Supplemental block for musical symbols

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We recently proposed six musical symbols to Unicode, namely the first six listed below. They require a new Unicode block. SAH asked us to estimate the number of characters that might be reasonably proposed, so that they would know approximately how large a block to assign.

The list below is not exhaustive, but is what we could see ourselves proposing. In addition, Lukas Pietsch in his 2001 draft ‘Mensural Notation Symbols in Unicode’ noted three semantically distinct mensural symbols – black maxima, longa and brevis – that also still lack Unicode support. Altogether, this amounts to 63 potential symbols, requiring a full 4 of the 7 unassigned columns in the location suggested by SAH for the new block, between ‘Ancient Greek Musical Notation’ (1D200–1D24F) and ‘Kaktovik Numerals’ (1D2C0–1D2DF).

Proposed: notes and rests shorter than 128th

U+1D250 MUSICAL SYMBOL COMBINING FLAG-6 [SMuFL U+E24A]
U+1D251 MUSICAL SYMBOL COMBINING FLAG-7 [SMuFL U+E24C]
U+1D252 MUSICAL SYMBOL COMBINING FLAG-8 [SMuFL U+E24E]
U+1D253 MUSICAL SYMBOL TWO HUNDRED FIFTY-SIXTH REST [SMuFL U+E4EB]
U+1D254 MUSICAL SYMBOL FIVE HUNDRED TWELFTH REST [SMuFL U+E4EC]
U+1D255 MUSICAL SYMBOL ONE THOUSAND TWENTY-FOURTH REST [SMuFL U+E4ED]

Other standard tremoli

Analogous to and extending the range U+1D167–1D16C, for faster repetitions. The last is for the “buzz roll” in percussion.

U+1D256 MUSICAL SYMBOL COMBINING TREMOLO-4 [SMuFL U+E223]
U+1D257 MUSICAL SYMBOL COMBINING TREMOLO-5 [SMuFL U+E224]
U+1D258 MUSICAL SYMBOL FINGERED TREMOLO-4 [SMuFL U+E228]
U+1D259 MUSICAL SYMBOL FINGERED TREMOLO-5 [SMuFL U+E229]
U+1D25A MUSICAL SYMBOL BUZZ ROLL [SMuFL U+E22A]
Fig. 1. Gould (2011), p. 219

Fig. 2. Sibelius keypad, including four- and five-line tremoli and buzz roll.

Fig. 3. A. Dvořák, Symphony No. 9 (Op. 95) (pub. Breitkopf & Härtel, Wiesbaden, 1990). Four-
slash tremoli (one-note and two-note) near the beginning of the first movement. Note that Dvořák writes “16” to count the number of 64th notes he expected in the tremoli, proving that he wanted a measured tremolo.

![Example of tremolo notation](image)


Buzz rolls, or “closed” rolls, are used in many situations, and are the predominant roll of orchestral music. This type of roll produces a sustained buzzing sound, with the strokes of the sticks so close (or closed) together that, when executed well, disguises when one hand is taking over for another. Buzz rolls are often time played on a context-based assumption (like orchestral snare drumming), though there is a way of making it more clear: the “z” stem.

![Example of buzz roll notation](image)

**Fig. 5.** Adam Holmes, “Notating rolls”. [https://adamholmesmusic.com/blog-notating-rolls/](https://adamholmesmusic.com/blog-notating-rolls/)

**Triple flat**

U+1D25B MUSICAL SYMBOL TRIPLE FLAT [SMuFL U+E266]

Analogous to the double flat. (There is also a triple sharp, but it can simply be encoded as a sharp and double-sharp side by side, i.e. ♯♯.) The constituent flats may or may not be connected, either physically or by a bar, just like for the double flat.
**Fig. 6.** N. Roslavets, Piano Sonata No. 1 (ed. E. Babasyan, pub. Muzyka, Moscow, 1990).

