Reconsidering the glyph change of

Vedic signs Jihvamuliya and Upadhmaniya

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1 Introduction

The document L2/17-095 requested to change the glyph of glyphs of 1CF5 ✕ VEDIC SIGN JIHVAMULIYA and 1CF6 ⚌ VEDIC SIGN UPADHMANIYA to reflect the shapes in the original sources like manuscripts and inscriptions in Devanagari. Additional study indicated that the current glyphs (or slight variant) are majorly and widely used in Bengali script. We were not aware of its use in other sources and Bengali script during that point of time. These forms are also occasionally seen in few Devanagari books published in Bengal. Appearance of these forms in few Devanagari publications is likely due to the influence of Bengali script.

2 Glyph shapes

2.1 VEDIC SIGN JIHVAMULIYA

The current glyph *jihvamuliya* is correct and we suggest retaining the current glyph.

2.2 VEDIC SIGN UPADHMANIYA

The current glyph ⚌ *upadhmaniya* is strictly not incorrect as it is found in some printed sources. The major glyph found in examined Bengali manuscripts appears to be ⍵. It also has inverted variant as ⍵. The current glyph appears to be stacked form of and the inverted form.

The forms ⍵ and ⍵ are evolutionarily related to *upadhmaniya* signs in other Indic scripts like Tibetan ⍵/⍵, Kannada ∞, Landza (Ranjana) ⍵, Sharada ⊞ and Devanagari ⍵. All of them are ultimately derived from Brahmi ⊗.

Based on the manuscripts and also uniformity in glyph shape in other scripts, it is requested to change the glyph shape of *upadhmaniya* to ⍵. The inverted form can be considered as a variant.

3 Encoding model

The *jihvamuliya* (voiceless velar fricative) occurs before the unvoiced velar letters ka and kha and *upadhmaniya* (voiceless bilabial fricative) occurs before the unvoiced labial letters pa and pha.

There are two ways of representing these combinations

3.1 Stacked conjuncts

As in other Indic scripts like Brahmi, Sharada and Kannada, these characters are placed above the following consonant to form a stack. The following sequences are provided in Bengali. As in other Indic scripts by default formation of stack/conjunct without the use of virama is recommended.

[X] *jihvamuliya* + ক *ka* → ক্ক

[X] *jihvamuliya* + খ *kha* → খ্খ

[з] *upadhmaniya* + প *pa* → প্প

[з] *upadhmaniya* + ফ *pha* → ফ্ফ
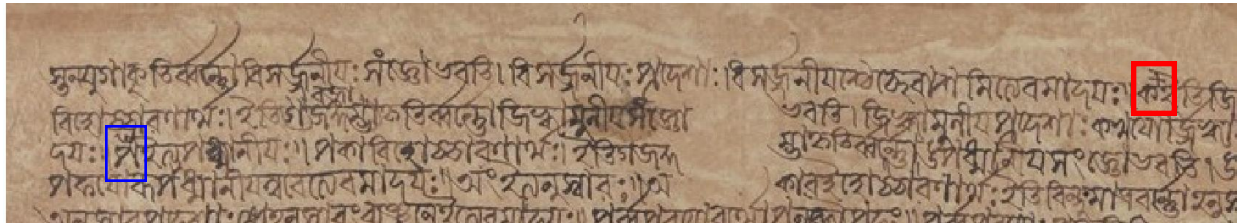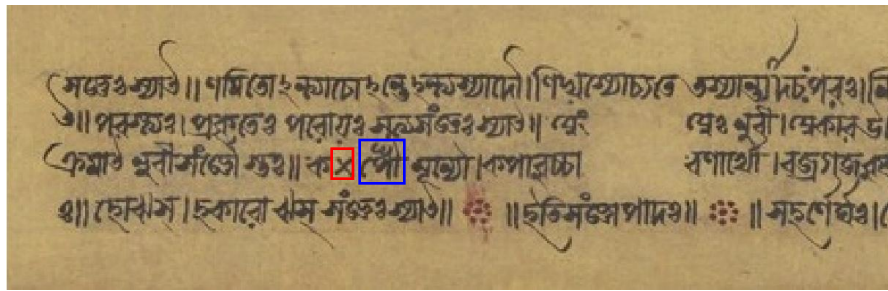
3.2 Explicit forms (without the use of stack)

The sequences can also be depicted without formation of stack where the letters are written side-by-side (i.e. the jihvamuliya/*upadhmaniya* glyph followed by the consonant glyph). The U+200C zero width non-joiner should be placed after the *jihvamuliya* or *upadhmaniya* to avoid the formation of stack.

