

Esmuflily - SMuFL / Ekmelos for LilyPond

Esmuflily is an extension for [LilyPond](#) that supports [SMuFL](#) compliant fonts, in particular, to facilitate the use of glyphs from [Ekmelos](#) : clefs, time signatures, noteheads, articulations, etc.

Esmuflily provides [switches](#) to turn the SMuFL support on or off for individual types of graphical objects (clefs, noteheads, etc.) and it defines additional commands and styles for SMuFL glyphs which are not available in LilyPond (notehead styles, function theory symbols, etc.) So scores can benefit from both SMuFL's comprehensive character set and LilyPond's awesome Emmentaler font.

See [Ekmelily](#) for accidentals and key signatures.

Esmuflily requires LilyPond version 2.24.0 or higher.

30 March 2024

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Author and License

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Download and Installation

Download

The folder `ly` contains the include files.

- Copy the file `esmufl.ily` into an appropriate folder, e.g. `LILYPOND/usr/share/lilypond/current/ly` with `LILYPOND` meaning the installation folder of LilyPond.
- Optionally install a [SMuFL compliant font](#) , e.g. [Ekmelos](#) .

Usage

Add the following lines near the top of your LilyPond input file.

```
ekmelicFont = FONTNAME  
\include "esmufl.ily"
```

Esmuflily + Ekmelily

To combine Esmuflily with [Ekmelily](#) , add e.g. the following lines near the top of your LilyPond input file. This achieves LilyPond's standard behaviour, i.e. Dutch note names and Stein / Couper accidentals (`stc`) for quarter-tones (24-EDO). The first line can be omitted when using [Ekmelos](#) .

```
ekmelicFont = FONTNAME  
\include "esmufl.ily"  
\include "ekmel-24.ily"  
\language "nederlands"  
\ekmelicStyle stc
```

Fonts

Esmuflily requires a [SMuFL](#) compliant font.

It uses [Ekmelos](#) by default. Another font can be selected, either with the variable

```
ekmelicFont = FONTNAME
```

b e f o r e the include file, or with the command line option

```
-dekmelic-font=FONTNAME
```

Note: This option produces a warning 'no such internal option', which can be ignored. Warnings can be suppressed with the command line option `--loglevel=ERROR` or `--loglevel=NONE` .

Commands

Most of the commands, in particular, all markup commands always produce SMuFL output, independent of any [switches](#) . Other commands behave differently when the corresponding switch is turned off:

[[Ly](#)] Produces normal LilyPond output.

[[Err](#)] Causes an error or produces useless output.

Some commands with a corresponding LilyPond command are simpler implemented, e.g. they ignore properties, while others provide additional features.

Some styles and commands make use of [Ekmelos](#) specific supplements, starting at code point U+F600, or assume the Ekmelos font metrics. Ancient symbols and styles are not supported. Most of the ancient glyphs are not implemented in [Ekmelos](#) .

Some commands and properties accept one of the following special values:

- [EXTEXT](#) : A code point, a list of code points, or markup.
- [DEFINITION](#) : A string of keys.
- [ORIENTATION](#) : Sum of axis and direction.

SMuFL glyphs are always accessed by code point (EXTEXT). See the file `ly/ekmelos-map.ily` at [Ekmelos](#) with definitions to access glyphs by name.

All commands have the prefix `ekm` or `ekm-` .

SMuFL switches

```
\ekmSmuflOn #'TYPE
\ekmSmuflOn #'(TYPE ...)
\ekmSmuflOff #'TYPE
\ekmSmuflOff #'(TYPE ...)
```

Turn the SMuFL support on and off, respectively, for one or more types of graphical objects. TYPE is one of the following symbols. Any other value is ignored.

These commands set / undo context and grob properties (usually the stencil) in the current bottom context, except for `colon` and `segno` which are set independently of a context and cannot be turned off.

| | |
|---------------------------|------------------------------|
| <code>all</code> | All following types |
| <code>clef</code> | Clefs and clef modifiers |
| <code>time</code> | Time signatures |
| <code>notehead</code> | Noteheads |
| <code>dot</code> | Augmentation dots |
| <code>flag</code> | Flags and grace note slashes |
| <code>rest</code> | Rests |
| <code>dynamic</code> | Absolute dynamic marks |
| <code>script</code> | Scripts |
| <code>lv</code> | Laissez vibrer |
| <code>trill</code> | Trill span and trill pitch |
| <code>colon</code> | Colon bar lines |
| <code>segno</code> | Segno bar lines |
| <code>percent</code> | Percent repeats |
| <code>tremolo</code> | Tremolos |
| <code>arpeggio</code> | Arpeggios |
| <code>tuplet</code> | Tuplet numbers |
| <code>fingering</code> | Fingering instructions |
| <code>stringnumber</code> | String number indications |
| <code>pedal</code> | Piano pedals |
| <code>fbass</code> | Figured bass |
| <code>lyric</code> | Lyric text |

Example:

Demonstrates possible places for SMuFL [switches](#) : a `\with` block, a `\layout` block, and in the music stream. Note that `\ekmTremolo` has no effect after the `tremolo` switch is turned off.

```
\score {
  \new Staff \with {
    \ekmSmuflOn #'trill
  }
  \relative c'' {
    \ekmSmuflOn #'notehead
    \override NoteHead.style = #'triangle
    c4 a
    \ekmSmuflOff #'notehead
    \revert NoteHead.style

    \autoBeamOff
    a8
    \ekmFlag #'straight
    a <a d> a16 <a d>

    \ekmPitchedTrill #'slash #'bracket
    d2 \ekmStartTrillSpan #-4 e d4 c \stopTrillSpan

    \ekmSmuflOn #'tremolo
    \ekmTremolo unmeasured { c4:16 a: }
    \ekmSmuflOff #'tremolo
    \ekmTremolo unmeasured { c4:16 a: }
  }
  \layout {
    \context {
      \Score
      \ekmSmuflOn #'flag
    }
  }
}
```



Clefs and clef modifiers

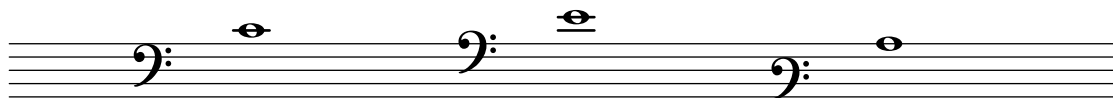
\ekmSmuflOn #'clef

Draw SMuFL clefs and clef modifiers (transposition and style).

