

**Title:** Proposal to change the General\_Category of Hangul tone marks U+302E and U+302F  
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## 1. Abstract

The Bangjeom tone marks U+302E HANGUL SINGLE DOT TONE MARK and U+302F HANGUL DOUBLE DOT TONE MARK have the General\_Category property value Nonspacing\_Mark. However, these marks are left re-ordrant and, in horizontal text, their glyphs need to have positive advance widths to avoid colliding with the preceding glyphs. The General\_Category property value Spacing\_Mark is more appropriate for characters with positive advance widths. This proposal is to change the General\_Category property value of U+302E and U+302F from Nonspacing\_Mark (Mn) to Spacing\_Mark (Mc).

## 2. Background

The Bangjeom marks were used in writing Middle Korean in the Hangul script, introduced in “The Proper Sounds for the Instruction of the People” (*Hunmin Jeong-eum Eonhae*) [1]. In that orthography, tones were denoted with one- and two-dot marks:

- A high tone (*Geoseong*), represented in Unicode with U+302E HANGUL SINGLE DOT TONE MARK;
- A rising tone (*Sangseong*), represented in Unicode with U+302F HANGUL DOUBLE DOT TONE MARK;
- A low tone (*Pyeongseong*) was unmarked.

The placement of Bangjeom tone marks is described in two WG2 proposals from the Korean National Body:

- “Graphically, Bangjeom [are] attached to the left of a syllable.” [2]
- “Two dots are put at the left of a Syllable Block to represent *Sangseong* (rising tone) and one dot to represent *Geoseong* (high tone).” [3]

When Korean is laid out in vertical columns, the Bangjeom tone marks are clearly placed to the left of the syllable blocks, as illustrated in Figure 1. Several other examples can be found in [3].

When rendered in horizontal layout, there is a question of whether the Bangjeom retain their position to the left of syllable blocks or change position to above syllable blocks. Members of the Korean delegation to WG2 informed us that the Bangjeom tone marks retain their position to the left of syllable blocks in both vertical and horizontal layout.

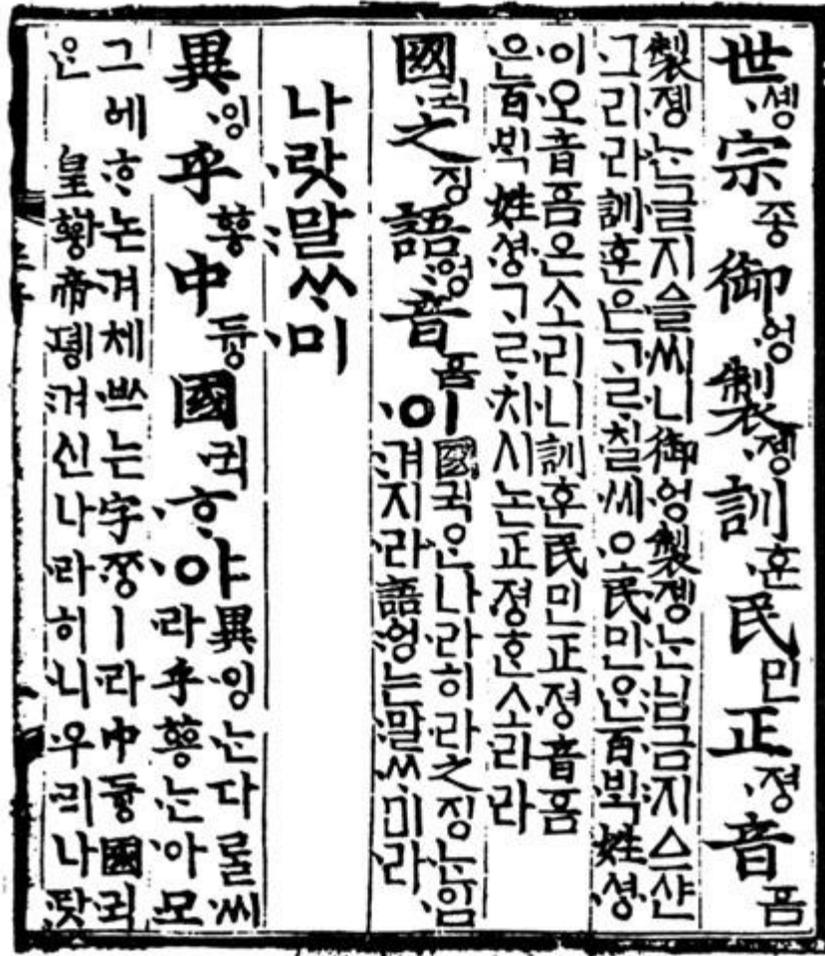


Figure 1. Sample page from the *Eonhaebon* version (mixed Hanja and Hangeul) of the *Hunmin Jeong-eum Eonhae*. Note the placement of the Bangjeom tone marks to the left of Hangeul syllable blocks. Reproduced from [5].