**Fig. 7.** G. Ustvolskaya, Piano Sonata No. 3

**Fig. 8.** Wikipedia, [https://en.wikipedia.org/wiki/Kleisma](https://en.wikipedia.org/wiki/Kleisma)

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**Turkish and Arabic accidentals**

Following are the distinct symbols in SMuFL encoding.

U+1D25C MUSICAL SYMBOL FLAT WITH DOUBLE STROKE [SMuFL U+E440]

= büyük mücenneb flat
Fig. 9. [Wikipedia](https://en.wikipedia.org/wiki/Turkish_makam). Part of a table of tones used in Turkish music.

Fig. 11. ʿAbbās (al-), Ḥabīb Ẓāhir, et Ḥabīb Dhāhir العباس. نظريات الموسيقى العربية نذاريyyāt al-Mūsīqā al-ʿArabiyya. Vol. Theorie Musique Arabe. (Baghdad – Irak) بغداد – العراق: وزارة الثقافة والإعلام، دائرة الفنون الموسيقية، معهد الدراسات النغمية العراقي (Wizārat a-th-Thaqāfa
Wyschnegradsky twelfth-tone accidentals

Invented by microtonal pioneer Ivan Wyschnegradsky (1893–1979) for 72 equal temperament (twelfth-tones). The quarter-tone sharp symbols overlap with the Stein-Zimmermann accidentals, which have already been accepted for encoding. The flats past a semitone are best treated as atomic characters, analogous to the double flat. We follow Wyschnegradsky’s order.

U+1D261 MUSICAL SYMBOL WYSCHNEGRADSKY TWELFTH TONE SHARP [SMuFL U+E420]
U+1D262 MUSICAL SYMBOL WYSCHNEGRADSKY SIXTH TONE SHARP [SMuFL U+E421]
U+1D263 MUSICAL SYMBOL WYSCHNEGRADSKY THIRD TONE SHARP [SMuFL U+E423]
U+1D264 MUSICAL SYMBOL WYSCHNEGRADSKY FIVE TWELFTH TONE SHARP [SMuFL U+E424]
U+1D265 MUSICAL SYMBOL WYSCHNEGRADSKY SEVEN TWELFTH TONE SHARP [SMuFL U+E426]
U+1D266 MUSICAL SYMBOL WYSCHNEGRADSKY TWO THIRD TONE SHARP [SMuFL U+E427]
U+1D267 MUSICAL SYMBOL WYSCHNEGRADSKY FIVE SIXTH TONE SHARP [SMuFL U+E429]
U+1D268 MUSICAL SYMBOL WYSCHNEGRADSKY ELEVEN TWELFTH TONE SHARP [SMuFL U+E42A]
U+1D269 MUSICAL SYMBOL WYSCHNEGRADSKY TWELFTH TONE FLAT [SMuFL U+E42B]
U+1D26A MUSICAL SYMBOL WYSCHNEGRADSKY SIXTH TONE FLAT [SMuFL U+E42C]
U+1D26B MUSICAL SYMBOL WYSCHNEGRADSKY QUARTER TONE FLAT [SMuFL U+E42D]
U+1D26C MUSICAL SYMBOL WYSCHNEGRADSKY THIRD TONE FLAT [SMuFL U+E42E]
U+1D26D MUSICAL SYMBOL WYSCHNEGRADSKY FIVE TWELFTH TONE FLAT [SMuFL U+E42F]
U+1D26E MUSICAL SYMBOL WYSCHNEGRADSKY SEVEN TWELFTH TONE FLAT [SMuFL U+E431]
U+1D26F MUSICAL SYMBOL WYSCHNEGRADSKY TWO THIRD TONE FLAT [SMuFL U+E432]
U+1D270 MUSICAL SYMBOL WYSCHNEGRADSKY THREE QUARTER TONE FLAT [SMuFL U+E433]
U+1D271 MUSICAL SYMBOL WYSCHNEGRADSKY FIVE SIXTH TONE FLAT [SMuFL U+E434]
U+1D272 MUSICAL SYMBOL WYSCHNEGRADSKY ELEVEN TWELFTH TONE FLAT [SMuFL U+E435]
Notation conventionnelle

