ऋतनाधस्प

नूतनागरी

NOOT-NAGARI

A MODIFIED AND EXPANDED VERSION OF DEVNAGARI SCRIPT
THAT IS SUITABLE FOR ALL INDIAN LANGUAGES.

Arvind V. Garde

PREFACE

Quite a few years ago I had drafted a revised version of Devnagari script that was developed by a scholar to simplify typing and printing Devnagari. At that time I felt that ease of typing and printing, though a desirable feature, was not a sufficient reason to modify Devnagari script. Recently, regarding Indian education system it was suggested that it would make learning different Indian languages easier if all the languages were written in the same script. If this premise is accepted, then Devnagari seems to be the logical script for two reasons. One, in addition to Sanskrit, Hindi and Marathi use Devnagari script making Devnagari the most commonly used script. Two, Devnagari has has most of the vowels and consonants to write the rest of the Indian languages. However, it needs to be expanded and modified before it can be adopted as the common script for all the Indian languages. Noot-Nagari, a short form for 'Nootan Devnagari' (New Devnagari) is an attempt to achieve the objective of developing a script that has the capability to be adopted by all the Indian languages. My first attempt in 1990's with pencil drafting had to be abandoned because of the enormous effort required to make changes and modifications required during development. After learning computer-aided drafting (CAD) that enables making changes with minimal effort, a second effort was made in 2016. With CAD I was able to develop Noot-Nagari and complete the task.

PREFACE TO REVISION 1

Revision 1 has no significant changes to record, only minor editorial changes were incorporated. This revision was forwarded to friends and persons that may be interested to obtain suggestions and comments to modify and improve Noot-nagari.

PREFACE TO REVISION 2

Based upon comments by different reviewers a few minor changes have been incorporated in this revision of Noot-nagari.
First, the letter त्र (Tra) based on further research, is not a conjunct consonant but a conjunct letter that can be written as   र्‍क So the letter representing क्र (Ka) used in previous revisions is replaced by त्र (Devnagari 'Tra') that has a simpler shape. The text and graphics have been modified in this revision to reflect this change.

Second, an explanation is added to clarify that adopting Noot-nagari does not involve learning a new language. One of reviewers felt that this clarification was desirable.

Although the idea of having one script for all the Indian languages seemed to be a good idea, most reviewers were concerned about the resistance to the idea of replacing the familiar current script unique to each language by another script. The sentimental attachment will be too strong to overcome. This issue is briefly addressed in concluding section, but additional explanation may not be out of place. One script will be adopted only if the decision is based on the benefits that such a decision will have for the entire nation. An inspirational poem by Nobel Laureate Rabindra Nath Tagore that was written before the independence of India, it begins with "Where the mind is without fear and the head is held high, ...", there is a stanza that states "Where the clear stream of reason has not lost its way into the dreary desert sand of dead habit;..." and the poem ends with a prayer "Into that heaven of freedom, my Father, let my country awake". Pinning my hopes on this prayer I hope that one day rational thinking rather than sentimental attachments would lead to a decision to adopt one script for the entire country. Then Noot-nagari may be considered as one of the options.

WRITING SANSKRIT IN NOOT-NAGARI

A 'SHLOKA' FROM 'GEETA KARANYAS' WRITTEN IN NOOT-NAGARI

मूकं करोति वाचालः पंघु लंघयते घिरम्

यत कृपा तमहं वन्दे परमानन्द माधवम्   घीतांकरन्यास

THE SAME 'SHLOKA' FROM 'GEETA KARANYAS' WRITTEN IN DEVNAGARI

मूकं करोति वाचालं पंगु लंघयते गिरिम्

यत कृपा तमहं वन्दे परमानन्द माधवम्   गीताकरन्यास

TRANSLITERATION

Mookam karoti vachalam pangum langhayate girim
Yat kripa tamham vande paramanand Madhavam

TRANSLATION

I salute that Madhava, the source of Supreme Bliss, by whose grace
the dumb becomes elequont and the cripple crosses over mountains.

THE MESSAGE

With God's grace everything is possible.

WRITING HINDI IN NOOT-NAGARI

Sample text in Noot-Nagari and Devnagari for comparison is shown below:

NOOT-NAGARI

सभी मनुष्यों को गौरव और अधिकारों के मामले में जन्मजात स्वतंत्रता और समानता प्राप्त है। उन्हें बुद्धि और अन्तरात्मा की देन प्राप्त है और उन्हें परस्पर भाईचारे के भाव से बर्ताव करना चाहिए।

DEVNAGARI

समी मनुष्यों को गौरव और अधिकारों के मामले में जन्मजात स्वतंत्रता और

समानता प्राप्त है। उन्हें बुद्धि और अन्तरात्मा की देन प्राप्त है और उन्हें परस्पर

माईचारे के भाव से बर्ताव करना चाहिए।

TRASNLITERATION

Sabhi manushyon ko gaurav aur adhikaron ke mamle me janmajat svatantrata aur samanata prapt hai. Unhen buddhi aur antratma kee den prapt hai aur unhen paraspar bhaichare ke bhav se bartav karna chahiye.

TRANSLATION

All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and shouls act towards one another in a spirit of brotherhood.

1.   What is Noot-Nagari

Noot-Nagari is a short form or abbreviation for Nutan Devnagari, which is modified and expanded Devnagari script that would be capable of adoption by all the languages of India. Noot-Nagari is modified to eliminate inconsistencies that have crept in Devnagari and variations in pronunciations of some vowels and consonants in Hindi and Marathi, the two languages that are written in Devnagari . To ensure that it is suitable for adoption by all the languages of India, Noot-Nagari is conceived with the capability to incorporate additional alphabets prior to adoption and as well as, in the future if and when the need arises.

Strictly speaking, Devnagari is not a set of alphabets, but a set of so-called alphasyllabry. An alphasyllabry is a writing system that is primarily based on consonants, and in which vowel symbols are requisite but secondary [1]. Likewise, Noot-Nagari script is also an alphasyllabry, however it is referred to as a set of alphabets.

