**Neo-Brahmi Generation Panel   
Cross-Script Variant Analysis**

Date 2018-02-22

# Contents

[**1.** **Cross-Script Variant Analysis Devanagari – Gurmukhi** 2](#_Toc507063509)

[**2.** **Cross-Script Variant Analysis Devanagari – Gujarati** 5](#_Toc507063510)

[**3.** **Cross-Script Variant Analysis Devanagari – Telugu** 5](#_Toc507063511)

[**4.** **Cross-Script Variant Analysis Devanagari – Kannada** 6](#_Toc507063512)

[**5.** **Cross-Script Variant Analysis Devanagari – Malayalam** 6](#_Toc507063513)

[**6.** **Cross-Script Variant Analysis Devanagari – Sinhala** 7](#_Toc507063514)

[**7.** **Cross-Script Variant Analysis Gujarati – Oriya** 8](#_Toc507063515)

[**8.** **Cross-Script Variant Analysis Oriya - Telugu** 9](#_Toc507063516)

[**9.** **Cross-Script Variant Analysis Oriya - Kannada** 9](#_Toc507063517)

[**10.** **Cross-Script Variant Analysis Tamil – Malayalam** 10](#_Toc507063518)

[**11.** **Cross-Script Variant Analysis Telugu – Kannada** 11](#_Toc507063519)

[**12.** **Cross-Script Variant Analysis Telugu – Malayalam** 13](#_Toc507063520)

[**13.** **Cross-Script Variant Analysis Telugu – Sinhala** 14](#_Toc507063521)

# **Cross-Script Variant Analysis Devanagari – Gurmukhi**

## Pending Issues

| **#** | **Devanagari** | **Gurmukhi** | **Possible Resolution** |
| --- | --- | --- | --- |
| 1 | प्टॆ (092A 094D 091F 0946) | ਏ (0A0F) | Option A: These are variant code points.  Option B: These are similar code points.  Option C: These are non-confusable code points. |

These pairs of code points have another related case प्टे (092A 094D 091F 0947) ਏ (0A0F), which are defined as variant code points.

If option B or C is selected. The NBGP member also need to decide whether to change the resolution for the related pairs.

## Variant code points

| **#** | **Devanagari** | **Gurmukhi** | **Resolution** |
| --- | --- | --- | --- |
| 1 | ं (0902) | ਂ (0A02) | Variants |
| 2 | इ (0907) | ਙ (0A19) | Variants |
| 3 | उ (0909) | ਤ (0A24) | Variants |
| 4 | ग (0917) | ਗ (0A17) | Variants |
| 5 | घ (0918) | ਬ (0A2C) | Variants |
| 6 | ट (091F) | ਟ (0A1F) | Variants |
| 7 | ठ (0920) | ਠ (0A20) | Variants |
| 8 | ढ (0922) | ਫ (0A2B) | Variants |
| 9 | त्त (0924 094D 0924) | ਜ (0A1C) | Variants |
| 10 | प्टि (092A 094D 091F 093F) | ਇ (0A07) | Variants |
| 11 | प्टी (092A 094D 091F 0940) | ਈ (0A08) | Variants |
| 12 | प्टे (092A 094D 091F 0947) | ਏ (0A0F) | Variants |
| 13 | भ (092D) | ਮ (0A2E) | Variants |
| 14 | म (092E) | ਸ (0A38) | Variants |
| 15 | य (092F) | ਧ (0A27) | Variants |
| 16 | व (0935) | ਕ (0A15) | Variants |
| 17 | ह (0939) | ਵ (0A35) | Variants |
| 18 | ि (093F) | ਿ (0A3F) | Variants |
| 19 | ी (0940) | ੀ (0A40) | Variants |
| 20 | ॅ (0945) | ੱ (0A71) | Variants |
| 21 | ॆ (0946) | ੇ (0A47) | Variants |
| 22 | े (0947) | ੇ (0A47) | Variants |
| 23 | ै (0948) | ੈ (0A48) | Variants |
| 24 | ॖ (0956) | ੁ(OA41) | Variants |
| 25 | ॗ (0957) | ੂ (OA42) | Variants |