| | | | | | |
|--------|----|--------|--------|--------|---------------|
| G | G2 | treble | violin | U+E050 | gClef |
| french | | | | : | |
| GG | | | | U+E055 | gClef8vbOld |
| tenorG | | | | U+E056 | gClef8vbCClef |



| | | | |
|-------------|--------------|--------|-------|
| F | bass | U+E062 | fClef |
| subbass | | : | |
| varbaritone | baritonevarF | : | |



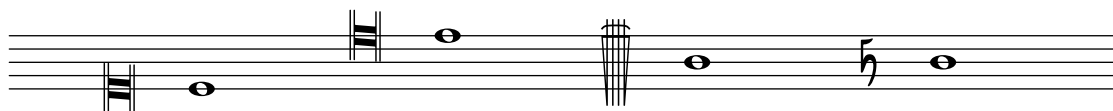
| | | | |
|--------------|------|--------|-------|
| C | alto | U+E05C | cClef |
| soprano | | : | |
| mezzosoprano | | : | |
| tenor | | : | |
| baritone | | : | |



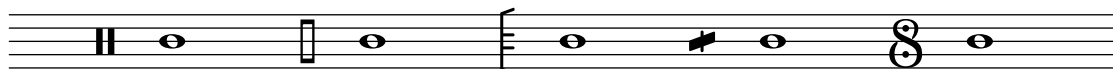
| | | | |
|--------------|----------|--------|----------------|
| varC | altovarC | U+F633 | cClefFrench20C |
| tenorvarC | | : | |
| baritonevarC | | : | |



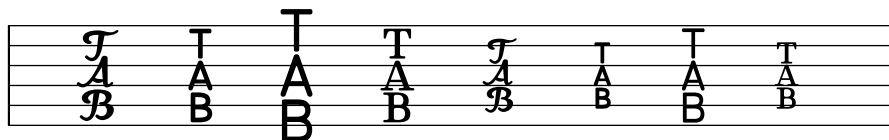
| | | |
|-----------------------|--------|-------------------|
| neomensural-c1 ... c5 | U+E060 | cClefSquare |
| bridge | U+E078 | bridgeClef |
| accordion | U+E079 | accdnDiatonicClef |



| | | |
|----------------|--------|----------------------------|
| percussion | U+E069 | unpitchedPercussionClef1 |
| varpercussion | U+E06A | unpitchedPercussionClef2 |
| semipitched | U+E06B | semipitchedPercussionClef1 |
| varsemipitched | U+E06C | semipitchedPercussionClef2 |
| indiandrum | U+ED70 | indianDrumClef |



| | | |
|------------------|--------|-----------------------|
| tab | U+F61E | 6stringTabClefClassic |
| moderntab | U+E06D | 6stringTabClef |
| talltab | U+F40A | 6stringTabClefTall |
| seriftab | U+F40B | 6stringTabClefSerif |
| 4stringtab | U+F61F | 4stringTabClefClassic |
| 4stringmoderntab | U+E06E | 4stringTabClef |
| 4stringtalltab | U+F40C | 4stringTabClefTall |
| 4stringseriftab | U+F40D | 4stringTabClefSerif |



Clef modifiers (transposition and style) are always drawn separately, i.e. not with precomposed glyphs.

| | | | |
|----|-----------|--------|---------------------------------|
| 8 | <i>8</i> | U+E07D | clef8 |
| 15 | <i>15</i> | U+E07E | clef15 |
| 0 | <i>0</i> | U+ED80 | fingering0Italic |
| | : | | |
| 9 | <i>9</i> | U+ED89 | fingering9Italic |
| (| <i>(</i> | U+ED8A | fingeringLeftParenthesisItalic |
|) | <i>)</i> | U+ED8B | fingeringRightParenthesisItalic |
| [| <i>[</i> | U+ED8C | fingeringLeftBracketItalic |
|] | <i>]</i> | U+ED8D | fingeringRightBracketItalic |

G₈
G₁₅
G₍₈₎
G²
GG^[4]



F₈
F₍₃₎
F⁸
F^[5]
subbass¹³



C₈
C₂
tenorvarC⁷

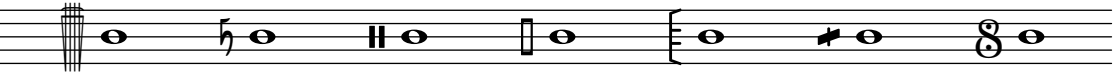


Change clefs use special glyphs, except for bridge , accordion , and indiandrum which are drawn with a 2 steps smaller font size.

| | | |
|----------------|--------|----------------------|
| G | U+E07A | gClefChange |
| GG | U+F630 | gClef8vbOldChange |
| tenorG | U+F631 | gClef8vbCClefChange |
| F | U+E07C | fClefChange |
| C | U+E07B | cClefChange |
| varC | U+F634 | cClefFrench20CChange |
| neomensural-c3 | U+F632 | cClefSquareChange |



| | | |
|----------------|--------|----------------------------------|
| bridge | U+E078 | bridgeClef |
| accordion | U+E079 | accdnDiatonicClef |
| percussion | U+F635 | unpitchedPercussionClef1Change |
| varpercussion | U+F636 | unpitchedPercussionClef2Change |
| semipitched | U+F6BE | semipitchedPercussionClef1Change |
| varsemipitched | U+F6BF | semipitchedPercussionClef2Change |
| indiandrum | U+ED70 | indianDrumClef |



Time signatures

```
\ekmSmuflOn #'time
```

Draw SMuFL time signatures.

```
\ekmCompoundMeter TIME-SIGNATURE
```

Set the numeric time signature.

```
\ekm-compound-meter TIME-SIGNATURE
```

Draw the numeric time signature as markup.