2.   Why one script for the whole country

Currently India has almost a dozen types of alphabets that are used in different parts of the country. Devnagari, the script of Sanskrit language is also used by Hindi, our national and most widely-spoken language along with Marathi. Where as Assamese, Bengali, Gujarati, Kannada, Malayalam, Punjabi, Oriya, Tamil, Telugu, etc. use distinctly different alphabets.   In some cases the alphabets are somewhat similar to Devnagari and one may be able to guess what is written. But in most cases the alphabets are so different from Devnagari that guessing does not work.   Recently the tendency of the different states is to provide signage only in the local script. So standing at a bus stop in Bangaluru, an international city with many high-tech company offices, I could not figure out the destination of the bus that was written in Kannada script and had to ask for help. If the country adopts one alphabet then it would be easy to find your way because you can read the destination displayed on the bus. But more importantly, it would make learning any other Indian language much easier because it would not entail learning another type of alphabet. Though it is a stretch, one could say that it would also serve as a unifying factor. Come to think of it, English seems to the only thing that is common to all India, though it is limited only to well-educated persons. That is the primary reason that this document is written in English.

A note of clarification, adopting Noot-nagari will not involve learning a new language, only a new script that will need some getting used to for persons who have learnt their language in current script. This will not be a problem for those who are beginning their education.

Traveling in Western Europe one can read signs in several languages because all are in Roman alphabet. Only in Eastern Europe one has to deal with Greek and Cyrillic alphabets, but generally there is additional signage in English that is now truly the international language.

3.   Objective

Initially, the idea was to develop a script that would be capable of writing any language. This was an ambitious objective, and soon it became obvious that tonal languages such as Chinese (Mandarin as well as Cantonese) cannot be accurately expressed by a phonetic script. The same word in Chinese can have more than one meaning depending upon the tone of pronunciation. Even English has accent that changes the pronunciation and sometimes the meaning of the word. Therefore after considering the limitations of phonetic script, a more modest and hopefully achievable objective was adopted. The Noot-Nagari alphabets should be capable of adoption by any and all Indian languages. In addition, Noot-Nagari should be capable of writing accurately several English words that have infiltrated spoken Indian languages.

Tamil one of the South Indian languages does not have a specific consonant for each sound, that is, one consonant is used for more than one sound. For example, the same alphabet represents 'K' क and 'H' ह. Therefore, 'Akaram' आकारम and 'Aharam' आहारम are written exactly the same way, but pronounced (or read) as Akaram or Aharam depending upon the context. That is, if the word is used when talking about eating then the word is read or pronounced as 'Aharam', but if the word refers to a shape it is read or pronounced as 'Akaram'.   Another issue that is probably an unintended consequence of using one letter to represent more than one consonant, is that pronunciation loses its clarity. One can only guess whether the resulting clarity in pronunciation due to the adoption of Noot-Nagari script will turn out to be a desirable and welcome outcome or just an unintended consequence.

4.   Guidelines Adopted

The current Devnagari has a line at the top and the words comprising vowels and consonants are written below the line. Typically a consonant, say क incorporates the vowel अ that is 'ka'. If modifications requiring combination with other vowels these are expressed by strokes (Matras) above the line, in front of the letter, or below the letter. For example, क + ऊ is written as कू ; and क + औ is written as कौ . These are just two examples for illustration. The rules for combining all the vowels to modify consonants are well known and basic to Devnagari.

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[1] David Templin 'The Devnagari Script' Omniglot (See Appendix A)

The objective for Noot-Nagari, to the extent possible, is to make it similar to Devnagari. That said, because of other rules adopted, it will still be quite different. Therefore, just being well versed in Devnagari will not be sufficient to enable one to read text written in Noot-Nagari. So in general, Noot-Nagari will look similar to Devnagari but without learning and understanding the revised alphabets it will not be possible to read text written in Noot-Nagari.

Like Devnagari, Noot-Nagari also has a line at the top and the words comprising vowels and consonants are written below the line. Typically an alphabet starts with ।, the base element of Noot-Nagari.   On the left side will be the consonant part or a stand-alone vowel and on the right side will be the vowel indicators or 'Matras'. The rules adopted will not permit any part of consonant on the right side of the base element. Therefore Devnagari consonants such as क and फ that have a part of the letter on the right side of the base element, have to be either modified or discarded.

So, Devnagari modifies consonants by adding most of the vowel indicators or 'Matras' above the line at the top or below the letter and some modifiers on the right or left side. For Noot-Nagari the rule adopted is to add vowel indicators or 'Matras' in the same line on the right side. That is, vowel indicators will not to be shown either above the line at the top or below the letter. This may take a little more space horizontally in Noot-Nagari than Devnagari but to compensate, the spacing between the lines may be reduced.

Consonants that have variations in pronunciation need to be identified and Noot-Nagari adds notations to define the desired pronunciation. For example, in Marathi the letter 'ज' is pronounced as 'j' (जप) or 'z' (जर) that requires knowledge of Marathi language to pronounce the word correctly. Hindi employs a dot or period (American English) to indicate the correct pronunciation of the same letter as 'j' (ज) or 'z' (ज़). To have more than one pronunciation for a consonant not peculiar only to Marathi; in English the word 'season' the first 's' is pronounced as 's' and the second as 'z'. Noot-Nagari avoids such confusion or the need for knowledge of the language by indicating the correct pronunciation with the help of special notations. It uses a 'dot' to indicate the variations in pronunciation of consonants similar to the way it is used in Hindi. In addition, text written in Noot-Nagari needs to identify variations in pronunciation of consonants as used in foreign languages, mainly English. Such variations are indicated by an inverted 'V' (ʌ) or 'Ivy' for short. The variations in the pronunciations of such consonants are identified and described later in more detail.