## Identical code points but not defined as variant code points

-None-

## Similar code points

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Devanagari** | **Gurmukhi** | **Resolution** |
| 1 | ठ (0920) | ਨ (0A28) | Appendix - Similar |
| 2 | ठ (0920) | ਰ (0A30) | Appendix - Similar |
| 3 | ड (0921) | ਡ (0A21) | Appendix - Similar |
| 4 | ड (0921) | ਡ (0A21) | Appendix - Similar |
| 5 | ड (0921) | ਤ (0A24) | Appendix – Similar |
| 6 | त (0924) | ਜ (0A1C) | Appendix - Similar |
| 7 | प (092A) | ਧ (0A27) | Appendix - Similar |

## Non-confusable code points

| **#** | **Devanagari** | **Gurmukhi** | **Resolution** | **Note** |
| --- | --- | --- | --- | --- |
| 1 | उ (0909) | ਭ (0A2D) | Remove - no similar |  |
| 2 | ट (091F) | ਦ (0A26) | Remove - no similar | resolved during NBGP Meeting 19 Jan 18 |
| 3 | ट (091F) | ਫ (0A2B) | Remove - no similar |  |
| 4 | ड (0921) | ਛ (0A1B) | Remove - no similar | resolved during NBGP Meeting 19 Jan 18 |
| 5 | ढ (0922) | ਛ (0A1B) | Remove - no similar | resolved during NBGP Meeting 19 Jan 18 |
| 6 | ढ (0922) | ਢ (0A22) | Remove - no similar | resolved during NBGP Meeting 19 Jan 18 |
| 7 | प (092A) | ਪ (0A2A) | Remove - no similar |  |
| 8 | म (092E) | ਮ (0A2E) | Remove - no similar |  |
| 9 | य (092F) | ਪ (0A2A ) | Remove - no similar |  |
| 10 | र (0930) | ਕ (0A15) | Remove - no similar | Based on Akshat email to NBGP 31 Jan, agreed by Lehal and Jay |
| 11 | र (0930) | ਦ (0A26) | Remove - no similar |  |
| 12 | र (0930) | 0A15 (ਕ) | Remove - no similar | The GP agreed that 0930 (र) and 0A15 (ਕ)are not variant code points. |
| 13 | ष (0937) | ਖ (0A16) | Remove - no similar |  |
| 14 | ष (0937) | ਥ (0A25) | Remove - no similar |  |

## Resolved Issues log

| # | Code point/ Code point sequence pair | Detail | Resolution |
| --- | --- | --- | --- |
| 1 | त (0924) and ਜ (0A1C) | Originally, U+0A1C (ਜ) being variant with U+0924 (त) as well as U+0924 U+094D U+0924 (त्त). Since it has been decided that no same script homoglyph variants will be proposed for this case, one of the variants needs to be dropped. In this case U+0924 (त) is proposed to be dropped | Move to the appendix |
| 2 | प (092A) and ਧ (0A27) | Originally, U+0A27 (ਧ) being variant with U+092A (प) as well as U+092F (य) Since it has been decided that no same script homoglyph variants will be proposed for this case, one of the variants needs to be dropped. In this case U+092F (य) is proposed to be dropped | Move to the appendix |
| 3 | प्ट (092A 094D 091F) and ੲ (0A72) | They were defined as Variant in Devanagari Proposal. However, it is not in the Gurmukhi Repertoire. Therefore, it will be removed from both proposal | Remove from the proposal |

# **Cross-Script Variant Analysis Devanagari – Gujarati**

## Pending Issues

-None-

## Variant code points

-None-

## Identical code points but not defined as variant code points

| **#** | **Devanagari** | **Gujarati** |
| --- | --- | --- |
| 1 | ः (0903) | ઃ (0A83) |

They are identical but as there is not enough number of other variant codes point to form two labels with each script that look the same. Therefore, these are not defined as variant code points.

## Similar code points

-None-

## Non-confusable code points

-None-

## Resolved Issues log

-None-

# **Cross-Script Variant Analysis Devanagari – Telugu**

## Pending Issues

-None-

## Variant code points

-None-

## Identical code points but not defined as variant code points

| **#** | **Devanagari** | **Telugu** |
| --- | --- | --- |
| 1 | ः (0903) | ః (0C03) |

They are identical but as there is not enough number of other variant codes point to form two labels with each script that look the same. Therefore, these are not defined as variant code points.

## Similar code points

-None-

## Non-confusable code points

-None-

## Resolved Issues log

-None-

# **Cross-Script Variant Analysis Devanagari – Kannada**

## Pending Issues

-None-

## Variant code points

-None-

## Identical code points but not defined as variant code points

| **#** | **Devanagari** | **Kannada** |
| --- | --- | --- |
| 1 | ः (0903) | ಃ (0C83) |

They are identical but as there is not enough number of other variant codes point to form two labels with each script that look the same. Therefore, these are not defined as variant code points.