Compound meters use the large plus sign between fractions and the small plus sign between the numbers in a numerator. Some rational numbers can be part of a numerator. If specified in a pair, e.g. (1 . 1/2), this is treated as a single number without a plus sign in between.

| | | | |
|-----|----------|--------|------------------------------|
| 4/4 | C | U+E08A | timeSigCommon |
| 2/2 | C | U+E08B | timeSigCutCommon |
| 0 | 0 | U+E080 | timeSig0 |
| : | : | | |
| 9 | 9 | U+E089 | timeSig9 |
| + | + | U+E08C | timeSigPlus |
| | + | U+E08D | timeSigPlusSmall |
| 1/4 | ¼ | U+E097 | timeSigFractionQuarter |
| 1/2 | ½ | U+E098 | timeSigFractionHalf |
| 3/4 | ¾ | U+E099 | timeSigFractionThreeQuarters |
| 1/3 | ⅓ | U+E09A | timeSigFractionOneThird |
| 2/3 | ⅔ | U+E09B | timeSigFractionTwoThirds |

```
#' (5 8)
#' ((2 8) (3 8))
#' (2 3 8)
#' (1 1/4 2)
#' ((1 . 1/4) 2))
```



```
#' ((2 4) (1 4) (1 8))
#' ((2 4) (2 1 8))
#' ((2 4) (1 1/2 4))
```



```
#' ((2 4) (3 8))
#' ((2 4) ((1 . 1/2) 4))
#' (2 (1 . 1/2) 4)
```



Cadenza signatures

\ekmCadenzaOn STYLE

Start a cadenza like \cadenzaOn and set a signature. The style can be one of the following symbols.

time-x

U+E09C

timeSigX

A musical staff with a five-line structure. The first measure contains a time signature 'X' followed by a half note on the first line. The second measure contains a quarter note on the second line. The third measure contains an eighth note on the second line. The fourth measure contains a quarter note on the third line. The fifth measure contains an eighth note on the third line. The sixth measure contains a quarter note on the fourth line. The seventh measure contains an eighth note on the fourth line. The eighth measure contains a quarter note on the fifth line. The ninth measure contains a half note on the first line.

time-penderecki

U+E09D




timeSigOpenPenderecki

A musical staff with a five-line structure. The first measure contains a time signature 'X' followed by a half note on the first line. The second measure contains a quarter note on the second line. The third measure contains an eighth note on the second line. The fourth measure contains a quarter note on the third line. The fifth measure contains an eighth note on the third line. The sixth measure contains a quarter note on the fourth line. The seventh measure contains an eighth note on the fourth line. The eighth measure contains a quarter note on the fifth line. The ninth measure contains a half note on the first line.

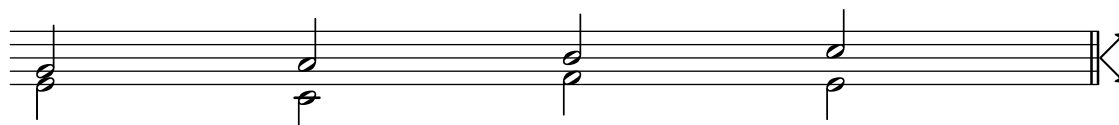
Staff dividers and separators

`\ekmStaffDivider DIRECTION`

Draw the next barline with an indicator to split or recombine the staff and set a `\break`. The direction specifies the type of indicator (arrow).




| | | | |
|---------|---|--------|------------------------|
| #DOWN |  | U+E00B | staffDivideArrowDown |
| #UP |  | U+E00C | staffDivideArrowUp |
| #CENTER |  | U+E00D | staffDivideArrowUpDown |

`\bar "||" \ekmStaffDivider #CENTER`



`system-separator-markup = \ekmSlashSeparator SIZE`

Draw a system separator mark of the specified size (set within a `\paper block`). SIZE is an integer in the range 0 thru 2.

| | | | |
|----|---|--------|------------------------|
| #0 |  | U+E007 | systemDivider |
| #1 |  | U+E008 | systemDividerLong |
| #2 |  | U+E009 | systemDividerExtraLong |

Noteheads

\ekmSmuflOn #'notehead

Draw SMuFL noteheads. The style can be one of the following symbols. The `harmonic` and `cross` glyphs are also used with commands like `\harmonic` and `\xNote`.

default

U+F637 noteheadLongaUp
 U+F638 noteheadLongaDown
 U+F639 noteheadDoubleWholeAlt
 U+E0A2 noteheadWhole
 U+E0A3 noteheadHalf
 U+E0A4 noteheadBlack



altdefault

:
 U+E0A0 noteheadDoubleWhole
 :



baroque

U+E0A1 noteheadDoubleWholeSquare
 :



harmonic

U+E0D9 noteheadDiamondHalf



harmonic-black

U+E0DC noteheadDiamondBlackWide
 U+E0DB noteheadDiamondBlack



harmonic-white

U+E0DE noteheadDiamondWhiteWide
 U+E0DD noteheadDiamondWhite



harmonic-mixed

U+E0D7 noteheadDiamondDoubleWhole
 U+E0D8 noteheadDiamondWhole
 U+E0D9 noteheadDiamondHalf
 U+E0DB noteheadDiamondBlack



harmonic-wide

U+E0D7 noteheadDiamondDoubleWhole
 U+E0D8 noteheadDiamondWhole
 U+E0DA noteheadDiamondHalfWide
 U+E0DC noteheadDiamondBlackWide



diamond

U+E0DF noteheadDiamondDoubleWholeOld
 U+E0E0 noteheadDiamondWholeOld
 U+E0E1 noteheadDiamondHalfOld
 U+E0E2 noteheadDiamondBlackOld



cross

U+E0A6 noteheadXDoubleWhole
 U+E0A7 noteheadXWhole
 U+E0A8 noteheadXHalf
 U+E0A9 noteheadXBlack



xcircle

U+E0B0 noteheadCircleXDoubleWhole
 U+E0B1 noteheadCircleXWhole
 U+E0B2 noteheadCircleXHalf
 U+E0B3 noteheadCircleX



withx

U+E0B4 noteheadDoubleWholeWithX
 U+E0B5 noteheadWholeWithX
 U+E0B6 noteheadHalfWithX
 U+E0B7 noteheadVoidWithX



withx-black

U+E0B4 noteheadDoubleWholeWithX
 U+E0B5 noteheadWholeWithX
 U+E0B6 noteheadHalfWithX
 U+F680 noteheadBlackWithX



plus

U+E0AC noteheadPlusDoubleWhole
 U+E0AD noteheadPlusWhole
 U+E0AE noteheadPlusHalf
 U+E0AF noteheadPlusBlack



triangle

- U+E0BA noteheadTriangleUpDoubleWhole
- U+E0BB noteheadTriangleUpWhole
- U+E0BC noteheadTriangleUpHalf
- U+E0BE noteheadTriangleUpBlack
- U+E0C3 noteheadTriangleDownDoubleWhole
- U+E0C4 noteheadTriangleDownWhole
- U+E0C5 noteheadTriangleDownHalf
- U+E0C7 noteheadTriangleDownBlack