Je propose pour la notation des $1/12^{e}$ de ton, les signes d'altération suivants :

<table>
<thead>
<tr>
<th>Ascendants</th>
<th>Descendants</th>
</tr>
</thead>
<tbody>
<tr>
<td>de $1/12^{e}$ de ton</td>
<td>de $1/12^{e}$ de ton</td>
</tr>
<tr>
<td>de $1/6^{e}$ de ton</td>
<td>de $1/6^{e}$ de ton</td>
</tr>
<tr>
<td>de $1/4$ de ton</td>
<td>de $1/4$ de ton</td>
</tr>
<tr>
<td>de $1/3$ de ton</td>
<td>de $1/3$ de ton</td>
</tr>
<tr>
<td>de $5/12^{e}$ de ton</td>
<td>de $5/12^{e}$ de ton</td>
</tr>
<tr>
<td>d'un demi ton</td>
<td>d'un demi ton</td>
</tr>
<tr>
<td>de $7/12^{e}$ de ton</td>
<td>de $7/12^{e}$ de ton</td>
</tr>
<tr>
<td>de $2/3$ de ton</td>
<td>de $2/3$ de ton</td>
</tr>
<tr>
<td>de $3/4$ de ton</td>
<td>de $3/4$ de ton</td>
</tr>
<tr>
<td>de $5/6^{e}$ de ton</td>
<td>de $5/6^{e}$ de ton</td>
</tr>
<tr>
<td>de $11/12^{e}$ de ton</td>
<td>de $11/12^{e}$ de ton</td>
</tr>
</tbody>
</table>

Ivan Wyschnegradsky's Symbols for 72-tone Equal Temperament

Fig. 13. Wyschnegradsky’s proposal. [https://sagittal.org/gift/Episode1.htm](https://sagittal.org/gift/Episode1.htm)
Fig. 14. Illustrative use of Wyschnegradsky accidentals. [https://www.reddit.com/r/microtonal/comments/ylozf5/have_you_ever_seen_this_notation_used_in_72tet/](https://www.reddit.com/r/microtonal/comments/ylozf5/have_you_ever_seen_this_notation_used_in_72tet/)
Hába quarter-tone accidentals

Used by another microtonal pioneer, Alois Hába (1893–1973), in his treatise *Neue Harmonielehre*, and included in SMuFL. Hába also proposed twelfth-tone accidentals, but these conflict with Arabic accidentals and Wyschnegradsky’s accidentals, and have not come into general use. We quote the 1980 translation of Suzette Mary Battan ([urresearch.rochester.edu/institutionalPublicationPublicView.action?institutionalItemId=2625&versionNumber=1](http://urresearch.rochester.edu/institutionalPublicationPublicView.action?institutionalItemId=2625&versionNumber=1)).

U+1D273 MUSICAL SYMBOL HABA QUARTER TONE SHARP [SMuFL U+EE64]
U+1D274 MUSICAL SYMBOL HABA ALTERNATE QUARTER TONE SHARP [SMuFL U+EE65]
U+1D275 MUSICAL SYMBOL HABA THREE QUARTER TONE SHARP [SMuFL U+EE66]
U+1D276 MUSICAL SYMBOL HABA QUARTER TONE FLAT [SMuFL U+EE67]
U+1D277 MUSICAL SYMBOL HABA ALTERNATE QUARTER TONE FLAT [SMuFL U+EE68]
U+1D278 MUSICAL SYMBOL HABA THREE QUARTER TONE FLAT [SMuFL U+EE69]

![Figure 15. Hába, *Neue Harmonielehre* (trans. Battan), p. 204.](image)
For reference, we reproduce Habá's twelfth-tone accidentals below.