Figures 2 and 3 reproduce two renditions of Korean from [1], in vertical and horizontal layout. The *Hunmin Jeong-eum Eonhae* text data rendered in those figures is from the Korean TeX User Group [4]. That text uses U+00B7 MIDDLE DOT and U+003A COLON to represent single- and double-dot Bangjeom tone marks, respectively, which also seems to indicate the placement of Bangjeom to the left of syllable blocks regardless of layout.

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Figure 2. *Hunmin Jeong-eum Eonhae* text provided by the Korean TeX User Group [4] rendered in vertical layout on the Wikipedia page [1]. The Bangjeom tone marks are placed to the left of Hangul syllable blocks. The same placement occurs in horizontal layout, as illustrated in Figure 3.

國·국之장語:형音음이  
 異·잉乎嚮中등國·국호야  
 與:영文문字·종로 不·불相상流를通通홀·씨  
 故·공·로 愚웅民민·이 有:을所:송欲·욕言언·호야·도  
 而싱終중不·불得·득伸신其평情·평者:장 | 多당矣:잉·라  
 予영 | 爲·윅此:충憫:민然연·호·야  
 新신制·쟁二·싱十·씩八·밖字·종·호노·니  
 欲·욕使:송人인인인·으·로 易·잉習·씩·호·야 便편於平日·싫用·용耳:싱니·라

Figure 3. *Hunmin Jeong-eum Eonhae* text provided by the Korean TeX User Group [4] rendered in horizontal layout on the Wikipedia page [1]. The Bangjeom tone marks are still placed to the left of Hangul syllable blocks. The same placement occurs in vertical layout, as illustrated in Figure 2.

### 3. Proposal

The characters U+302E HANGUL SINGLE DOT TONE MARK and U+302F HANGUL DOUBLE DOT TONE MARK have the General\_Category property value Nonspacing\_Mark. This property value usually implies a zero advance width for the glyphs. However, in horizontal layout, the glyphs of the Bangjeom marks need to have positive advance widths, or else they overlap with the glyph of the preceding character.

The General\_Category property value Spacing\_Mark is more appropriate for characters whose glyphs have positive advance widths. It also hints a font designer to assign the proper glyph metrics. For these reasons, we propose to change the General\_Category property value of U+302E and U+302F from Nonspacing\_Mark (Mn) to Spacing\_Mark (Mc).

### 4. References

- [1] *The Proper Sounds for the Instruction of the People (Hunmin Jeong-eum Eonhae)*, <http://en.wikipedia.org/wiki/Hunminjeongeum>, retrieved October 2011.
- [2] Kyongsok Kim, *Adding two Bangjeom chars (Old Hangul tone marks) to UCS-2*, ISO/IEC JTC1/SC2/WG2 N935, October 1993, <http://std.dkuug.dk/jtc1/sc2/wg2/docs/n0935.pdf>.
- [3] Kyongsok Kim, Korean National Body, *An introduction of Korean Standard KS X 1026-1:2007, Hangul processing guide for information interchange*, ISO/IEC JTC1/SC2/WG2 N3422R3, May 2008, <http://std.dkuug.dk/jtc1/sc2/wg2/docs/n3422.pdf>.
- [4] Korean TeX User Group, *Hunmin Jeong-eum Eonhae* data linked from KTUG's *Hanyang PUA Table Project*, <http://faq.ktug.or.kr/wiki/uploads/hunmin.uni>.
- [5] *History of the Korean language*, Section *Middle Korean*, [http://en.wikipedia.org/wiki/Middle\\_Korean#Middle\\_Korean](http://en.wikipedia.org/wiki/Middle_Korean#Middle_Korean), retrieved October 2011.