triangle-up



triangle-down



arrow

- U+E0ED noteheadLargeArrowUpDoubleWhole
- U+E0EE noteheadLargeArrowUpWhole
- U+E0EF noteheadLargeArrowUpHalf
- U+E0F0 noteheadLargeArrowUpBlack
- U+E0F1 noteheadLargeArrowDownDoubleWhole
- U+E0F2 noteheadLargeArrowDownWhole
- U+E0F3 noteheadLargeArrowDownHalf
- U+E0F4 noteheadLargeArrowDownBlack



arrow-up



arrow-down



slash

U+E10A noteheadSlashWhiteDoubleWhole
 U+E102 noteheadSlashWhiteWhole
 U+E103 noteheadSlashWhiteHalf
 U+E101 noteheadSlashHorizontalEnds



slash-muted

U+E109 noteheadSlashWhiteMuted
 U+E108 noteheadSlashHorizontalEndsMuted



slashed

U+E0D5 noteheadSlashedDoubleWhole1
 U+E0D3 noteheadSlashedWhole1
 U+E0D1 noteheadSlashedHalf1
 U+E0CF noteheadSlashedBlack1



backslashed

U+E0D6 noteheadSlashedDoubleWhole2
 U+E0D4 noteheadSlashedWhole2
 U+E0D2 noteheadSlashedHalf2
 U+E0D0 noteheadSlashedBlack2



circled

U+E0E7 noteheadCircledDoubleWhole
 U+E0E6 noteheadCircledWhole
 U+E0E5 noteheadCircledHalf
 U+E0E4 noteheadCircledBlack



circled-large

U+E0EB noteheadCircledDoubleWholeLarge
 U+E0EA noteheadCircledWholeLarge
 U+E0E9 noteheadCircledHalfLarge
 U+E0E8 noteheadCircledBlackLarge



parenthesised

U+F5DF noteheadDoubleWholeParens
 U+F5DE noteheadWholeParens
 U+F5DD noteheadHalfParens
 U+F5DC noteheadBlackParens



round

U+E114 noteheadRoundWhite
U+E113 noteheadRoundBlack



round-large

U+E111 noteheadRoundWhiteLarge
U+E110 noteheadRoundBlackLarge



round-dot

U+E115 noteheadRoundWhiteWithDot
U+E113 noteheadRoundBlack



round-dot-large

U+E112 noteheadRoundWhiteWithDotLarge
U+E110 noteheadRoundBlackLarge



round-slashed

U+E119 noteheadRoundWhiteSlashed
U+E118 noteheadRoundBlackSlashed



round-slashed-large

U+E117 noteheadRoundWhiteSlashedLarge
U+E116 noteheadRoundBlackSlashedLarge



square

U+E0B8 noteheadSquareWhite
U+E0B9 noteheadSquareBlack



square-large

U+E11B noteheadSquareBlackWhite
U+E11A noteheadSquareBlackLarge



Shape noteheads

All forms in LilyPond are supported, but some noteheads of Feta don't have exact matches in SMuFL, e.g. the thin shapes of `\southernHarmonyHeads` and the reversed shapes for stem up of `\funkHeads`.

Sacred Harp

`\sacredHarpHeads`

| | | |
|-----|--------|-----------------------------------|
| fa | U+ECD3 | noteShapeTriangleLeftDoubleWhole |
| | U+E1B6 | noteShapeTriangleLeftWhite |
| | U+E1B7 | noteShapeTriangleLeftBlack |
| | U+ECD2 | noteShapeTriangleRightDoubleWhole |
| | U+E1B4 | noteShapeTriangleRightWhite |
| | U+E1B5 | noteShapeTriangleRightBlack |
| sol | U+ECD0 | noteShapeRoundDoubleWhole |
| | U+E1B0 | noteShapeRoundWhite |
| | U+E1B1 | noteShapeRoundBlack |
| la | U+ECD1 | noteShapeSquareDoubleWhole |
| | U+E1B2 | noteShapeSquareWhite |
| | U+E1B3 | noteShapeSquareBlack |
| mi | U+ECD4 | noteShapeDiamondDoubleWhole |
| | U+E1B8 | noteShapeDiamondWhite |
| | U+E1B9 | noteShapeDiamondBlack |

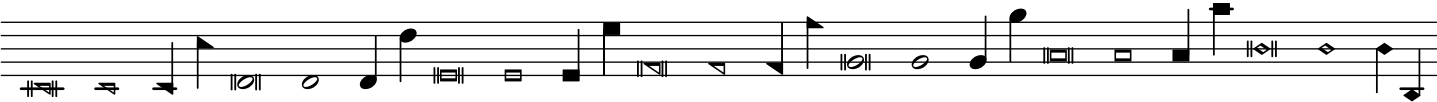


`\sacredHarpHeadsMinor`

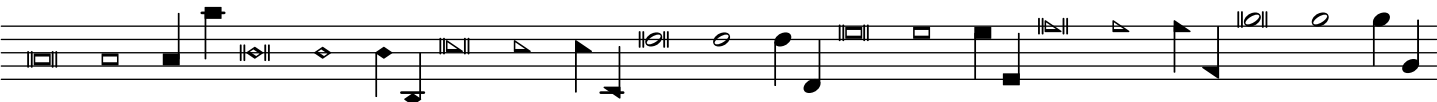


Southern Harmony

| | | |
|-----------------------|--------|-----------------------------------|
| \southernHarmonyHeads | | |
| fa | U+ECD3 | noteShapeTriangleLeftDoubleWhole |
| | U+E1B6 | noteShapeTriangleLeftWhite |
| | U+E1B7 | noteShapeTriangleLeftBlack |
| | U+ECD2 | noteShapeTriangleRightDoubleWhole |
| | U+E1B4 | noteShapeTriangleRightWhite |
| sol | U+E1B5 | noteShapeTriangleRightBlack |
| | U+ECD0 | noteShapeRoundDoubleWhole |
| | U+E1B0 | noteShapeRoundWhite |
| la | U+E1B1 | noteShapeRoundBlack |
| | U+ECD1 | noteShapeSquareDoubleWhole |
| | U+E1B2 | noteShapeSquareWhite |
| mi | U+E1B3 | noteShapeSquareBlack |
| | U+ECD4 | noteShapeDiamondDoubleWhole |
| | U+E1B8 | noteShapeDiamondWhite |
| | U+E1B9 | noteShapeDiamondBlack |