<table>
<thead>
<tr>
<th>#</th>
<th>Sharpening by a twelfth tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>Sharpening by a sixth tone (two twelfth tones)</td>
</tr>
<tr>
<td>#</td>
<td>Sharpening by a quarter tone (three twelfth tones)</td>
</tr>
<tr>
<td>#</td>
<td>Sharpening by a third tone (four twelfth tones)</td>
</tr>
<tr>
<td>#</td>
<td>Sharpening by a 5/12 tone</td>
</tr>
<tr>
<td>#</td>
<td>Sharpening by a half tone</td>
</tr>
<tr>
<td>#</td>
<td>Sharpening by a 7/12 tone</td>
</tr>
<tr>
<td>#</td>
<td>Sharpening by a 2/3 tone</td>
</tr>
<tr>
<td>#</td>
<td>Sharpening by a 3/4 tone</td>
</tr>
<tr>
<td>#</td>
<td>Sharpening by a 5/6 tone</td>
</tr>
<tr>
<td>#</td>
<td>Sharpening by a 11/12 tone</td>
</tr>
<tr>
<td>#</td>
<td>Flatting by a twelfth tone</td>
</tr>
<tr>
<td>#</td>
<td>Flatting by a sixth tone</td>
</tr>
<tr>
<td>#</td>
<td>Flatting by a quarter tone</td>
</tr>
<tr>
<td>#</td>
<td>Flatting by a third tone</td>
</tr>
<tr>
<td>#</td>
<td>Flatting by a 5/12 tone</td>
</tr>
<tr>
<td>#</td>
<td>Flatting by a half tone</td>
</tr>
</tbody>
</table>

Fig. 16. Ibid, p. 285

**Curlew and alternately shaped fermatas**

U+1D279 MUSICAL SYMBOL CURLEW [SMuFL U+E4D6]
U+1D27A MUSICAL SYMBOL TRIANGULAR FERMATA [SMuFL U+E4C4]
U+1D27B MUSICAL SYMBOL SQUARE FERMATA [SMuFL U+E4C6]

The “curlew” symbol was invented by Benjamin Britten (1913–1976) for conductorless pieces: it indicates that an instrumentalist must wait until the other performers have reached the following barline (or other meeting point).

Triangular and square fermatas have been used as variations of the normal fermata. Usually the triangular fermata is shorter than a normal round one, and the square one longer.
Although separate up- and down-facing versions of the normal fermata are already encoded, they are the same symbol (like the marcato), and hence we do not propose these variations for the triangular and square fermatas.

Fig. 17. B. Britten, String Quartet No. 3. Faber Music, London (2006). Perusal copy viewed online at www.fabermusic.com/music/string-quartet-no-3-1139/score. The curlew sign over some rests.
Fig. 18. Explanation of the different types of fermata at [http://donrathjr.com/fermata-music-theory/](http://donrathjr.com/fermata-music-theory/)

**Harp pedal buzz**

Extended techniques for harp.

U+1D27C MUSICAL SYMBOL PEDAL BUZZ
U+1D27D MUSICAL SYMBOL ONE STRING PEDAL BUZZ
Pedal buzz

To produce the pedal buzz, or clash (if very loud), the pedal is held half-way between two notches when the string is plucked. Notate both pedal settings between which the pedals fall, and place the symbol between the settings. The symbol may be used when a single string is plucked:

![Pedal buzz symbol]

Clarify the symbol with a verbal explanation at its first appearance. (Salzedo calls this technique ‘metallic sounds’.)

Fig. 19. Gould, p. 368

Baroque ornaments from French clavecinistes

A full treatment of the symbols used for Baroque ornamentation is beyond the scope of this document: see Frederick Neumann’s Ornamentation in Baroque and Post-Baroque Music, Princeton University Press, 1978 for such a discussion. We propose three symbols used by the well-known French Baroque composers François Couperin (1668–1733) and Jean-Philippe Rameau (1683–1764) in their keyboard works, as they are faithfully reproduced in editions printed when ornamentation had been more standardised. The glyph forms are reproduced from the 1888 Augener edition of Couperin’s Pièces de clavecin, edited by Brahms and Chrysander.