Devnagari has Twenty five (25) consonants that are grouped in sets of five. Each group comprises four consonants and the nasal sound associated with them. For example, 'Ta' (त), 'Tha' (थ), 'Da' (द) and 'Dha' (ध) and the nasal sound associated with these four dental consonants is 'Na' (न). These are called dental because the tongue has to touch the back of teeth to pronounce them.   Of the above four consonants, 'Ta' (त) and 'Da' (द) are unaspirated consonants and 'Tha' (थ) and 'Dha' (ध) are similar but aspirated or stronger sounding consonants .   In Devnagari these consonants look different and have no similarity. The objective in Noot-Nagari is to make similar-sounding un-aspirated and aspirated consonants also similar in appearance. The basic un-aspirated consonant will become the stronger-sounding or aspirated consonant by the addition of a slanted line called 'Prabal Resha' or a strong line. For example, for Noot-Nagari takes the same four letters to show how a un-aspirated consonant is converted to an aspirated consonant by a slanted line (Prabal Resha). To the un-aspirated consonant 'Ta' (त) add slanted line and it becomes aspirated or stronger-sounding consonant 'Tha' (त) and similarly 'Da' (म) becomes 'Dha' (म).

Devnagari alphabets are arranged by first listing the vowels followed by 25 consonants that are grouped in sets of five as discussed above and lastly eleven random consonants (that include two compound consonants). Most of the Indian languages follow a similar arrangement for their alphabets, with Tamil being the notable exception. Tamil alphabets list vowels first followed by 18 consonants plus five granthas. Some of the consonants represent from three up to five Devnagari consonant sounds, and granthas represent sounds borrowed from Sanskrit as well as English. In addition, 'Aytam' changes 'P' to 'F ' and 'J' to 'Z'.

5.   **Devnagari and Noot-Nagari Alphabets**
To illustrate the few similarities and many differences between Devnagari and Noot-Nagari, alphabets in Devnagari are shown first followed by alphabets in Noot-Nagari. The differences are primarily due to the adoption of rules described above, as well as the objective to expand the capability of Noot-Nagari to include additional vowels and consonants (including consonant modifications).

While based on my understanding of three or four languages, the required vowels and consonants for Noot-Nagari are listed in this document. However, it is possible that there may be a need for additional consonants or vowels now or in the future. Therefore, additional potential consonants are shown with no particular sound associated with them, these may be incorporated in Noot-Nagari to fulfil such needs. These potential consonants are shown as well as numerals, punctuation and other secondary items for Noot-Nagari are also shown.

DEVNAGARI ALPHABETS

VOWELS

THE FOLLOWING ARE THE TWELVE BASIC COMMONLY-USED VOWELS:

अ आ इ ई उ ऊ ए ऐ ओ औ अं अः

THE FOLLOWING ARE SPECIAL OR SELDOM-USED VOWELS INCLUDING ONE COMMONLY USED ONLY IN HINDI:

ऋ ॠ ऌ ॡ अँ

HINDI, MARATHI & SANSKRIT	SANSKRIT	SANSKRIT	SANSKRIT	HINDI

CONSONANTS

THE FOLLOWING 25 CONSONANTS ARE GROUPED BY THE PART OF THE MOUTH THE CONSONANTS ARE ASSOCIATED WITH (FOR EXAMPLE 'TEETH' - DENTAL CONSONANTS; 'PALATE' - PALATAL CONSONANTS, ETC.)

क ख ग घ ङ   च छ ज झ ञ

ट ठ ड ढ ण   प फ ब भ म

त थ द ध न

THE FOLLOWING 11 CONSONANTS ARE RANDOM OR COMPOUND CONSONANTS:

य र ल व ळ श ष स ह क्ष त्र

THE FOLLOWING 6 CONSONANTS ARE MODIFIED WITH A DOT (PERIOD) TO INCLUDE FARSI-BASED CONSONANTS IN URDU AND HINDI:

क़ ख़ ग़ ज़ ड़ फ़

THE FOLLOWING ALPHABETS ARE VARIATIONS THAT ARE SOMETIMES USED IN INDIAN LANGUAGES AS NOTED:

ऑ ऒ ऒ ऒ ए ञ स ल

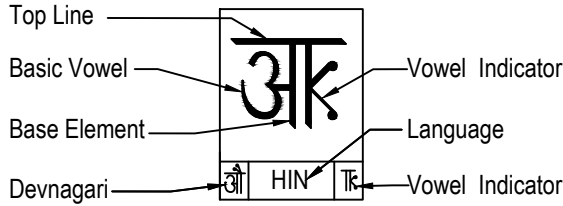|							
अ - HINDI	आ - HINDI	ओ - HINDI	औ - HINDI	ण - HINDI	झ - HINDI	स - TYPICAL	ल - HINDI

<u>NOOT-NAGARI ALPHABETS</u>

The base element of Noot-Nagari is 'T' and alphabets are written with the basic vowel plus all consonants to the left of the vertical line of the base element. All vowel indicators are provided to the right of the vertical line. This is illustrated below with Noot-Nagari text in bold and Devnagari text in light lines:

Top Line ——

Basic Vowel ——

Vowel Indicator

Base Element ——

Language

Devnagari ——

HIN

Vowel Indicator

Top Line ——

Consonant Part ——

Vowel Indicator

Base Element ——

Language

Devnagari ——

GEN

Part of Consonant used in Conjunct Letters (Yuktakshar)
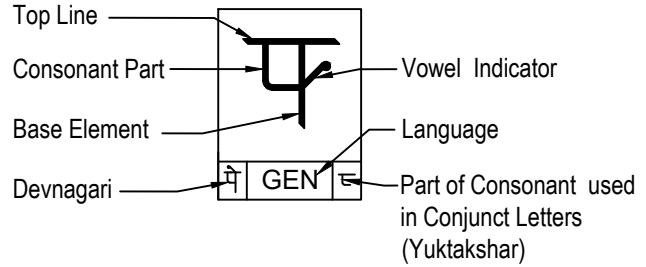
ABBREVIATIONS USED FOR LANGUAGES