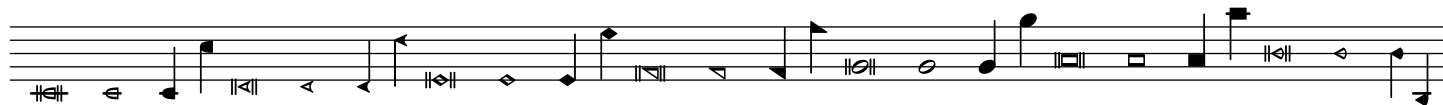
\southernHarmonyHeadsMinor



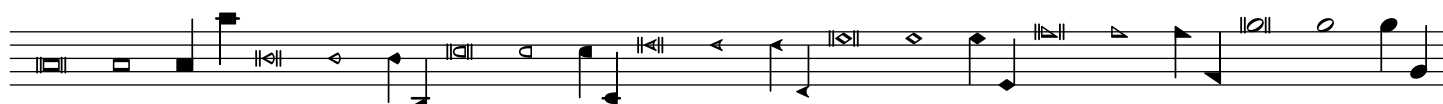
Funk (Harmonia Sacra)

\funkHeads

| | | |
|-----|--------|---------------------------------------|
| do | U+ECDB | noteShapeMoonLeftDoubleWhole |
| | U+E1C6 | noteShapeMoonLeftWhite |
| | U+E1C7 | noteShapeMoonLeftBlack |
| re | U+ECDC | noteShapeArrowheadLeftDoubleWhole |
| | U+E1C8 | noteShapeArrowheadLeftWhite |
| | U+E1C9 | noteShapeArrowheadLeftBlack |
| mi | U+ECD4 | noteShapeDiamondDoubleWhole |
| | U+E1B8 | noteShapeDiamondWhite |
| | U+E1B9 | noteShapeDiamondBlack |
| fa | U+ECD3 | noteShapeTriangleLeftDoubleWhole |
| | U+E1B6 | noteShapeTriangleLeftWhite |
| | U+E1B7 | noteShapeTriangleLeftBlack |
| | U+ECD2 | noteShapeTriangleRightDoubleWhole |
| | U+E1B4 | noteShapeTriangleRightWhite |
| | U+E1B5 | noteShapeTriangleRightBlack |
| sol | U+ECD0 | noteShapeRoundDoubleWhole |
| | U+E1B0 | noteShapeRoundWhite |
| | U+E1B1 | noteShapeRoundBlack |
| la | U+ECD1 | noteShapeSquareDoubleWhole |
| | U+E1B2 | noteShapeSquareWhite |
| | U+E1B3 | noteShapeSquareBlack |
| ti | U+ECDD | noteShapeTriangleRoundLeftDoubleWhole |
| | U+E1CA | noteShapeTriangleRoundLeftWhite |
| | U+E1CB | noteShapeTriangleRoundLeftBlack |



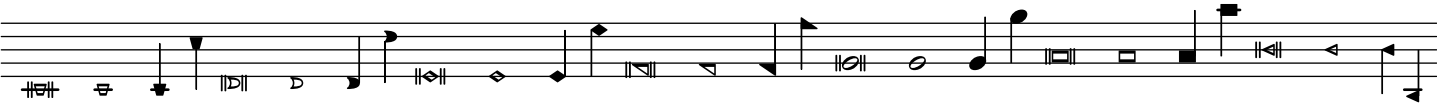
\funkHeadsMinor



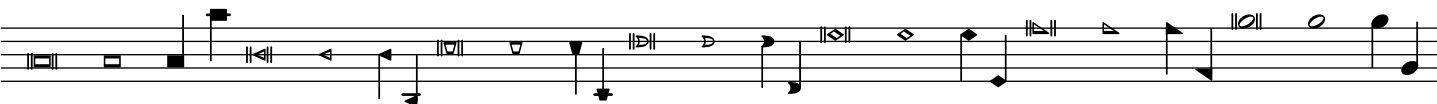
Walker

\walkerHeads

| | | |
|-----|--------|---------------------------------------|
| do | U+ECD8 | noteShapeKeystoneDoubleWhole |
| | U+E1C0 | noteShapeKeystoneWhite |
| | U+E1C1 | noteShapeKeystoneBlack |
| re | U+ECD9 | noteShapeQuarterMoonDoubleWhole |
| | U+E1C2 | noteShapeQuarterMoonWhite |
| | U+E1C3 | noteShapeQuarterMoonBlack |
| mi | U+ECD4 | noteShapeDiamondDoubleWhole |
| | U+E1B8 | noteShapeDiamondWhite |
| | U+E1B9 | noteShapeDiamondBlack |
| fa | U+ECD3 | noteShapeTriangleLeftDoubleWhole |
| | U+E1B6 | noteShapeTriangleLeftWhite |
| | U+E1B7 | noteShapeTriangleLeftBlack |
| | U+ECD2 | noteShapeTriangleRightDoubleWhole |
| | U+E1B4 | noteShapeTriangleRightWhite |
| | U+E1B5 | noteShapeTriangleRightBlack |
| sol | U+ECD0 | noteShapeRoundDoubleWhole |
| | U+E1B0 | noteShapeRoundWhite |
| | U+E1B1 | noteShapeRoundBlack |
| la | U+ECD1 | noteShapeSquareDoubleWhole |
| | U+E1B2 | noteShapeSquareWhite |
| | U+E1B3 | noteShapeSquareBlack |
| ti | U+ECDA | noteShapelsoscelesTriangleDoubleWhole |
| | U+E1C4 | noteShapelsoscelesTriangleWhite |
| | U+E1C5 | noteShapelsoscelesTriangleBlack |



\walkerHeadsMinor



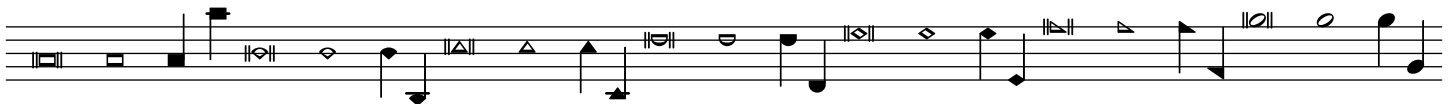
Aiken (Christian Harmony)