## Similar code points

-None-

## Non-confusable code points

-None-

## Resolved Issues log

-None-

# **Cross-Script Variant Analysis Devanagari – Malayalam**

## Pending Issues

-None-

## Variant code points

-None-

## Identical code points but not defined as variant code points

| **#** | **Devanagari** | **Malayalam** |
| --- | --- | --- |
| 1 | ः (0903) | ഃ (0D03) |

They are identical but as there is not enough number of other variant codes point to form two labels with each script that look the same. Therefore, these are not defined as variant code points.

## Similar code points

-None-

## Non-confusable code points

-None-

## Resolved Issues log

-None-

# **Cross-Script Variant Analysis Devanagari – Sinhala**

## Pending Issues

-None-

## Variant code points

-None-

## Identical code points but not defined as variant code points

| **#** | **Devanagari** | **Sinhala** |
| --- | --- | --- |
| 1 | ः (0903) | ඃ (0D83) |

They are identical but as there is not enough number of other variant codes point to form two labels with each script that look the same. Therefore, these are not defined as variant code points.

## Similar code points

-None-

## Non-confusable code points

-None-

## Resolved Issues log

-None-

# **Cross-Script Variant Analysis Gujarati – Oriya**

## Pending Issues

-None-

## Variant code points

-None-

## Identical code points but not defined as variant code points

-None-

## Similar code points

-None-

## Non-confusable code points

| **#** | **Gujarati** | **Oriya** | **Resolution** | **Note** |
| --- | --- | --- | --- | --- |
| 1 | ઘ (0A98) | ପ (0B2A) | Remove - no similar | resolved during NBGP Meeting 22 Feb 18 |
| 2 | થ (0AA5) | ଥ (0B25) | Remove - no similar | resolved during NBGP Meeting 22 Feb 18 |
| 3 | ઃ (0A83) | ଃ (0B03) | Remove - no similar | resolved during NBGP Meeting 22 Feb 18 |

## Resolved Issues log

| # | Code point/ Code point sequence pair | Detail | Resolution |
| --- | --- | --- | --- |
| 1 | ଃ (0B03) and ઃ (0A83) | They could be confusable in the small font size. However, the character of the glyph is different. Therefore, they are not defined as variant code points | Remove from the Proposal |

# **Cross-Script Variant Analysis Oriya - Telugu**

## Pending Issues

-None-

## Variant code points

-None-

## Identical code points but not defined as variant code points

-None-

## Similar code points

-None-

## Non-confusable code points

| **#** | **Oriya** | **Telugu** | **Resolution** | **Note** |
| --- | --- | --- | --- | --- |
| 1 | ଠ (0B20) | ర (0C30) | Remove - no similar | resolved during NBGP Meeting 22 Feb 18 |

## Resolved Issues log

-None-

# **Cross-Script Variant Analysis Oriya - Kannada**

## Pending Issues

-None-

## Variant code points

-None-

## Identical code points but not defined as variant code points

-None-

## Similar code points

-None-

## Non-confusable code points

| **#** | **Oriya** | **Kannada** | **Resolution** | **Note** |
| --- | --- | --- | --- | --- |
| 1 | ଠ (0B20) | ರ (0CB0) | Remove - no similar | resolved during NBGP Meeting 22 Feb 18 |

## Resolved Issues log

-None-

# **Cross-Script Variant Analysis Tamil – Malayalam**

## Pending Issues

-None-

## Variant code points

| **#** | **Tamil** | **Malayalam** | **Resolution** |
| --- | --- | --- | --- |
| 1 | ஜ (0B9C) | ജ (0D1C) | Variants |
| 2 | வ (0BB5) | ഖ (0D16) | Variants |
| 3 | ம (0BAE) | ഥ (0D25) | Variants |
| 4 | ி (0BBF) | ി (0D3F) | Variants |
| 5 | ெ (0BC6) | െ (0D46) | Variants |
| 6 | ே (0BC7) | േ (0D47) | Variants |

## Identical code points but not defined as variant code points

-None-

## Similar code points

-None-

## Non-confusable code points

| **#** | **Tamil** | **Malayalam** | **Resolution** | **Note** |
| --- | --- | --- | --- | --- |
| 1 | ஸ (0BB8) | സ (0D38) | Remove - no similar | resolved to Yellow during NBGP Meeting 19 Jan 18 |