GEN:	TYPICAL FOR ALL LANGUAGES	PUN:	PUNJABI
ASM:	ASAMIYA	SAN:	SANSKRIT
BAN:	BANGLA	TAM:	TAMIL
GUJ:	GUJARATI	TEL:	TELUGU
HIN:	HINDI	URD:	URDU
KAN:	KANNADA	ENG:	ENGLISH
MAR:	MARATHI	FRE:	FRENCH
MAL:	MALAYALAM	GER:	GERMAN
ORI:	ORIYA		

If the vowel indicator or variation of the consonant is specific to a language that language is identified in the box. The vowel written in Devnagari as औ is pronounced as 'a' in 'all' or 'saw' in Hindi; but as 'ou' in 'out' (more like the way it is pronounced in Canada) in Marathi. Also, the vowel written in Devnagari as ऐ is pronounced as 'a' in 'hand' or 'band' in Hindi and in Marathi the pronunciation is similar to 'i' in 'bike' or 'like'. That is the reason Noot-Nagari includes additional vowels for expressing such variations in pronunciation. The same is somewhat true for consonants and is addressed in detail later.

The list of twelve (12) commonly-used vowels in Devnagari is increased to fourteen (14) in Noot-Nagari to accommodate the variation in pronunciation of ऐ & औ as discussed above, plus अं is added for Hindi that has nasal vowel for words like आँख ('Ankh' - eye) and साँस ('Sans' - breath). That makes the total number of commonly-used vowels to fifteen (15).

In addition, there are four (4) Sanskrit vowels that need to be addressed. Except for ऋ that is pronounced as 'Ri' in Hindi and as 'Ru' in Marathi; the remaining three ॠ, ऌ and ॡ are seldom used. According to some scholars, these three are not needed and can be eliminated. However, Noot-Nagari has included these should they be needed for writing in Sanskrit. The vowel ऋ is used in both Hindi and Marathi therefore Noot-Nagari includes this vowel along with the variations in pronunciation. That is, ऋ represents Hindi pronunciation 'Ri' and ॠ represents Marathi pronunciation 'Ru'.   Also, Noot-Nagari has the capability of adding more vowels as and when deemed necessary. To illustrate, the French 'u' is included as ऊ in the current list of vowels.

VOWELS

THE FOLLOWING ARE THE FIFTEEN (15) BASIC COMMONLY-USED VOWELS IN NOOT-NAGARI:
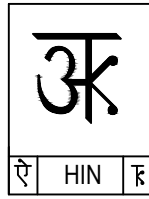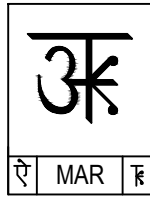
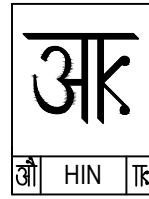| अ	आ	अ	आ	अ	अ
अ GEN T	आ GEN Π	इ GEN Ɗ	ई GEN ƉƉ	उ GEN ह	ऊ GEN क
A (*A*gain)	Aa (F*ar*)	I (F*i*t)	Ee (F*eel*)	U (P*u*ll)	Oo (P*oo*l)

VOWELS CONTINUED
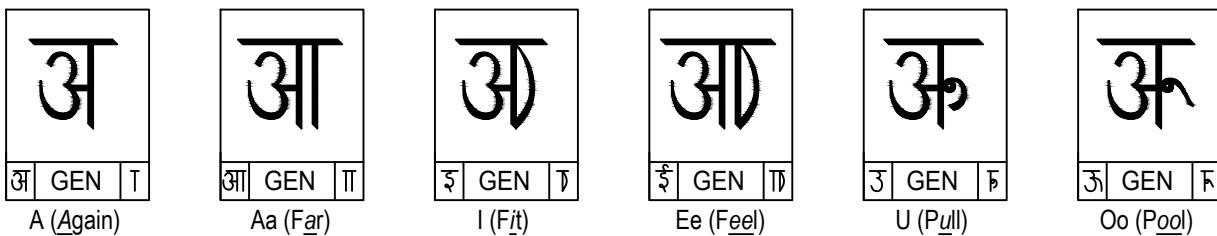
ए GEN ऎ	ऐ HIN ऐ	ऐ MAR ऐ	ओ GEN ओ	औ HIN औ	औ MAR औ
A (*A*te)	A (B*at*)	Ai (B*i*ke)	O (B*oa*t)	Aw (S*aw*)	Au (*Ou*t)
					(As pronounced in Canada)
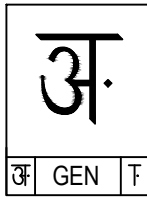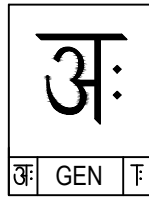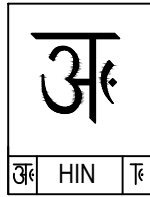
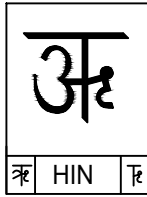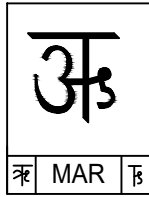|		
अं GEN अं	अः GEN अः	अं HIN अं
An (S*un*k)	Ah (Asp)*	(Nasal)**

* Aspirated Vowel
** As in French 'Un bon vin blanc'