\aikenHeads

| | | |
|-----|--------|-----------------------------------|
| do | U+ECD5 | noteShapeTriangleUpDoubleWhole |
| | U+E1BA | noteShapeTriangleUpWhite |
| | U+E1BB | noteShapeTriangleUpBlack |
| re | U+ECD6 | noteShapeMoonDoubleWhole |
| | U+E1BC | noteShapeMoonWhite |
| | U+E1BD | noteShapeMoonBlack |
| mi | U+ECD4 | noteShapeDiamondDoubleWhole |
| | U+E1B8 | noteShapeDiamondWhite |
| | U+E1B9 | noteShapeDiamondBlack |
| fa | U+ECD3 | noteShapeTriangleLeftDoubleWhole |
| | U+E1B6 | noteShapeTriangleLeftWhite |
| | U+E1B7 | noteShapeTriangleLeftBlack |
| | U+ECD2 | noteShapeTriangleRightDoubleWhole |
| | U+E1B4 | noteShapeTriangleRightWhite |
| | U+E1B5 | noteShapeTriangleRightBlack |
| sol | U+ECD0 | noteShapeRoundDoubleWhole |
| | U+E1B0 | noteShapeRoundWhite |
| | U+E1B1 | noteShapeRoundBlack |
| la | U+ECD1 | noteShapeSquareDoubleWhole |
| | U+E1B2 | noteShapeSquareWhite |
| | U+E1B3 | noteShapeSquareBlack |
| ti | U+ECD7 | noteShapeTriangleRoundDoubleWhole |
| | U+E1BE | noteShapeTriangleRoundWhite |
| | U+E1BF | noteShapeTriangleRoundBlack |



\aikenHeadsMinor



Note name noteheads

\ekmNameHeads...

Draw noteheads with solfège (easy play) note names. [Err]

| | | |
|---------------|--------|-------------|
| \ekmNameHeads | | |
| do | U+E150 | noteDoWhole |
| | U+E158 | noteDoHalf |
| | U+E160 | noteDoBlack |
| re | U+E151 | noteReWhole |
| | U+E159 | noteReHalf |
| | U+E161 | noteReBlack |
| mi | U+E152 | noteMiWhole |
| | U+E15A | noteMiHalf |
| | U+E162 | noteMiBlack |
| fa | U+E153 | noteFaWhole |
| | U+E15B | noteFaHalf |
| | U+E163 | noteFaBlack |
| so | U+E154 | noteSoWhole |
| | U+E15C | noteSoHalf |
| | U+E164 | noteSoBlack |
| la | U+E155 | noteLaWhole |
| | U+E15D | noteLaHalf |
| | U+E165 | noteLaBlack |
| si | U+E157 | noteSiWhole |
| | U+E15F | noteSiHalf |
| | U+E167 | noteSiBlack |

\ekmNameHeadsMinor

\ekmNameHeadsTi

| | | |
|-----------|--------|-------------|
| do ... la | : | |
| ti | U+E156 | noteTiWhole |
| | U+E15E | noteTiHalf |
| | U+E166 | noteTiBlack |

\ekmNameHeadsTiMinor

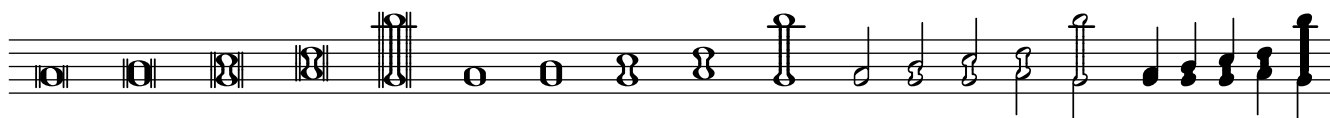
Note clusters

\ekmMakeClusters MUSIC

Draw clusters instead of chords in MUSIC, consisting of a bottom and a top note head, and ignoring inner notes of the chords ('Cowell clusters'). The notehead style can be one of the following symbols.

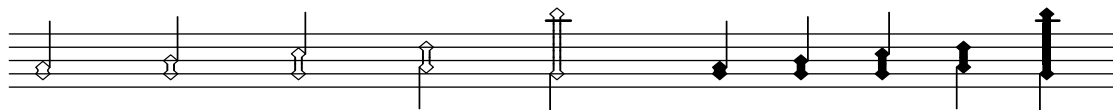
default

| | |
|--------|----------------------------------|
| U+E124 | noteheadClusterDoubleWhole2nd |
| U+E128 | noteheadClusterDoubleWhole3rd |
| U+E12C | noteheadClusterDoubleWholeTop |
| U+E12D | noteheadClusterDoubleWholeMiddle |
| U+E12E | noteheadClusterDoubleWholeBottom |
| U+E125 | noteheadClusterWhole2nd |
| U+E129 | noteheadClusterWhole3rd |
| U+E12F | noteheadClusterWholeTop |
| U+E130 | noteheadClusterWholeMiddle |
| U+E131 | noteheadClusterWholeBottom |
| U+E126 | noteheadClusterHalf2nd |
| U+E12A | noteheadClusterHalf3rd |
| U+E132 | noteheadClusterHalfTop |
| U+E133 | noteheadClusterHalfMiddle |
| U+E134 | noteheadClusterHalfBottom |
| U+E127 | noteheadClusterQuarter2nd |
| U+E12B | noteheadClusterQuarter3rd |
| U+E135 | noteheadClusterQuarterTop |
| U+E136 | noteheadClusterQuarterMiddle |
| U+E137 | noteheadClusterQuarterBottom |



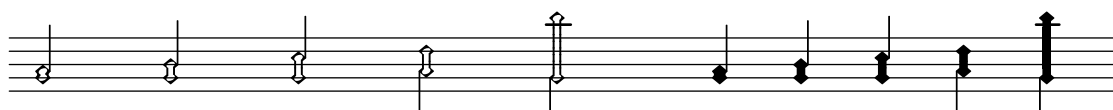
harmonic

| | |
|--------|-----------------------------------|
| U+E138 | noteheadDiamondClusterWhite2nd |
| U+E13A | noteheadDiamondClusterWhite3rd |
| U+E13C | noteheadDiamondClusterWhiteTop |
| U+E13D | noteheadDiamondClusterWhiteMiddle |
| U+E13E | noteheadDiamondClusterWhiteBottom |
| U+E139 | noteheadDiamondClusterBlack2nd |
| U+E13B | noteheadDiamondClusterBlack3rd |
| U+E13F | noteheadDiamondClusterBlackTop |
| U+E140 | noteheadDiamondClusterBlackMiddle |
| U+E141 | noteheadDiamondClusterBlackBottom |