- ⋉ U+1D27E MUSICAL SYMBOL PINCE [SMuFL U+E588]
- ⋊ U+1D27F MUSICAL SYMBOL TREMBLEMENT [SMuFL U+E589]
- ⋊ U+1D280 MUSICAL SYMBOL SUSPENSION
Fig. 20. Augener ed. (1888) of Couperin’s *Pièces de clavecin* (ed. Brahms and Chrysander), pp. xiv-xv.

Fig. 21. Suspension in Rameau, *Les Soupirs*. (Bärenreiter, ed. Erwin Jacobi, 1959).
Additional figured bass digits

These were excluded from our previous proposal ([L2]/23-277) because they are not needed in modern scores. However, they are used in historical sources, as well as in modern treatises discussing historical practice.

The hooked slash in some of the flattening figures is simply a graphical variation of the flat sign that was used by some 18th-century publishers, e.g. Estienne Roger of Amsterdam. F. T. Arnold illustrates figures with flats passing through them, and mentions that naturals were used in the same way (p. 885), though he does not illustrate the equivalent figures with naturals. Sharps were not used in this way, as a stroke was substituted.

U+1D281 MUSICAL SYMBOL DIGIT ONE WITH SLASH
U+1D282 MUSICAL SYMBOL DIGIT THREE WITH SLASH
U+1D283 MUSICAL SYMBOL DIGIT EIGHT WITH SLASH
U+1D284 MUSICAL SYMBOL DIGIT TWO WITH FLAT
U+1D285 MUSICAL SYMBOL DIGIT FOUR WITH FLAT
U+1D286 MUSICAL SYMBOL DIGIT FIVE WITH FLAT
U+1D287 MUSICAL SYMBOL DIGIT SIX WITH FLAT
U+1D288 MUSICAL SYMBOL DIGIT SEVEN WITH FLAT
U+1D289 MUSICAL SYMBOL DIGIT NINE WITH FLAT
but after 2, 4, 5, 6, as in the figuring $\frac{7}{5}$. The idea was probably to put it where there was most room; it was the practice in some Basses (e.g. in many of the publications of Estienne Roger of Amsterdam) to let the accidental bisect the nearest approach to an horizontal stroke presented by the figure in question, as $2\frac{1}{2}$, $4\frac{1}{2}$, $5\frac{1}{2}$, $6\frac{1}{2}$, $7\frac{1}{2}$ (the $\frac{1}{2}$ being used in the same way, but the $\frac{1}{2}$ generally replaced by a stroke through the figure); and it may well be that this practice helped to make it seem more natural, even to those who did not follow it—whether composers, printers, or engravers—to place the accidental on the same side of the figure as the said horizontal or obliquely curved stroke.

2 In the seventeenth and eighteenth centuries an accidental was usually assumed to be contradicted unless it was repeated, but the practice of different composers varied greatly in this respect.

System dividers

System dividers separate different systems that appear on the same page. It guides the eye in large orchestral scores, where empty staves are hidden to save space when an instrument is not playing.

The width of the divider is variable, but such detail should be handled with markup.

Fig. 24. F. J. Haydn, Die Schöpfung (The Creation). Edition Peters, Leipzig (ca. 1910s).
Heavy double barline

Normally, the thin double barline (U+1D101) is used for section breaks, and the final barline (U+1D102) for the end of a piece. But in some works by Charles-Valentin Alkan (1813–1888), different levels of section breaks are intended, and in that case the thin double barline and final barline have been used for lesser and greater section breaks respectively. The end of the piece is then demarcated by a heavy double barline.

U+1D28B MUSICAL SYMBOL HEAVY DOUBLE BARLINE [SMuFL U+E035]

Fig. 25. C. V. Alkan, Le festin d’Ésope (Op. 39 No. 12). Richault, Paris (1857). The work is a theme with 25 variations, with thin double barlines used for section breaks within variations, and final barlines used between variations. The piece thus ends with a heavy double barline.
References