THE FOLLOWING ARE SPECIAL VOWELS IN NOOT-NAGARI:
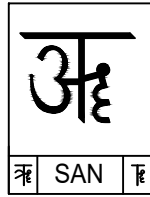
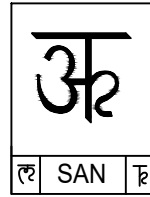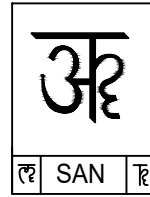|						
ऋ HIN ऋ	ऋ MAR ऋ	ॠ SAN ॠ	ऌ SAN ऌ	ॡ SAN ॡ	ए ENG ए	FRE
Ri (*Ri*b)	Ru (*Ru*mer)	Ru (Rarely used)	Lu (Rarely used)	Lu (Rarely used)	E (B*e*t)	Ue (R*ue*)

CONSONANTS

CONSONANTS IN NOOT-NAGARI FOLLOW THE SAME ORDER AS DEVANAGRI. ACCORDINGLY, THE BASIC 25 CONSONANTS ARE GROUPED ACCORDING TO THE PLACE OF ARTICULATION (FOR EXAMPLE 'TEETH' - DENTAL CONSONANTS; 'PALATE' - PALATAL CONSONANTS, ETC.). 'Asp' is an abbreviation used for Aspirated Consonant with no English equivalent.
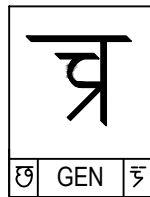
क GEN	ख GEN	ग GEN	घ GEN	ङ GEN
Ka (*C*ut)	Kha (Asp)	Ga (*G*irl)	Gha (Asp)	Gn (Nasal)
च GEN	छ GEN	ज GEN	झ GEN	ञ GEN
Cha (*Ch*uck)	Chha (Asp)	Ja (*J*ust)	Jha (Asp)	Yn (Nasal)
ट GEN	ठ GEN	ड GEN	ढ GEN	ण GEN
Ta (Dus*t*)	Tha (Asp)	Da (*D*ust)	Dha (Asp)	Na (Be*n*d)
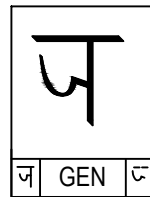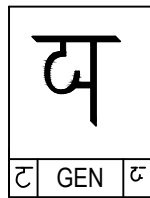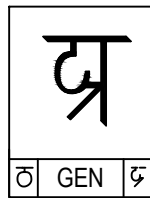
CONSONANTS CONTINUED

त त GEN त **Ta** (Soft _T_)	त्र य GEN व **Tha** (_Th_ud)	द्र द GEN ड **Da** (_Th_us)	द्र ध GEN ड **Dha** (Asp)	न न GEN ल **Na** (_N_umb)
प प GEN ए **Pa** (Li_p_)	प्र फ GEN ड **Pha** (_P_uck)	ब ब GEN ब **Ba** (_B_uck)	भ्र म GEN ब **Bha** (Asp)	म म GEN म **Ma** (_M_ust)

THE FOLLOWING 11 CONSONANTS ARE RANDOM OR CONJUNCT CONSONANTS:

Eight of the eleven are random consonants and two are conjunct consonants or 'Yuktakshar". Of these, two क्ष 'ksha' and ज्ञ 'jna' can be written by combining consonants, however, they are listed as consonants in Sanskrit and are used in other languages. English has 'X' that is similar to 'ksha'. Lastly, 'jna' ज्ञ (Sanskrit) also a conjunct consonant, is included because it has additional four distinct pronunciations that I am aware of. The way ज्ञ is pronounced in Bengali, Hindi, Marathi and Gujarati is represented by various notations on the alphabet with English pronunciations spelled below.

य य GEN य **Ya** (_Y_es)	प्र र GEN ड **Ra** (_R_un)	ल ल GEN ल **La** (_L_ove)	व व GEN व **W/Va** (Lo_v_e)	स्र स GEN ड **Sa** (_S_un)
श्र श GEN ड **Sha** (_Sh_un)	ष्र ष GEN ड **Sch** (German)	ह्र ह GEN ह **Ha** (_H_urt)	क्ष्र द GEN ड **Ksha** (A_ctio_n)	
ज्ञ ज्ञ SAN ड **JNA**	ज्ञ ज्ञ BAN ड **GAN**	ज्ञ ज्ञ HIN ड **GYA**	ज्ञ ज्ञ MAR ड **DNA**	ज्ञ ज्ञ GUJ ड **GNA**

| |
|---|
| त्र
ळ MAR ळ
No Equivalent |

The eleventh and the last random consonant in the list ळ is used in Sanskrit and some four or so languages, Gujarati, Kannada, Rajasthani (Marwari) and Marathi. That is the reason for not including ळ that is similar to ल, in the list of basic consonants.

This completes the list of basic Noot-Nagari alphabets. Now the variations of the basic alphabets are described these when combined with the basic alphabets, will give Noot-Nagari the capability to write all Indian languages.

CONSONANT VARIATIONS

Consonant variations provide Noot-Nagari the capability to express the slight difference in the way consonants are pronounced in a particular language or in different languages. This is primarily due to words used or borrowed from other languages as well as, variations in pronunciations if not specifically identified, require knowledge of that language to pronounce the word correctly. As explained earlier, Hindi uses a dot or period (American English) to identify the variant pronunciation making the proper pronunciation obvious to the reader. Whereas Marathi does not, therefore the knowledge of the language becomes necessary to know the correct pronunciation. For example, वाचा (speech) and वाचा (read) are written exactly the same way, but चा is not pronounced the same way and the meaning of the word changes completely depending upon how चा is pronounced. Noot-Nagari identifies such differences, so it is not necessary to know either the language or the context for pronouncing the consonant correctly.

The different pronunciations of the consonants that are identified by using a dot (period) and an inverted 'v' or 'ivy' are shown below:
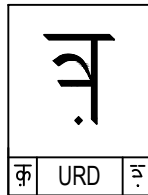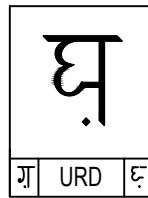
This variation of क is the guttural 'K' in Urdu and Hindi for Farsi-based words, for example क़ायदा (Law).