diamond

| | |
|--------|-----------------------------------|
| U+F64B | noteheadDiamondClusterHalf2nd |
| U+F64C | noteheadDiamondClusterHalf3rd |
| U+F64D | noteheadDiamondClusterHalfTop |
| U+F64E | noteheadDiamondClusterHalfMiddle |
| U+F64F | noteheadDiamondClusterHalfBottom |
| U+E139 | noteheadDiamondClusterBlack2nd |
| U+E13B | noteheadDiamondClusterBlack3rd |
| U+E13F | noteheadDiamondClusterBlackTop |
| U+E140 | noteheadDiamondClusterBlackMiddle |
| U+E141 | noteheadDiamondClusterBlackBottom |



square

U+E145

U+E146

U+E147

U+E142

U+E143

U+E144

noteheadRectangularClusterWhiteTop

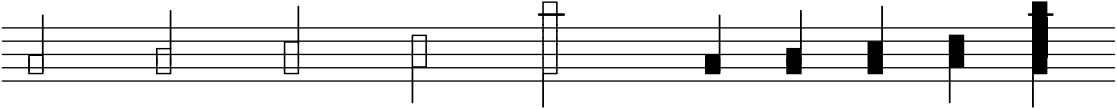
noteheadRectangularClusterWhiteMiddle

noteheadRectangularClusterWhiteBottom

noteheadRectangularClusterBlackTop

noteheadRectangularClusterBlackMiddle

noteheadRectangularClusterBlackBottom



Note: For intervals larger than a third (except for `square`) the drawn cluster is a stack of one bottom segment, M middle segments, and one top segment. Mid and Top are the staff positions of the middle and top segments relative to the bottom segment.

| Interval | M | Mid | Top |
|----------|---|---------|-----|
| 4th | 0 | - | 3 |
| 5th | 1 | 2 | 4 |
| 6th | 2 | 2 3 | 5 |
| 7th | 3 | 2 3 4 | 6 |
| octave | 4 | 2 3 4 5 | 7 |
| ... | | | |

The segment glyphs in [Ekmelos](#) are designed for these values.

However, in the implementation notes of SMuFL Note clusters, the left-hand octave cluster is said to have 3 middle segments, while the right-hand 6th cluster has 2 middle segments. The “appropriate number of middle segments” varies apparently depending on the font.

Augmentation dots

\ekmSmuflOn #'dot

Draw SMuFL augmentation dots.



Flags and grace note slashes

```
\ekmSmuflOn #'flag
```

Draw SMuFL flags and grace note slashes.

```
\ekmFlag STYLE
```

Set the specified flag style. It actually overrides the properties `Flag.style` and `Stem.details.lengths`. The style can be one of the following symbols. Note that the glyphs for `short` stem down flags are [Ekmelos](#) specific. [Err]

| | | |
|---------|--------|----------------|
| default | U+E240 | flag8thUp |
| | U+E241 | flag8thDown |
| | U+E242 | flag16thUp |
| | U+E243 | flag16thDown |
| | U+E244 | flag32ndUp |
| | U+E245 | flag32ndDown |
| | U+E246 | flag64thUp |
| | U+E247 | flag64thDown |
| | U+E248 | flag128thUp |
| | U+E249 | flag128thDown |
| | U+E24A | flag256thUp |
| | U+E24B | flag256thDown |
| | U+E24C | flag512thUp |
| | U+E24D | flag512thDown |
| | U+E24E | flag1024thUp |
| | U+E24F | flag1024thDown |

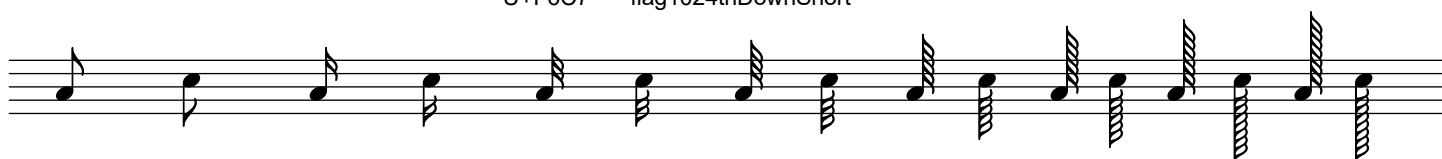


| | | |
|----------|--------|------------------------|
| straight | U+F40F | flag8thUpStraight |
| | U+F411 | flag8thDownStraight |
| | U+F412 | flag16thUpStraight |
| | U+F414 | flag16thDownStraight |
| | U+F415 | flag32ndUpStraight |
| | U+F417 | flag32ndDownStraight |
| | U+F418 | flag64thUpStraight |
| | U+F41A | flag64thDownStraight |
| | U+F41B | flag128thUpStraight |
| | U+F41D | flag128thDownStraight |
| | U+F41E | flag256thUpStraight |
| | U+F420 | flag256thDownStraight |
| | U+F421 | flag512thUpStraight |
| | U+F423 | flag512thDownStraight |
| | U+F424 | flag1024thUpStraight |
| | U+F426 | flag1024thDownStraight |



short

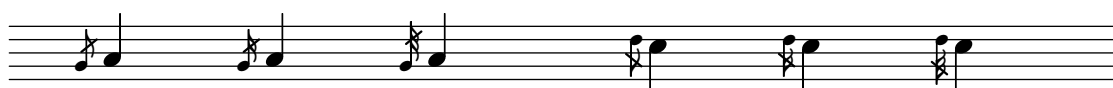
| | |
|--------|---------------------|
| U+F410 | flag8thUpShort |
| U+F6C0 | flag8thDownShort |
| U+F413 | flag16thUpShort |
| U+F6C1 | flag16thDownShort |
| U+F416 | flag32ndUpShort |
| U+F6C2 | flag32ndDownShort |
| U+F419 | flag64thUpShort |
| U+F6C3 | flag64thDownShort |
| U+F41C | flag128thUpShort |
| U+F6C4 | flag128thDownShort |
| U+F41F | flag256thUpShort |
| U+F6C5 | flag256thDownShort |
| U+F422 | flag512thUpShort |
| U+F6C6 | flag512thDownShort |
| U+F425 | flag1024thUpShort |
| U+F6C7 | flag1024thDownShort |



Grace note slash

\slashedGrace

| | |
|--------|------------------------|
| U+E564 | graceNoteSlashStemUp |
| U+E565 | graceNoteSlashStemDown |

