

Preliminary Proposal to Add Kawi *jihwāmūliya* and *upadhmāniya*


Aditya Bayu Perdana
jimeildotkomm@gmail.com


18 May 2024

ॐ

1. INTRODUCTION

The Kawi script is an important script in the paleographic study of insular Southeast Asia as it was widely used for several historical languages of the region. Most historic texts can be rendered using currently encoded characters. However, in the process of researching some documents, there are characters which may require additional encoding in the Unicode. Arlo Griffiths notified the author to the presence of *jihwāmūliya* and *upadhmāniya* signs in the recently discovered Watu Genuk inscription. The current Kawi block still has several vacant slots, two of which can be filled with these signs. But since these are rare signs with ambiguous properties, this document's goal is to merely introduce them. Their tentative names and code points are:

U+11F5B  KAWI SIGN JIHWAMULIYA

U+11F5C  KAWI SIGN UPADHMANIYA

2. DESCRIPTION

According to Sanskrit grammar treatises such as *Prātisākhya*, *jihwāmūliya* and *upadhmāniya* are optional allophones of *visarga* /-h/ sound that occur before certain consonants.¹ *Jihwāmūliya* (lit. 'breathed-at') is described as a /x/ sound that occurs before /ka/ or /k^ha/. In this case, /-hka/ may be pronounced as /-xka/. *Upadhmāniya* (lit. 'tongue-root') is a /ϕ/ sound that occurs before /pa/ or /p^ha/. In this case, /-hpa/ may be pronounced as /-ϕpa/.² In texts where precise phonetic realization or ritual recitations are required, these sounds have distinct signs that distinguish them from common *visarga*. They are relatively rare, but several Indic

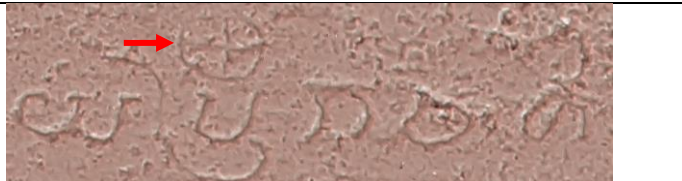
¹ In the Vedic extension block of Unicode, both signs are collectively known as *Ardhavisarga* (lit. 'half visarga') although Arlo Griffiths is not sure whether the term is appropriate.

² See discussion in Fry, Allan Harrison. "A Phonemic Interpretation of Visarga." *Language*, vol. 17, no. 3, 1941, pp. 194–200. <https://doi.org/10.2307/409200>. Accessed 2 Apr. 2024.

derived scripts in Unicode have cognates to the signs, including Devanagari,³ Kannada,⁴ Tibetan,⁵ Brahmi,⁶ Sharada,⁷ Newa,⁸ and Soyombo.⁹

Kawi cognates to *jihwāmūliya* and *upadhmānīya* are attested in the recently discovered Watu Genuk slab inscription. It was read by Arlo Griffiths on 31st January through 3rd February, 2023 from photos and a 3D model furnished respectively by Kusworo Rahadyan and by Goenawan Sambodo.¹⁰ Arlo Griffiths has dated the inscription to around the 8th century CE. The inscription contains two stanzas of Sanskrit text with some part missing. One instance of *jihwāmūliya* and *upadhmānīya* each can be identified in the text, which occur in line three and five:

Pic.	
Font	𑀧𑀢𑀸𑀓𑀲𑀺𑀓
Rom.	yaḥ kālo varṣa

Pic.	
Font	𑀧𑀢𑀸𑀓𑀲𑀺𑀓
Rom.	yaḥ prabhavati

Graphically, the Kawi *jihwāmūliya* and *upadhmānīya* appear similar to above-base diacritics attached to corresponding consonant letters. In other scripts, they are analyzed as initial sounds which preceded the consonant of attaching letters, similar to U+11F02 KAWI SIGN REPHA.