This variation of क is same as 'K' in English that has a sound in between क and स, or aspirated 'K'
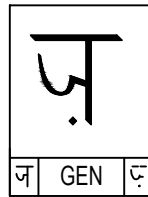
This variation of स is the guttural 'Kh' in Urdu and Hindi for Farsi-based words, for example ख़ामोश (Be silent).

This variation of ग is the guttural 'G' in Urdu and Hindi for Farsi-based words, for example ग़म (Sorrow/Sadness).

This variation of च is the special 'Ch' in Marathi and may be somewhat unique to Marathi, for example चला (Let's 'Go').

This variation of ज is the 'Z' in Hindi, Marathi and Urdu. Hindi uses the dot to make the distinction from 'J', for example ज़रूरत (Need).
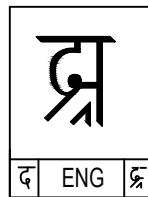
This variation of ज is the 'Zh' or as 's' is pronounced in such English words as 'vision' and 'measure'.
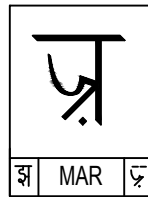
This variation of झ or 'Zh' may be unique to Marathi, for example झगा 'frock' and झटपट 'quickly'. The way झ is pronounced in these two words is different. This represents the झ in झगा.

This variation of य has the same sound as 'Th' in English as in 'Thousand' or 'Thin', not as 'Th' in 'The', 'That' or 'Mother'.*

This variation of द has the same sound as 'Th' in English as in 'Th' in 'The' or 'Mother' *

* In South India 'Th' is used to represents the consonant त where as in the rest of India it represents य. But 'Th' in 'Thin' or 'Thousand' is a softer sound. That is reason for providing special variants for 'Th' in 'Thin' as well as for 'Th' in 'That' (a variation of द). This is where 'Th' represents a single sound and not two sounds as in 'Hothouse' or 'Knighthood'. For pronouncing both 'Th' sounds in English the tongue has to extend past the upper row of teeth.

CONSONANTS VARIATIONS CONTINUED

This variation of 'ध represents the way it is sometimes pronounced in Punjabi. It has a sound that is between त and घ.

घ् | PUN
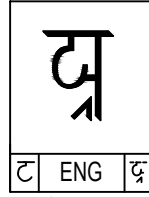
This variation of ट is the English 'T' that is not exactly the same as ट but has the sound that is between ट and ठ, or aspirated 'T'.

ट | ENG

This variation of ड़ is the sound between र and ड़ in Hindi for certain words, for example रोड़ा (Rock).

ड़ | HIN

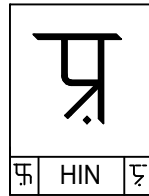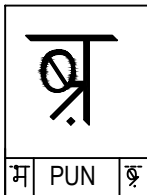This variation of ट़ is the softer sound in Hindi (and Punjabi) for certain words, for example बढ़िया (Better) as compared to ढोल (Drum).

ट़ | HIN

This variation of प is the English 'P' that has a sound in between प and फ. That is why 'P' as pronounced by people from India is often heard as 'B' by Americans

प | ENG

This variation of फ is the same as 'F' in English and is used in Hindi and Urdu. For example फ़र्ज (Duty). Hindi uses a dot to make the distinction.

फ | HIN

This variation of 'म represents the way it is sometimes pronounced in Punjabi. It has a sound that is between प and म.

म् | PUN
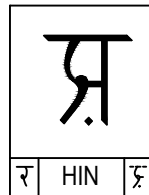
This variation of र 'Ra' is a softer sound that is used in Hindi without any identifying notation. A dot will identify the softer version.

र | HIN

This represents the 'R' as it is pronounced in English; the pronunciation is softer and subtly different.

र | ENG

This represents a special consonant in Tamil that is difficult to pronounce and in English it is written as 'Zh' (Kazham in 'DMK')

TAM
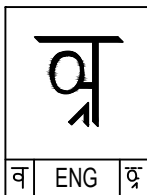
The pronunciation of व in Indian languages falls between 'W' and 'V'. This variation of व represents 'W' the softer sound. For example '_W_ork'

व | ENG

This represents the व or 'V' as it is pronounced in English. For example '_V_ertical' *.

व | ENG

* The letter 'V' has different pronunciations in Indian as well as European languages. In Spanish it is pronounced as 'B' and as 'F' in German and Dutch. In Marathi the pronunciation is व्ह (Vh) and in Bengali it is 'भ (Bh). But the pronunciation of 'V' is a strong व and to English-speaking persons 'W' and 'V' represent distinctly different sounds.

There may be additional variations in other Indian languages that may not have been included in this list. So depending on the needs of the different languages additional consonants and/or consonant variations may be added to the above list. Noot-Nagari is designed with the capability to expand as and when the need arises or is identified.

6.   Noot-Nagari Alphabets

To summarize Noot-Nagari alphabets are shown below in two sets. The first set shows the basic Noot-Nagari alphabets that one needs to learn to be able to read and write in Noot-Nagari. Depending on the language, one needs to learn the applicable variant of ऩ and the consonant ळ only if necessary. Also, depending upon the requirements of a specific language, only the applicable variations of some of the consonants need to be learnt. So with basic Noot-Nagari plus two or three special vowels and consonants any Indian language can be learnt, read and written. Only scholars or linguists need to learn all the variations.

The basic Noot-Nagari alphabets are shown in solid text and additional variations of alphabets in shaded text.