This proposed sequence is similar to use of ZWNJ in Indic Virama model where ZWNJ is used to prevent the conjunct formation.

Explicit Virama in Indic scripts: क् *k* + ZWNJ + क *ka* → क्‍क

Since *jihvamuliya* and *upadhmaniya* are also vowelless consonants, the model used to explicitly depict vowelless consonant (such as क्) in consonant conjuncts can also be used for these two letters without the use of virama.

⌈X⌉ *jihvamuliya* +ZWNJ+ ক *ka* →✗ক   ⌈ৠ⌉ *upadhmaniya* + ZWNJ+ প *pa* → ৠপ

⌈X⌉ *jihvamuliya* + ZWNJ + খ *kha* →✗খ   ⌈ৠ⌉ *upadhmaniya* + ZWNJ +ফ *pha* → ৠফ
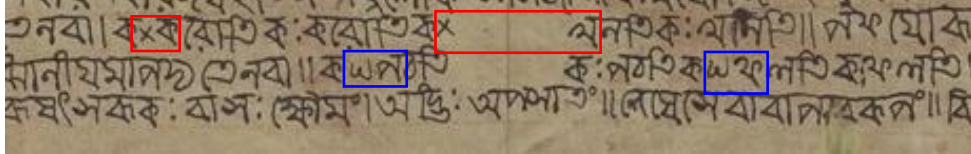
4 Acknowledgements

5 Summary

- Retain the glyph of *jihvamuliya as* ⌈X⌉ and change the glyph of *upadhmaniya* to ⌈ৠ⌉.
- The glyphs should be enclosed in a dotted box.
- Extend the use of 1CF5 and 1CF6 to Bengali in Script Extensions.
- Mention the rendering and behavior of these two letters in Bengali section of Core specification.
- Assign the Indic_Syllabic_Category for the two characters to be Consonant_With_Stacker.
- In consonant clusters, these two letters behave same as other consonants. More than two consonants can also occur such as ẖkra, ḫpra. Vowel signs can also occur with these clusters.
- The action item **152-A32** Removal of Kannada from ScriptExtensions.txt for U+1CF5 VEDIC SIGN JIHVAMULIYA should remain intact.
- Devanagari glyphs used in L2/17-095 ⌈X⌉ and ⌈৩⌉ will be discussed separately in an upcoming document.

6 Attestations

All manuscripts are obtained from the Endangered Archives Programme. *Jihvamuliya* is marked with Red and *upadhmaniya* is marked with blue.

Figure 1. Use of current glyphs in a Mugdhabodha Vyākaraṇa written by Vopadeva printed in 1826 in Bengali script.[1]

Figure 2. Use of current glyphs (or slight variant) in a Mugdhabodha Vyākaraṇa written by Vopadeva printed in 1826 in Devanagari script at Calcutta, West Bengal.[2]

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[1] https://books.google.co.in/books?id=8LlFAAAAcAAJ&dq=mugdhabodha&source=gbs_navlinks_s
[2] https://books.google.co.in/books?id=xjQ_AAAAIAAJ&dq=mugdhabodha&source=gbs_navlinks_s

ক⊠ইতি জিহ্বামূলীয়ঃ।

ককার ইহোচ্চা...., ... (×) ইতি বজ্জাকৃতির্বর্ণে।

মূলীয়সংজ্ঞো ভবতি।

জিহ্বামূলীয়প্রদেশঃ— কপয়োজিহ্বামূলীয়র ...তোবমাদয়ঃ।

(১৯)