The Watu Genuk case is quite unambiguous according to Arlo Griffith and the glyph shape is also legible. Since one of the primary goals of encoding Kawi is to render historical documents accurately, the encoding of these characters is warranted. However, no other attestation of

³ U+1CF5 𑀧 VEDIC SIGN JIHVAMULIYA, U+1CF6 𑀨 VEDIC SIGN UPADHMANIYA. They are also used for Bengali via the Script_Extensions property

⁴ U+0CF1 𑀧 KANNADA SIGN JIHVAMULIYA, U+0CF2 𑀨 KANNADA SIGN UPADHMANIYA

⁵ U+0F88 𑀧 TIBETAN SIGN LCE TSA CAN, U+0F89 𑀨 TIBETAN SIGN MCHU CAN

⁶ U+11003 𑀧 BRAHMI SIGN JIHVAMULIYA, U+11004 𑀨 BRAHMI SIGN UPADHMANIYA

⁷ U+111C2 𑀧 SHARADA SIGN JIHVAMULIYA, U+111C3 𑀨 SHARADA SIGN UPADHMANIYA

⁸ U+11460 𑀧 NEWA SIGN JIHVAMULIYA, U+11461 𑀨 NEWA SIGN UPADHMANIYA

⁹ U+11A84 𑀧 SOYOMBO SIGN JIHVAMULIYA, U+11A85 𑀨 SOYOMBO SIGN UPADHMANIYA

¹⁰ See https://dharmalekha.info/texts/DHARMA_INSIDENKWatuGenuk

jihwāmūliya and *upadhmāniya* is currently known in the Kawi corpus. In previous occasions of Kawi encoding discussion, the author has agreed to the notion that encoding rare characters which only have single attestation may be undesirable.¹¹ The *jihwāmūliya-upadhmāniya* case here however is arguably stronger than previous cases which only cover variant forms. There are also some unresolved issues regarding the characters' properties.

1. First is shaping behavior. It is possible for *jihwāmūliya/upadhmāniya*+consonant cluster to have additional diacritic. In the third line of Watu Genuk, *jihwāmūliya* is part of the cluster [h kā] where U+11F12 KAWI LETTER KA is attached to U+11F34 KAWI VOWEL SIGN AA. It became a question how *jihwāmūliya/upadhmāniya* should behave when they meet another above base diacritic like U+11F01 KAWI SIGN ANUSVARA or U+11F36 KAWI VOWEL SIGN I. As no other attestation is known so far, perhaps font developers may simply stack the glyphs in some fashion until an actual case is attested.
2. Second is the Indic syllabic category. It is unclear whether the characters should have Indic syllabic category Consonant_With_Stacker or Consonant_Prefixed. The two are underspecified in the current Unicode documentation. Consonant_Prefixed is suggested but more accurate assessment is impossible without further evidence of use.
3. Third is the naming of *jihwāmūliya*. In Devanagari, Kannada, Brahmi, Sharada, Newa, and Soyombo, both signs have been encoded using Sanskrit derived name JIHWAMULIYA and UPADHMANIYA. In the case of Kawi, JIHWAMULIYA is perhaps appropriate since Kawi has been encoded with Indic based names that partly conform with Indonesian conventions, where Sanskrit ऋ /u/ is romanized as [w] as opposed to [v] common in English. The block name itself is **Kawi** as opposed to **Kavi** and U+11F2E has been encoded as KAWI LETTER **WA** as opposed to **VA**. However, if consistency across scripts is desirable, perhaps JIHWAMULIYA is more appropriate. The author has no issue with both options.

The questions above can be better resolved if more evidence of Kawi *jihwāmūliya/upadhmāniya* use are found in the future. In the meantime, due to their single case use, rendering these characters can borrow corresponding Brahmi characters or use image renders.

3. ACKNOWLEDGEMENT

The author would like to thank Arlo Griffith for the information as well as Norbert Lindenberg and script ad-hoc committee for the technical assistance.



¹¹ See Perdana, Aditya Bayu & Ilham Nurwansah. "Note on Kawi Sign Vocalic L U+11F3C and Possible Cognate of U+1B00." *Unicode Document Registry*, L2/21-180, September 2021, <https://www.unicode.org/L2/L2021/21180-kawi-cognate.pdf>. Accessed 2 Apr. 2024.