ANNEX-G

EXTENDED CHARACTER SET FOR VEDIC

The ISCII codes for Devanagari catered to all the characters required for typing Hindi, Marathi and Sanskrit. However they could not contain the additional characters required for representing ancient Vedic text. Many of these Vedic characters combine with other Devanagari characters. The Vedic characters cannot be thus thought of as constituting an independent script, but have to be catered to as an extension to the ISCII character set.

ISCII code provides an Extension code (EXT) which redefines the following ISCII character as another character not present in the ISCII code. Through this extension technique it is possible to represent, apart from Vedic, miscellaneous characters required for other Indian scripts.

It is not sufficient to provide only the extended character set for Vedic, it is necessary to make sure that they can be typed in a simple way. This necessitates a Vedic keyboard overlay along with the Inscript overlay. While remaining in the Inscript keyboard overlay it should be possible to select single characters from the Vedic overlay. This has been made possible through an Extension key, which when pressed along with an ISCII character, gives the corresponding character in the Vedic overlay.

The Vedic characters are ignored in transliteration to another Indian script and to the Roman script.

G-1 Nature of the Vedic Characters

In ancient times Vedic text was characterized by a tonal or pitch accent: one syllable in a word was pronounced with a different musical pitch than the others. In Sanskrit the pitch accent was kept alive for some centuries after Pāṇini, after which it finally disappeared in pronunciation.

Vedic text gives importance to correct representation of tonal marks along with the vowels. These tonal marks are called Svaras. The three main Svaras are Udātta, Anudātta and Svarita. Out of these Udātta has generally no indication.

Different Vedic texts however have no consistency in usage of diacritic marks to indicate these Svaras. The same symbol may get used by different authorities for different purposes.

In the Vedas there are three lengths for a vowel. These are short, long and extra-long (हस्व, दीर्घ, प्लुत). The short and long vowels are denoted by the normal vowel signs used in Devanagari, while the extra-long vowel is indicated by putting a a sign after a short or long vowel sign. Example: ओ इकतो स्मर.

G-1.1 Udatta (उदात्त)

The vowel that is perceived as having a high tone is called Udātta, or acutely accented. It is normally not marked. ".." is used in S ukla Yajurveda texts, at the end of a sentence.

G-1.2 Anudātta (अनुदात्त) (_)

The vowel that is perceived as having a low tone is called Anudatta, or gravely accented. In writing it is marked by a line underneath the vowel. It also denotes Udatta in S atapatha Brāhmaṇa. In Kāṭhaka text, Anudatta is shown as a vertical line below the character (,).

G-1.3 Svarita (स्वरित) (')

The vowel that is a combination of Udatta and Anudatta tones is said to be Svarita or circumflexly accented. It is pronounced by combined raising and falling of the voice. It is marked by a vertical line above a character.

This definition applies in Rigveda. However the same sign is defined as Udātta in Yajurveda's Maitrāyanīya text.

G-1.4 Long Svarita (दीर्घ स्वरित) (*)

Long Svarita is denoted by two vertical lines above a character ("), in some Taittiriya texts.

G-1.5 Kampa (कम्प) (')

Kampa is vibration in the voice while reciting. The Kampa arises only when a Svarita is followed immediately by an Udātta (or Svarita). In such situations, a low-pitched Matra is inserted between them. The recitation sequence consists of high pitch of Svarita, followed by low pitch of Kampa, and then the high pitch of Udātta or Svarita, which causes the vibration. The Matra which is inserted between the Svarita and Udātta (or Svarita) is indicated by figure ? if the Svarita is short and by figure ? if it is long. The figures are marked as both Svarita and Anudātta, i.e. $\frac{1}{2}$ and $\frac{1}{3}$.

G-1.6 Jihvāmuliya (जिह्वामूलीय or उपध्यानीय) (🗴)

This is like a half-Visarga sound, and can come only before four consonants. Before क and ख it is called Jihvāmūliya, while before प and फ it is called Upadhmāniya.

G-1.7 Puspika (पुष्पिका or पूर्णकलश) (छ)

This symbol is just a substitute for the spaces between words, and hence is not needed.

G-1.8 Yajurvedic Anusvāra

Anusvara followed by non-Varga characters is pronounced with a ग् element mixed with a उvowel. This is also known as Gunkar (गुंकार).

- ਲ is used in Shukla Yajurveda.
- is used in Krishria Yajurveda. This is also used in Shukla Yajurveda.
- 🤫 is an elongated Krishna Yajurvedic Anusvara.
- ፍ, ឞ, છં, ε, ·ዮ, ፍ, ε are the variants of Yajurvedic Anusvaras found in different editions and seem to be redundant.

G-1.9 Visarga

There are many variants of the normal Visarga ($\bar{\cdot}$) found in the Vedic texts like - ϵ (after Udatta), $\hat{\cdot}$ (after Svarita), $\hat{\cdot}$, $\hat{\epsilon}$, and $\hat{\epsilon}$. All of these seem to be redundant.