প(ᅟ) ইত্যুপধ্মানীয়ঃ।

পকার ইহোচ্চারণাথঃ, (ᅟ) ইতি গজকুম্ভাকৃতি

উপধ্মানীয়সংজ্ঞো ভবতি।

উপধ্মানীয়প্রদেশঃ—পকয়োরুপধ্মানীয়র ...তোবমাদয়ঃ।

Figure 3. Gāndharva Kalāpa Vyākaraṇa printed in 1902. Here *upadhmaniya* is written using inverted form.[3]
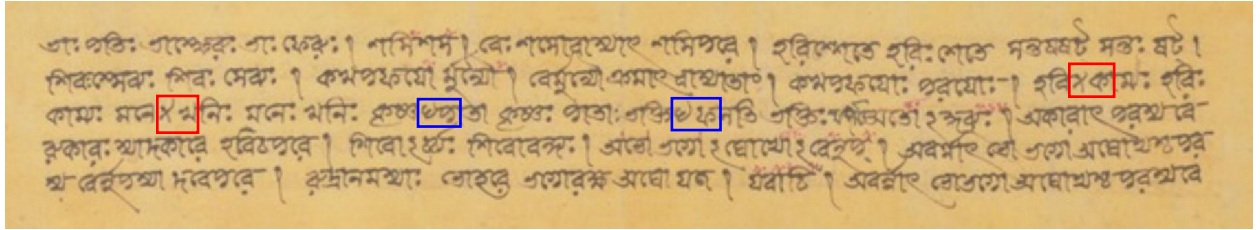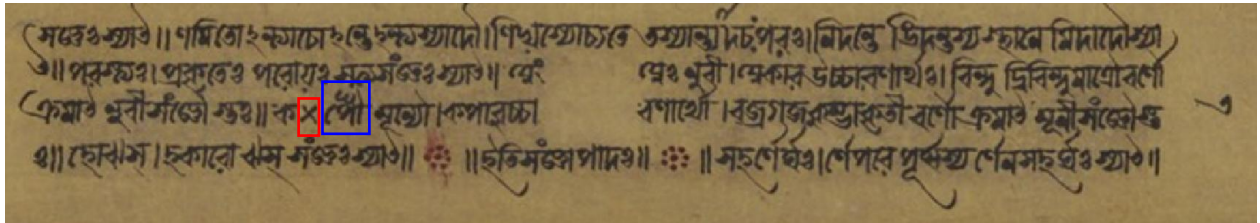

Figure 4. Mugdhabodha Vyākaraṇa EAP759/1/12

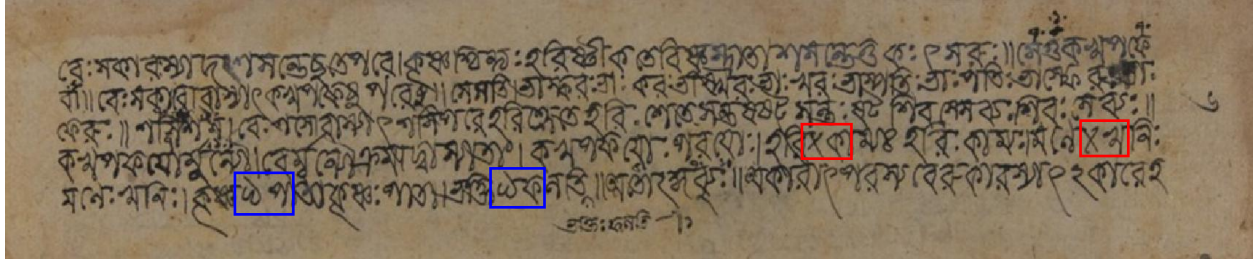Figure 5. Mugdhabodha Vyākaraṇa EAP781/1/1/176.

Figure 6. Mugdhabodha Vyākaraṇa EAP781/1/1/188.
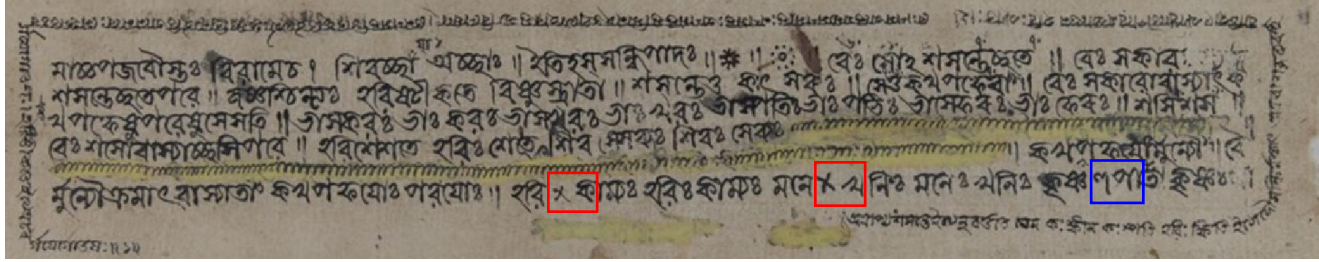