BASIC TWELVE DEVNAGARI VOWELS

अ	आ	अ	आ	ऊ	ऊ
अ A (_A_gain)	आ Aa (F_ar_)	इ I (F_i_t)	ई Ee (F_ee_l)	उ U (P_u_ll)	ऊ Oo (P_oo_l)

अ	अ	आ	आ	अं	अः
ए A (_A_te)	ऐ A (B_a_t)	ओ O (B_oat_)	औ Aw (S_aw_)	अं An (B_un_k)	अः Ah (Asp)

ADDITIONAL SEVEN VOWELS

अ	अ	अ	आ	अ	अ	अ
ऋ Ri (_Ri_b)	ॠ Ru (_Ru_mer)	ऐ Ai (B_i_ke)	औ Au (_Ou_t)	ए E (B_e_t)	अँ Fre-(bon vin)	Ue Fre-(R_ue_)

RARELY-USED THREE SANSKRIT VOWELS

अ	अ	अ	An eminent Sanskrit scholar suggests that these vowels are not necessary and can be replaced by ॠ (ॠ) 'Ru' and ॡ (ॣ) 'Lu' [2]. However, these are available and may be deployed for depicting any additional vowels if and when the need arises.
ॠ Ru	ॡ Lu	ॡ Lu	

[2] R. D. Ranade 'Essays and Reflections', Bharatiya Vidya Bhavan

BASIC TWENTY FIVE CONSONANTS ACCORDING TO PLACE OF ARTICULATION

VELAR

व	त्र	घ	घ्र	त्र
क Ka (_C_ut)	स Kha (Asp)	ग Ga (_G_irl)	घ Gha (Asp)	ङ Gn (Nasal)

PALATAL

च	त्र	ज	घ्र	त्र
च Cha (_Ch_uck)	छ Chha (Asp)	ज Ja (_J_ust)	झ Jha (Asp)	ञ Yn (Nasal)

NOOT-NAGARI

RETROFLEX

द	द्र	ड	ड्र	न्र
ट Ta (Dus*t*)	ठ Tha (Asp)	ड Da (*D*ust)	ढ Dha (Asp)	ण Na (Be*n*d)

DENTAL

त	त्र	द्र	द्र	न
त Ta (Soft *T*)	य Tha (*Th*ird)	द Da (*Th*at)	ध Dha (Asp)	न Na (*N*ut)

LABIAL

प	प्र	ब	ब्र	म
प Pa (Li*p*)	फ Pha (*P*ut)	ब Ba (*B*uck)	भ Bha (Asp)	म Ma (*M*ust)

FOUR SEMIVOWEL/APPROXIMANTS   **ONE GLOTTRAL**

य	प्र	ल	व	ह्र
य Ya (*Y*es)	र Ra (*R*un)	ल La (*L*ove)	व W/Va (Lo*v*e)	ह Ha (*H*urt)

THREE SIBILANTS   **ONE CONJUNCT**

श्र	ष्र	स्र	क्ष	त्र Tra (*Tr*ust)
श Sha (*Sh*un)	ष Sch (German)	स Sa (*S*un)	क्ष Ksha (A*ction*)	This is not included in the list because it is a conjunct of त & र

SPECIAL CONJUNCT CONSONANT WITH VARIATIONS IN PRONUNCIATION
(No English equivalent, similar to 'Gn' in Italian.)

ज्ञ	ज्ञ	ज्ञ	ज्ञ	ज्ञ
ज्ञ Jna (San)	ज्ञ Gan (Ban)	ज्ञ Gya (Hin)	ज्ञ Dna (Mar)	ज्ञ Gna (Guj)

CONSONANT VARIATIONS

क़	क़	स़	घ़	च़
क Qua (Guttural 'K') Urdu ق Quaf क़ाफ़	क (Aspirated 'K') English *C*ut	स Kha (Guttural 'Kh') Urdu خ Khay स़े	ग (Guttural 'G') Urdu غ Ghain ग़ैन	च (Dental 'Ch') Marathi चळ (Go)

ज़	झ़	झ़	य़	द़
ज Zee (General) Urdu ژ Zo'ay ज़ोए	ज Zh (Special 'S') English Plea*su*re	झ Zh (Special 'Jh') Marathi झगा (Frock)	य Th (Soft 'Th') English *Thi*ck	द Th (Special 'Th') English *Thu*s

CONSONANT VARIATIONS CONTINUED

घ Special 'Dh' Punjabi घीर '*Dhir*'	Sound bet. ट & ठ English '*T*urn'	Similar but softer than ट English 'Bi*t*'	Sound bet. र & ड Hindi रोड़ा 'Rock'	Softer ट Hindi बढ़िया 'Good'
Sound bet. प & फ English '*P*it'	English 'F' (*F*un) Urdu ف Fay फ़	भ Special 'Bh' Punjabi भार '*Bh*ar'	र Softer 'R' Hindi पर (Feather)	र Special 'R' English (fi*r*)
ळ Simlar to ल Marathi पळ (Run)	Tamil consonant Spelt as 'Ka*zh*aham'	Softer , 'W' English '*W*ork'	Stronger व, 'V' English '*V*ertical'	Extending consonant	Shortening consonant

PUNCTUATIONS

. | ,   ;   ·:   " ' " "   ( )

| Period or Full Stop | Comma | Semi colon | Colon | Quotation marks | Parenthesis |

For period or full stop the choice is between a vertical line (Hindi) or a dot. Colon has to be modified to avoid confusion with aspirated vowel. The rest are standard punctuation that are commonly used.