G-1.10 Others:

- f Atharvavedic Jātya Svarita is attached after a character. In some texts, it is shown preceding a Visarga. But it is better to show it after Visarga, since that is the logical order.
- Svaras in Samaveda are marked by १,२,३, क, र and ভ placed above the characters. These Svaras, when required, can be placed in the corresponding positions of the previous row. As such no special symbols are needed for them.

G-2 Extension Codes for Vedic

The Extension character (EXT), defined in ISCII, can be followed by another character in the range of A1h to EEh, to yield additional characters.

	Code		ISCII	Vedic		
	Hex	Dec.	Char.	Char.	Name	
	A1	161	ٹ	÷	Visarga1	
	A2	162	÷	છ્ય	Filler	
	АЗ	163	-	છં	Yajurvedic Anusvara1	
	A .4	164	अ	ε.	Yajurvedic Anusvara2	
	A 5	165	आ	છં.	Shukla Yajurvedic Anusvara	
	A 6	166	इ	ું.	Yajurvedic Anusvara3	
	A 7	167	ई	છું	Yajurvedic Anusvara4	
	A8	168	उ	ć.	Visarga2	
	A 9	169	ऊ	₹	Visarga3	
1	AA	170	ऋ	ڊ	Visarga4	
	ΑB	171	ऍ	()	Visarga5	
1	AC	172	ए	×	Jihvamuliya	
-	AD	173	ऐ	ષ	Krishna Yajurvedic Anusvara	
	ΑE	174	ऍ	÷	Krishna Yajurvedic Long Anusvara	
	AF	175	ऒ	٤.	Yajurvedic Anusvara5	
	B0	176	ओ	£:	Yajurvedic Anusvara6	
	B1	177	औ	E.	Yajurvedic Anusvara7	
	B2	178	ऑ	१	Short Kampa	
	ВЗ	179	क	3	Long Kampa	
	SWAF		SWAR			
	B4	180	ख	ſ	Jatya Svarita-Atharvaveda	
	B5	181	ग	'	Svarita	
	B6	182	घ	"	Long Svarita	
	3 7	183	ङ	-	Kampa	
	38	184	च	- 1	Anudatta	
	E9	185	छ	ω	Jatya Svarita (Shukla Yajurveda)	
1	BΑ	186	ज	_	Jatya Svarita (Maitrayaniya)	
1	88	187	झ		Sentence ending Udatta	
I	ВС	188	ञ	_	Jatya Svarita	
		1		l	(Non-Taittiriya Yajurveda)	
8	BD	189	ट	.	Svarita (Maitrayaniya)	
E	ВE	190	ਰ	.	Anudatta (Kathaka)	
			MISC	ELLA	NEOUS	
E	3F	191	ड	•	Abbreviation sign	

G-3 Structure of Vedic Characters

The Svarita symbols go above, below or after a character. Only one symbol can be attached at a time. The character can be a Full Consonant, Pure Consonant (with Halant), Vowel or another stand-alone Vedic symbol.

G-3.1 Side Svara ক্য

Will go to the extreme right of the character, even after the Visarga. Example: मा मा मा

G-3.2 Top Svara के काँ

These will attach at the top of a character. However if there is already some other Matra, Anusvara or Chandrabindu sign present on the top, then the top-Svara will attach to the right of it. Example:

मं	में	मे	मैं	मैं	मि	मिं
कै	40	कें	के"	कैं"	किं	ৰ্কি
अ	आ	\$	ऐं	औ'		
Ų	₹"	* *	ओ [#]	औ		

G-3.4 Bottom Svara: कु कु कु कु क क

These will attach below the character. However if there is already a Matra below it, then they may combine with it or will get placed after it.

The Svaras $_$, $_$, $_$, $_$ and $_$ combine with the Matras $\overline{_}$, $\overline{_}$, as well as the Halant sign $\overline{_}$.

म् । इत्र । इत्र । इत्	क्त हुन हुन हुन	हरा हिर्देश हिर्दे हिर्दे	ह _{ा हिन} हिन हिन	हम हम हम हम हम	स्य स्थ स्था स्थ		
म म म म म	मण भण भण भण भण	मल मुक्त मुक्त मुक्	म्। मुश्र मुश्र मुश्र मुश्	मर्ग मर्थ मर्थ मर्थ मर्थ	म मं मं मं मं मं	अ अ अ अ	עי עי עי עי

The Svaras, and, do not combine with the Matras, but are placed after them.