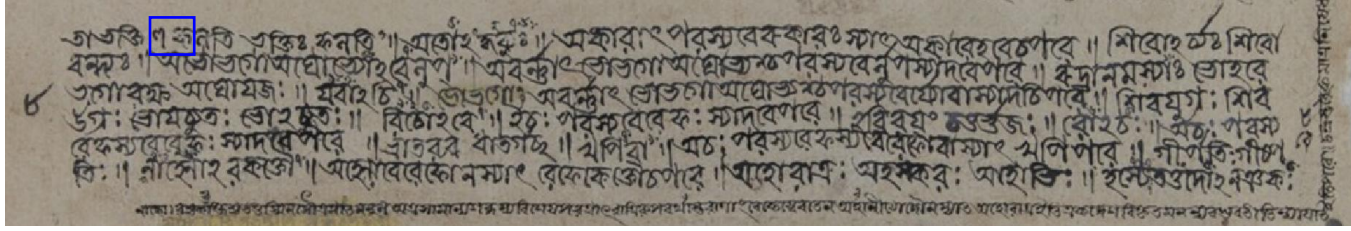Figure 7. Mugdhabodha Vyākaraṇa EAP781/1/1/197.

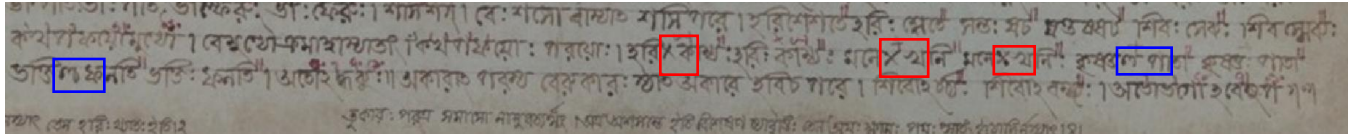Figure 8. Kātantravṛttipañjikā EAP781/1/1/206.

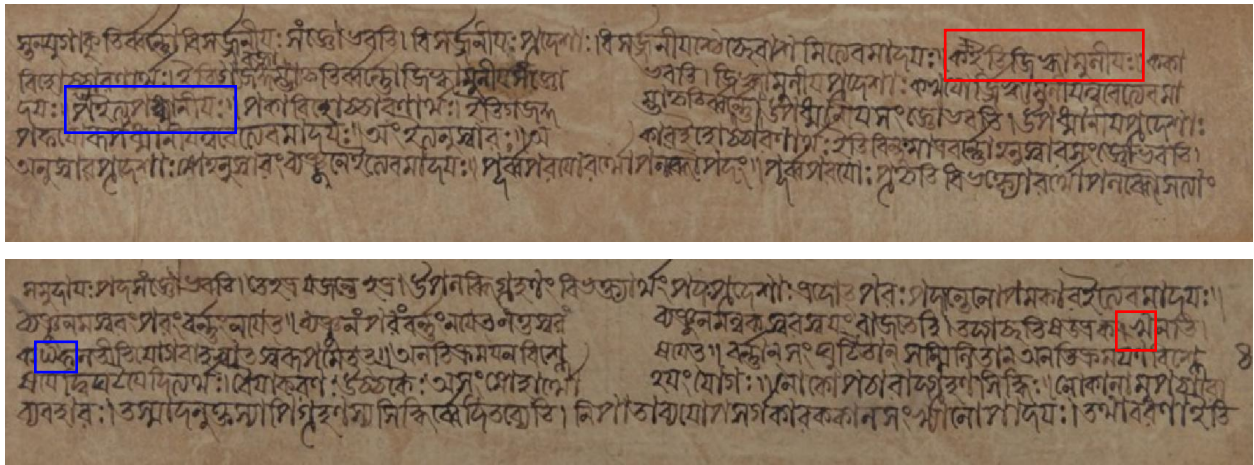Figure 9. Mugdhabodha Vyākaraṇa EAP781/1/1/624