## Resolved Issues log

| # | Code point/ Code point sequence pair | Detail | Resolution |
| --- | --- | --- | --- |
| 1 | ் (0BCD) and  ൎ (0D4E) | 0D4E is not permitted in MSR | Remove from the Proposal |

# **Cross-Script Variant Analysis Telugu – Kannada**

## Pending Issues

-None-

## Variant code points

| **#** | **Telugu** | **Kannada** | **Resolution** |
| --- | --- | --- | --- |
| 1 | ం (0C02) | ಂ (0C82) | Variants |
| 2 | ః (0C03) | ಃ (0C83) | Variants |
| 3 | అ (0C05) | ಅ (0C85) | Variants |
| 4 | ఆ (0C06 ) | ಆ (0C86) | Variants |
| 5 | ఇ (0C07) | ಇ (0C87) | Variants |
| 6 | ఈ (0C08) | ಈ (0C88) | Variants |
| 7 | ఐ (0C10) | ಐ (0C90) | Variants |
| 8 | ఒ (0C12) | ಒ (0C92) | Variants |
| 9 | ఓ (0C13) | ಓ (0C93) | Variants |
| 10 | ఔ (0C14) | ಔ (0C94) | Variants |
| 11 | ఖ (0C16) | ಖ (0C96) | Variants |
| 12 | గ (0C17) | ಗ (0C97) | Variants |
| 13 | జ (0C1C) | ಜ (0C9C) | Variants |
| 14 | ఝ (0C1D) | ಝ (0C9D) | Variants |
| 15 | ఞ (0C1E) | ಞ (0C9E) | Variants |
| 16 | ట (0C1F) | ಟ (0C9F) | Variants |
| 17 | ఠ (0C20) | ಠ (0CA0) | Variants |
| 18 | డ (0C21) | ಡ (0CA1) | Variants |
| 19 | ఢ (0C22) | ಢ (0CA2) | Variants |
| 20 | ణ (0C23) | ಣ (0CA3) | Variants |
| 21 | థ (0C25) | ಥ (0CA5) | Variants |
| 22 | ద (0C26) | ದ (0CA6) | Variants |
| 23 | ధ (0C27) | ಧ (0CA7) | Variants |
| 24 | న (0C28) | ನ (0CA8) | Variants |
| 25 | బ (0C2C) | ಬ (0CAC) | Variants |
| 26 | భ (0C2D) | ಭ (0CAD) | Variants |
| 27 | మ (0C2E) | ಮ (0CAE) | Variants |
| 28 | య (0C2F) | ಯ (0CAF) | Variants |
| 29 | ర (0C30) | ರ (0CB0) | Variants |
| 30 | ల (0C32) | ಲ (0CB2) | Variants |
| 31 | ళ (0C33) | ಳ (0CB3) | Variants |
| 32 | ి (0C3F) | ಿ (0CBF) | Variants |
| 33 | ు (0C41) | ು (0CC1) | Variants |
| 34 | ృ (0C43) | ೃ (0CC3) | Variants |

## Identical code points but not defined as variant code points

-None-

## Similar code points

-None-

## Non-confusable code points

-None-

## Resolved Issues log

s-None-

# **Cross-Script Variant Analysis Telugu – Malayalam**

## Pending Issues

-None-

## Variant code points

-None-

## Identical code points but not defined as variant code points

| **#** | **Telugu** | **Malayalam** |
| --- | --- | --- |
| 1 | ం (0C02) | ം (0D02) |
| 2 | ః (0C03) | ഃ (0D03) |

They are identical but as there is not enough number of other variant codes point to form two labels with each script that look the same. Therefore, these are not defined as variant code points.

## Similar code points

-None-

## Non-confusable code points

-None-

## Resolved Issues log

-None-

# **Cross-Script Variant Analysis Telugu – Sinhala**

## Pending Issues

-None-

## Variant code points

| **#** | **Telugu** | **Sinhala** | **Resolution** |
| --- | --- | --- | --- |
| 1 | ం (0C02) | ං (0D82) | Variants |
| 2 | ః (0C03) | ඃ (0D83) | Variants |
| 3 | ర (0C30) | ර් (0DBB+0DCA) | Variants |

## Identical code points but not defined as variant code points

-None-

## Similar code points

-None-

## Non-confusable code points

-None-

## Resolved Issues log

-None-