ক ক	कु: कु:	कू कू	कृ .	किं किं	क्. क्		
म	मु.	मू	मृ.	मृ.	म्	अ	ए
म	मु.	मू	मृ,	मृ.	म्	अ	ए

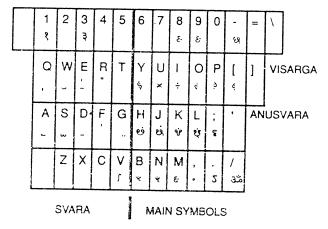
G-4 Keyboard Overlay for Vedic

Acharacter on the Vedic overlay is selected by pressing it along with the Extension key. The Extension key can vary in location depending on the type of keyboard and implementation. On an 84-key IBM PC-AT keyboard, the Extension key can be the same as the SYS-REQ key. On the 101-key IBM Enhanced Keyboard, the right-ALT key can be used as an Extension key. The right-ALT key, being much closer, is more convenient than the SYS-REQ key; this makes the keyboard more convenient

for speedy typing of Vedic text.

The Extension key should be thought of as another kind of SHIFT key, which has to be pressed along with a character key. It is effective only when the Inscript overlay is active (CAPSLOCK is on). Each key typed along with the Extension key emits a character pair, which join up on the display to show the desired character. The first character is the EXT character, while the second is a Devanagari character. Thus two backspaces would be required for deleting both these characters. Example:

Vedic Keyboard Overlay



The Vedic overlay has been designed to provide ease in typing of Vedic symbols. Thus symbols used often are located on more convenient positions. All the Svaras (tones) are located in the left-half of the keyboard, to be typed by the left hand. These Svaras attach on the characters typed before them.

The ₹ and ₹ symbols are provided on the corresponding English numeral keys. These should be used for indicating short and extra long vowel sounds rather than the normal numerals.

Main Vedic symbols are provided in the right half of the overlay. The Svara characters can be attached on these. The important Visarga and Anusvara symbols are given in separate rows.

Important exceptions are the three symbols located in bottom right of the overlay. The abbreviation sign (•) is given for traditional usage: in modern usage it gets replaced by the full-stop sign. The Avagrah (5) and Om (35) symbols are given for convenience only; these could have been typed on the Devanagari overlay using the Nukta (7) key.

In Vedic texts, one may wish to show an Explicit Halant which would be shown on the previous consonant, and which would prevent the consonant from joining with the next one. The Explicit Halant can be formed by typing Halant twice.

G-4.1 Typing Order.

The Svara symbols which attach above, below or after a character, should be typed at the end of a composite character. Example:

Vedic non-Svara characters can take only a Vedic Svara on it. Example:

G-5 Vedic Syllable Syntax

Svara (S)

Non-Svara (R)

All the Vedic characters excluding the Svara.

Following is the extension to the ISCII code syntax, required for Vedic syllables.

Vedic-Syllable ::= Vedic-Cons-Vowel-Syllable | Vedic-Vowel-Syllable | Full-Vedic-Syllable

Vedic-Cons-Vowel-Syllable ::= Cons-Vowel-Syllable S

Vedic-Vowel-Syllable ::= Vowel-Syllable S

Full-Vedic-Syllable ::= R S

Code		ISCII	Vedic	
1			1	
 		<u> </u>		
A1	161	_ _	÷	Visarga1
A2	162		છ	Filler
A3	163	-	છં	Yajurvedic Anusvara1
A4	164	अ	<u>ئ</u>	Yajurvedic Anusvara2
A5	165	आ	છ	Shukla Yajurvedic Anusvara
A6	166	ङ	Ý	Yajurvedic Anusvara3
A 7	167	र्फ	છું	Yajurvedic Anusvara4
8A	168	उ	Ę	Visarga2
A9	169	ऊ	ŧ	Visarga3
AA	170	₹ 7	.	Visarga4
AB	171	ऎ	(;)	Visarga5
AC	172	ए	×	Jihvamuliya
AD	173	ऐ	પં	Krishna Yajurvedic Anusvara
ΑE	174	ऍ	÷	Krishna Yajurvedic Long Anusvara
AF	175	ऒ	٤.	Yajurvedic Anusvara5
BO	176	ओ	ઈ:	Yajurvedic Anusvara6
B1	177	औ	દૃ	Yajurvedic Anusvara7
B2	178	ऑ	१	Short Kampa
B 3	179	क	₹	Long Kampa
SWAR		P		
B4	180	ख	ſ	Jatya Svarita-Atharvaveda
B 5	181	ग	,	Svarita
B6	182	घ	"	Long Svarita
3 7	183	ङ	-	Kampa
38	184	च	_	Anudatta
B9	185	छ	ω	Jatya Svarita (Shukla Yajurveda)
ЗА	186	স		Jatya Svarita (Maitrayaniya)
88	187	झ		Sentence ending Udatta
ВС	188	ञ		Jatya Svarita
			l	(Non-Taittiriya Yajurveda)
BD	189	ट		Svarita (Maitrayaniya)
BE	190	ठ		Anudatta (Kathaka)
	ĺ	MISC	FIIA	NEOUS
BF	191	ड	i	Abbreviation sign
				, about anothing in