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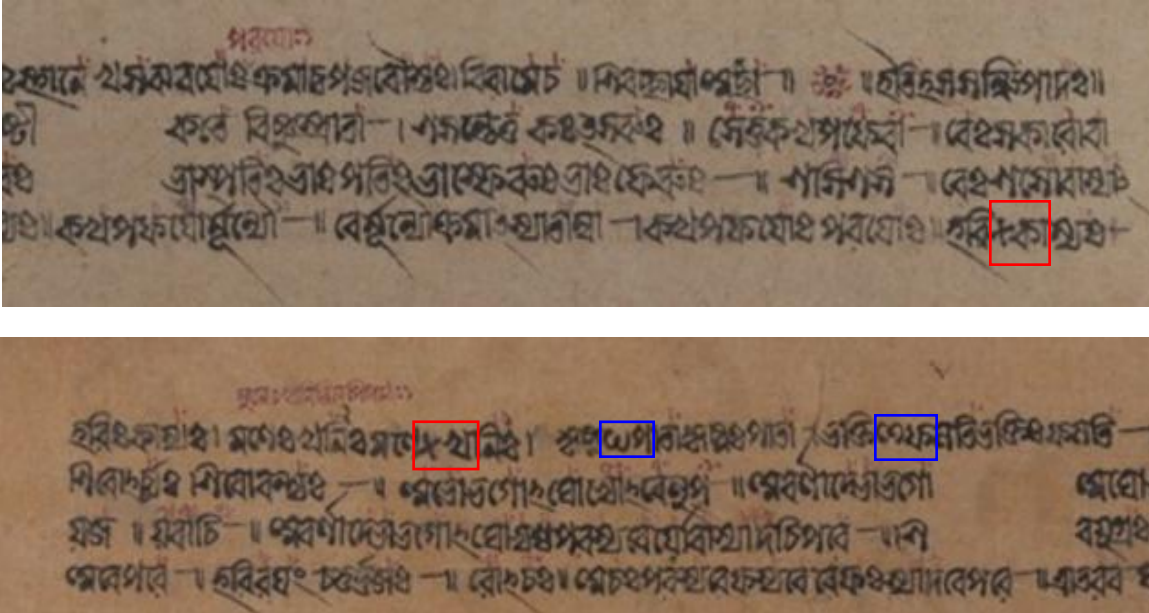Figure 10. Daurgasiṃhavṛtti of Kātantra EAP781/1/1/222.

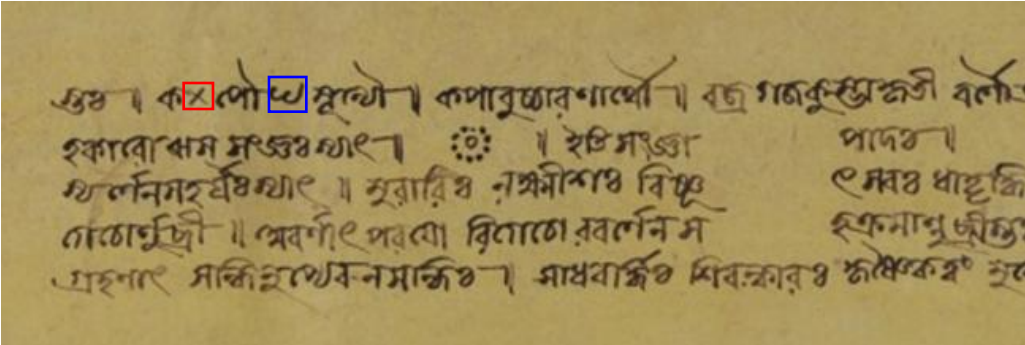Figure 11. Mugdhabodha Vyākaraṇa EAP781/1/1/243

Figure 12. Mugdhabodha Vyākaraṇa EAP781/1/1/244.

x क इति(५) जिह्वामूलीयः ॥७७॥

ककार इत्युच्चारणार्थः । इति वक्त्राङ्कितिर्वर्णो जिह्वामूली-
यसंज्ञो भवति ॥ जिह्वामूलीयप्रदेशाः । कखयोर्जिह्वामूलीयं न
वा [का॰ ९. ५. ४] इत्येवमाद्यः ॥

ᵒᵖप इत्युपध्मानीयः(१) ॥७८॥

पकार इत्युच्चारणार्थः । इति गजकुम्भाङ्कितिर्वर्णं उपध्मा-
नीयसंज्ञो भवति ॥ उपध्मानीयप्रदेशाः । पफयोरुपध्मानीयं न वा
[का॰ ९. ५. ५] इत्येवमाद्यः ।

Figure 13. The Katantra, with the commentary of Durgasimha. Published by Asiatic Society of Bengal under Bibliotheca Indica in 1874 at Calcutta, West Bengal.[4]

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