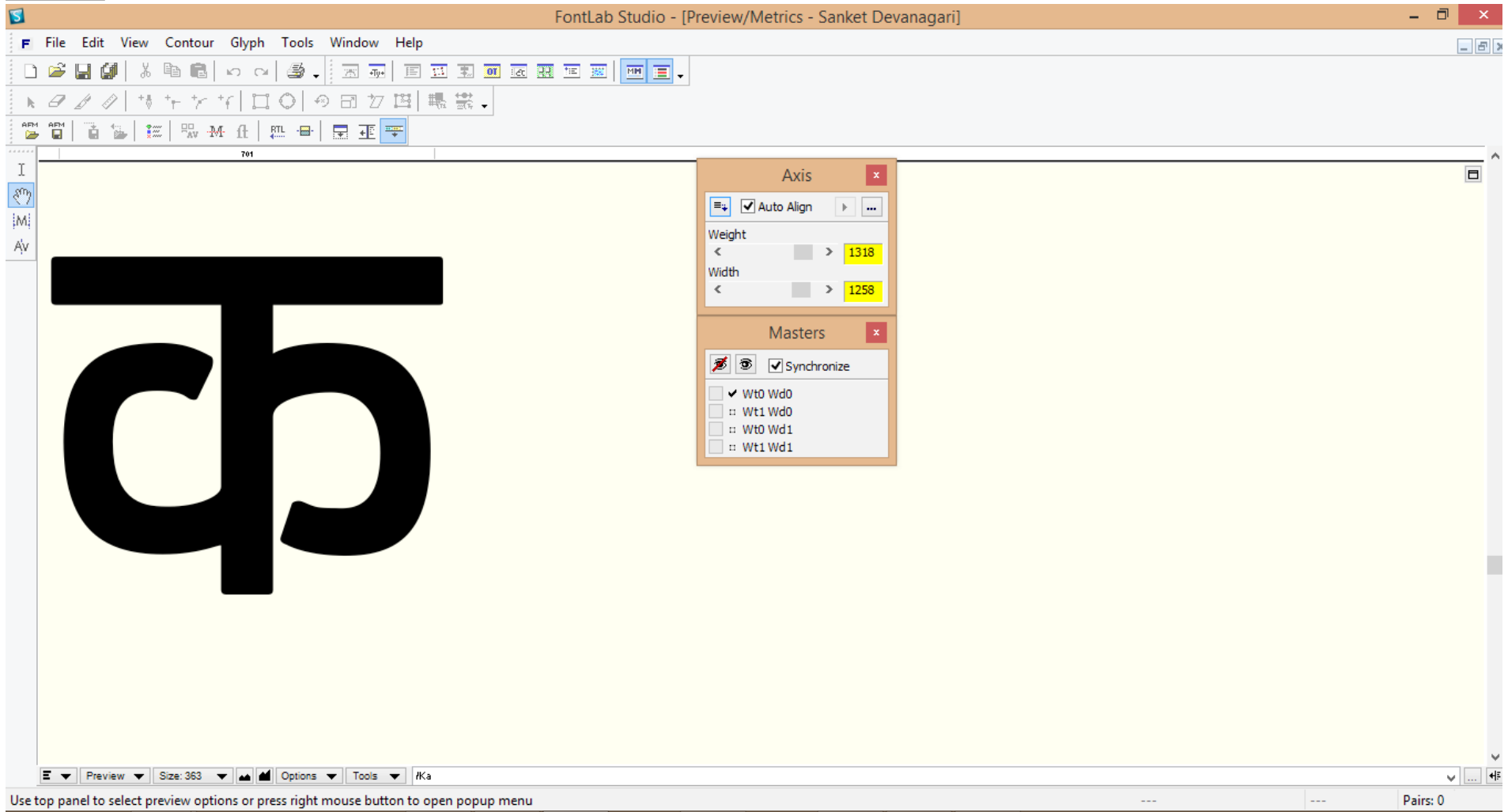


Image 66

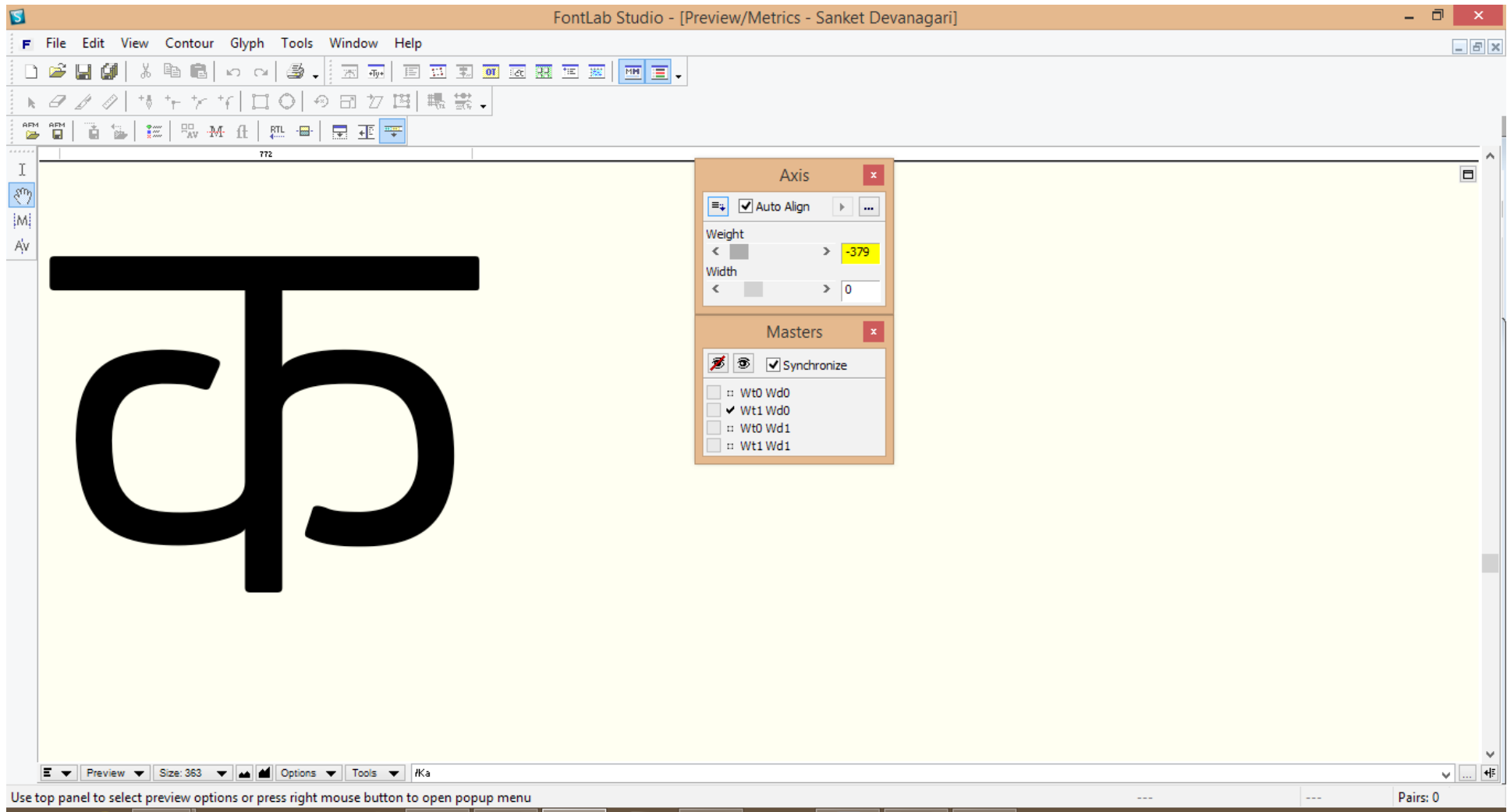


Image 67

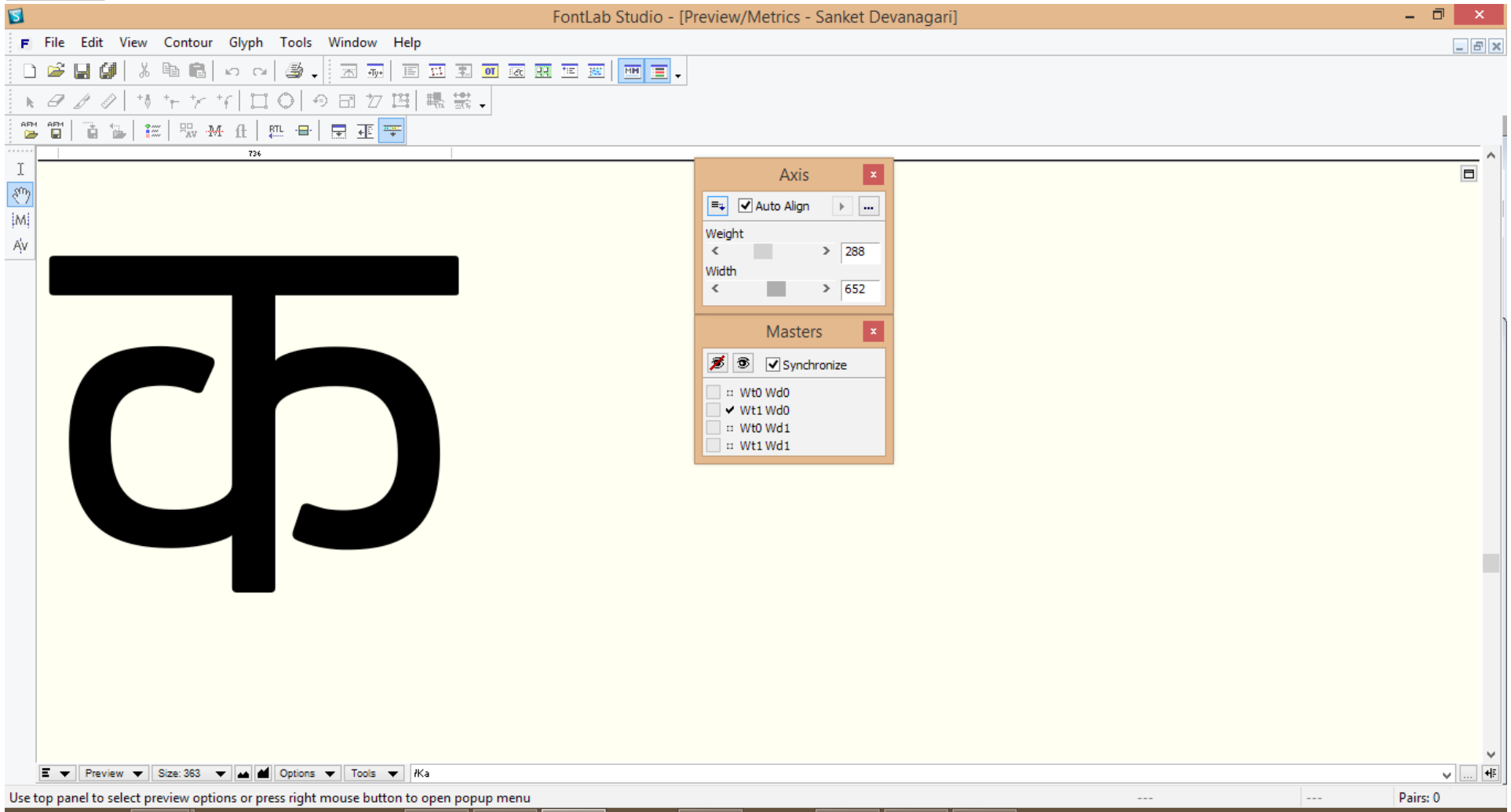


Image 68

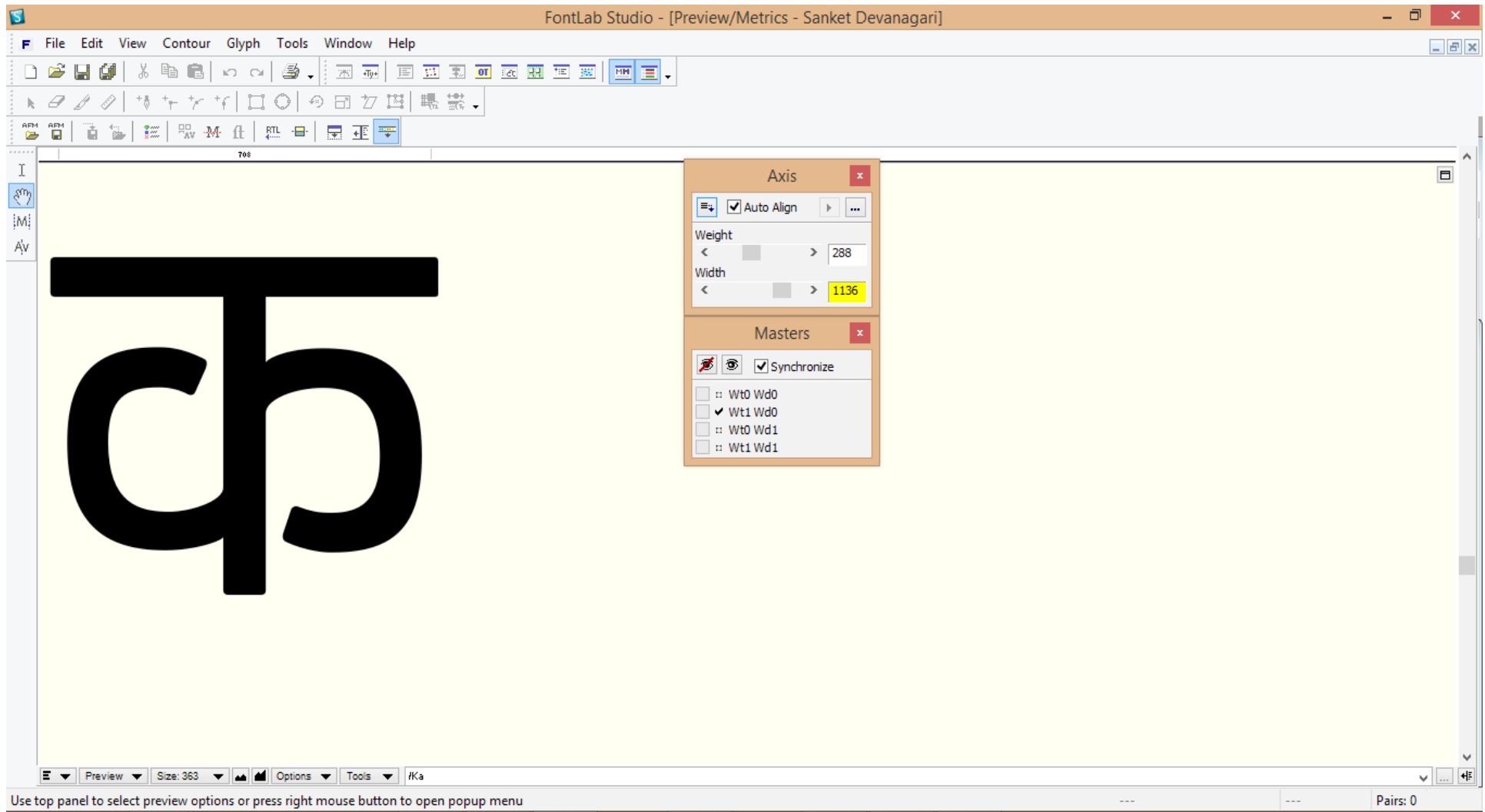
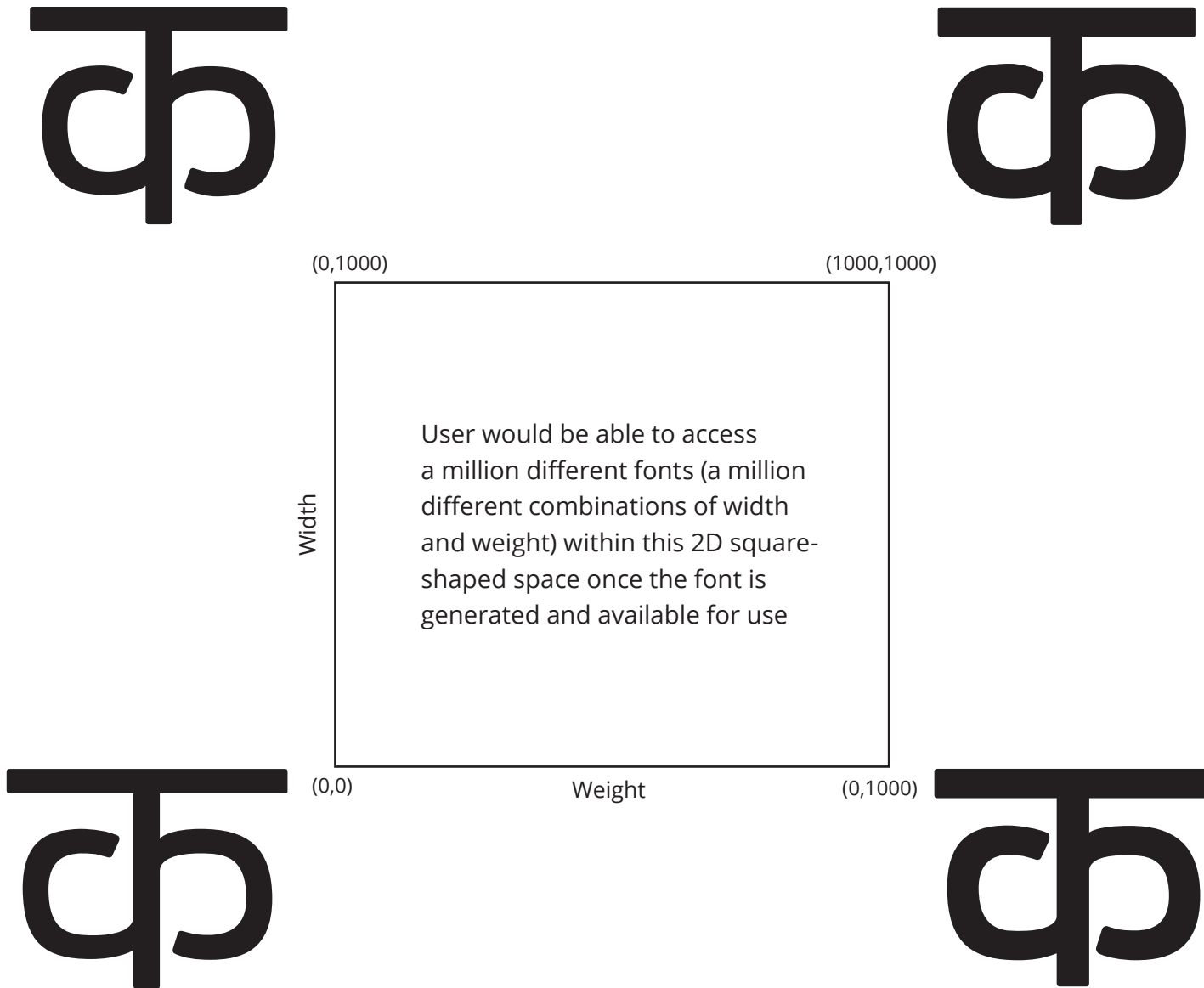


Image 69



Conclusion

This was my first internship experience as a designer in my favourite area of visual communication. I got to experience the sheer hard work that goes into the process of typeface design.

I learnt the importance of precision, observation and attention to minutest details. It was challenging as well as creatively fulfilling to come up with unique designs while keeping the design criteria at the back of my mind. I learnt to be patient and not get frustrated as I realised the design process of typeface is time-consuming and the possibility of redoing the designs is more.

It was amazing having Manoj Sir as a mentor at every step of the process. I felt there is so much more to learn from him towards the end of the internship.

Nevertheless, I am grateful I could translate his idea into reality and I intend to take it further.

As I intend to extend this project, I would like to learn the intricacies of kerning and hinting, font generation and implementation.

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