NUMERALS

| Zero | One | Two | Three | Four | Five | Six | Seven | Eight | Nine | Ten |

VOWEL DIACRITICS WITH 'KA'

| Ka (*C*ut) | Ka (*Ca*rt) | Ki (*Ki*t) | Kee (*Ke*y) | Ku (*Coo*k) | Koo (*Coo*l) | Kay (*Ca*pe) | Kai (*Ca*p) | Ky (*Ki*te) |

| Ko (*Co*pe) | Kao (*Ca*ll) | Kau (*Cow*) | Kam* (*Com*pare) | Aspirated consonant* | Kn* (Nasal) Hindi काँच (Glass) | Kri (*Cri*b) | Kru (*Croo*k) |

* These three indicators can be used in combination with other vowel diacritics. This is a typical example that applies to all consonants to indicate vowels diacritics as required.
In addition, two special letters are shown, one is not modified and the other is modified slightly.

| Aum No modification | Shree श्री Minor modification |

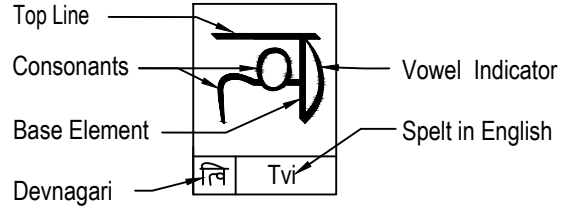## CONSONANTS AVAILABLE FOR ACTIVATION WHEN REQUIRED

भ्र प्र ग्र य्र

These are examples of additional alphabets for consonants that may be activated for special sounds if and when the need arises. The sound associated with each will be determined at the time of activation. Though unlikely, should the need arise, additional alphabets for consonants or vowels may be developed.

CONJUNCT LETTERS 'YUKTAKSHER'

For conjunct letters Noot-nagari has one simple rule that is applied consistently throughout. The rule is similar to Devnagari, but there are many exceptions to the rule in Devnagari with special combinations. In Noot-nagari the consonant part of a letter is to the left of the base element and used for writing conjunct letters. After combining the required consonants the base element is added and vowel indicator if required, is placed to the right of the base element.

This is an example of a typical conjunct letter :

Noot-nagari :   श्रात्त्र
Devnagari :   सात्विक
English :   Satvik

Top Line
Consonants
Base Element
Vowel Indicator
Spelt in English
Devnagari
त्वि   Tvi

त्क Tka	द्व Dva	द्य Dya	ध्य Dhya	द्द Dda	त्त Tta	प्त Pta
त्त Kta	क्यि Kyi	क्वी Kvee	व्या Vya	ह Hri	ह Hru	पृ Pru
पृ Pri	कृ Kri	ट्र Tra	र्ट (a)Rt	त्र Tra	द्म Dma	ह्म Hma
ह्य Hya	द्भ Dbha	प्र Pra	र्प (a)Rp	भ्य Bhya	स्म Spa	न्द Nda
त्स्य Tstha	त्स्न Tsna	ज्ञ Jjna				

This shows a few examples of conjunct letters comprising two consonants. On the last row are conjunct letters comprising three consonants or one consonant plus one special conjunct consonant. These are typically used in Sanskrit. Conjunct letters with any number of consonants are possible but pronouncing them will be a challenge.

6.   Concluding Comment

This completes a more detailed description of Noot-Nagari including the basic concept. The rules that are adopted ensure consistency and to the extent possible, exceptions to the rules are avoided. Noot-nagari has been developed so as to have the ability to write any Indian language, in addition, there is the capability to add more consonants and vowels if necessary.

Obviously to have a single type of script for all the Indian languages has many practical advantages. The key question is whether Noot-Nagari or an improved version of the same will be adopted by all India. It will be possible if the decision is based on strictly rational analysis and evaluation of the advantages. However, there are emotional ties to the existing script that is familiar to the speakers of different languages. Also that the current script makes a particular language unique. To adopt Noot-nagari the emotional attachment in addition to the inherent resistance to change will have to be overcome.

In the past hundred years or so there is only one example of a country adopting a new script. After the first world war Turkey made a switch from Arabic script that is written from right to left to Roman script that is written from left to right. Such a drastic change was enforced by Kemal Ataturk, the father of modern Turkey who had unlimited power. But this change was so radical that it had to be enforced. Today the Roman script has been adopted and is used in Turkey. Adopting Noot-Nagari script will not be anywhere as radical as adopting Roman script in Turkey. Almost all the Indian languages have the similar arrangement of vowels and consonants as in Devnagari, and the same arrangement is adopted in Noot-nagari. The appendix has various scripts to illustrate this point. Two notable exceptions are Tamil that has its own set up and Urdu that is a Farsi-based language and uses Arabic type of alphabets and is written from right to left. Except Urdu, all the Indian languages are written from left to right. Urdu alphabets follow similar format and set up as Roman and Middle Eastern languages starting with ا (Alif) followed by ب (Bay); or A followed by B or Alpha followed by Beta.

If the idea of one script for all the Indian languages is deemed desirable, then Noot-nagari should be considered as the script to be adopted. With internet the idea can reach far and wide with minimal or no expense.   The 'Arab Spring' uprising used the internet for communication.   The other factor is rational evaluation of the benefits of a single script for all the Indian languages.

Prior to adoption, it is necessary to verify the claim that Noot-Nagari has the capability to write all Indian languages. If it needs to be modified or has to incorporate additional alphabets to be able to meet the needs of all the Indian languages, then such modification and or additions should be done prior to adoption. Noot-Nagari is designed with capability to expand as necessary. In addition, some issues peculiar to specific languages need to be resolved. For example, Bengali has simplified pronunciation that is not exactly how the word is written. At the time of adopting Noot-Nagari it should be decided whether the current practice should continue and the pronunciation will be different than the written text or the words will be written exactly as they are pronounced.

7.   My Background

In stead of qualifications, I am providing my background and my limitations. I cannot think of a set of qualifications that are necessary to develop alphabets such as Noot-nagari. Anyone can conceive and develop an idea.

I was born in India and have lived in California for many years. My mother tongue is Marathi, but I grew up in North India and was educated in Hindi along with English as the languages of instruction. As a part of school curriculum, I did learn Urdu script for one year. I spent a few years in Bengal and Rajasthan and am familiar with Bengali and Marwari. I do not know any other languages of India, particularly the four languages of South India.

I am not a linguist but trained as an architect and have worked in that profession for all of my professional career.

8.   Document Graphics

The text and graphics of this document have been produced with Computer Aided Drafting (CAD). The document is converted into Portable Document Format (PDF). The document as well as the appendix in PDF are used for communication. CAD files should be used for updates to incorporate revisions and additions.