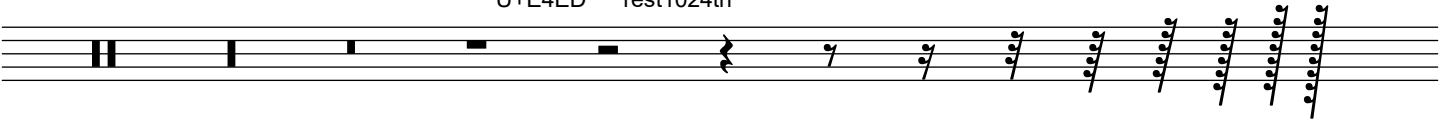


Rests

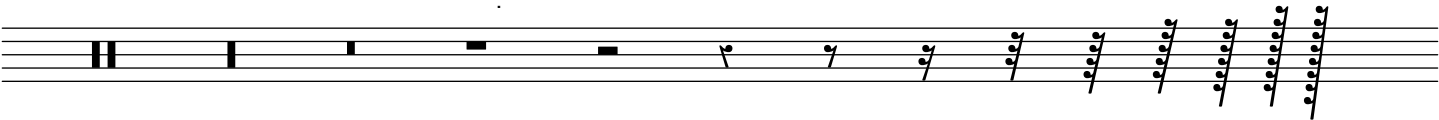
```
\ekmSmuflOn #'rest
```

Draw SMuFL rests. The style can be one of the following symbols.

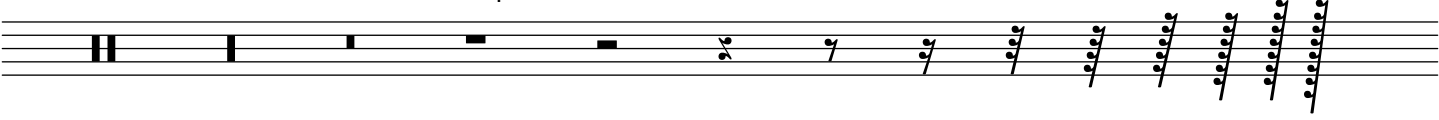
| | | |
|---------|--------|-----------------|
| default | U+E4E0 | restMaxima |
| | U+E4E1 | restLonga |
| | U+E4E2 | restDoubleWhole |
| | U+E4E3 | restWhole |
| | U+E4E4 | restHalf |
| | U+E4E5 | restQuarter |
| | U+E4E6 | rest8th |
| | U+E4E7 | rest16th |
| | U+E4E8 | rest32nd |
| | U+E4E9 | rest64th |
| | U+E4EA | rest128th |
| | U+E4EB | rest256th |
| | U+E4EC | rest512th |
| | U+E4ED | rest1024th |



| | | |
|-----------|--------|----------------|
| classical | : | |
| | U+E4F2 | restQuarterOld |
| | : | |



| | | |
|---|--------|--------------|
| z | : | |
| | U+E4F6 | restQuarterZ |
| | : | |



Dynamics

\ekmSmuflOn #'dynamic

Draw SMuFL absolute dynamic marks.

| | | |
|--------|--------|--------------|
| \p | U+E520 | dynamicPiano |
| \pp | U+E52B | dynamicPP |
| \ppp | U+E52A | dynamicPPP |
| \pppp | U+E529 | dynamicPPPP |
| \ppppp | U+E528 | dynamicPPPPP |
| \mp | U+E52C | dynamicMP |

| | | | | | |
|----------|-----------|------------|-------------|--------------|-----------|
| | | | | | |
| <i>p</i> | <i>pp</i> | <i>ppp</i> | <i>pppp</i> | <i>ppppp</i> | <i>mp</i> |

| | | |
|--------|--------|--------------|
| \f | U+E522 | dynamicForte |
| \ff | U+E52F | dynamicFF |
| \fff | U+E530 | dynamicFFF |
| \ffff | U+E531 | dynamicFFFF |
| \fffff | U+E532 | dynamicFFFFF |
| \mf | U+E52D | dynamicMF |

| | | | | | |
|----------|-----------|------------|-------------|--------------|-----------|
| | | | | | |
| <i>f</i> | <i>ff</i> | <i>fff</i> | <i>ffff</i> | <i>fffff</i> | <i>mf</i> |

| | | |
|------|--------|-----------------------|
| \fp | U+E534 | dynamicFortePiano |
| \sf | U+E536 | dynamicSforzando1 |
| \sff | U+F645 | dynamicSforzandoFF |
| \sfp | U+E537 | dynamicSforzandoPiano |
| \sfz | U+E539 | dynamicSforzato |
| \rfz | U+E53D | dynamicRinforzando2 |
| \sp | U+F646 | dynamicSP |
| \spp | U+F647 | dynamicSPP |
| \n | U+E526 | dynamicNiente |

| | | | | | | | | |
|-----------|-----------|------------|------------|------------|------------|-----------|------------|----------|
| | | | | | | | | |
| <i>fp</i> | <i>sf</i> | <i>sff</i> | <i>sfp</i> | <i>sfz</i> | <i>rfz</i> | <i>sp</i> | <i>spp</i> | <i>n</i> |

\ekm-dynamic DEFINITION

Draw a dynamic symbol as markup. **DEFINITION** may consist of the letters f, m, n, p, r, s, and z. The symbol is either a precomposed glyph or a sequence of dynamic glyphs for each letter.

```
\ekmParensDyn STYLE DYNAMIC-MARK
```

Draw the absolute dynamic mark parenthesized. The style can be one of the following symbols.

| | | |
|---------|--------|--------------|
| default | U+0028 | parenleft |
| | U+0029 | parenright |
| bracket | U+005B | bracketleft |
| | U+005D | bracketright |
| brace | U+007B | braceleft |
| | U+007D | braceright |
| angle | U+003C | less |
| | U+003E | greater |

```
\ekmParensHairpin STYLE
```

Draw the subsequent hairpin parenthesized. The style can be one of the following symbols.

| | | |
|---------|--------|--------------------------------|
| default | U+E542 | dynamicHairpinParenthesisLeft |
| | U+E543 | dynamicHairpinParenthesisRight |
| bracket | U+E544 | dynamicHairpinBracketLeft |
| | U+E545 | dynamicHairpinBracketRight |
| brace | U+007B | braceleft |
| | U+007D | braceright |
| angle | U+EA93 | functionAngleLeft |
| | U+EA94 | functionAngleRight |

Scripts - Expressive marks

```
\ekmSmuflOn #'script
```

Draw SMuFL scripts for expressive marks like articulations, ornamentations, performance indications, fermatas, repeat signs, etc.

```
\ekmScript #'NAME #'(EXTEXT-UP . EXTEXT-DOWN)
```

```
\ekmScript #'NAME EXTEXT
```

Create a script from **EXTEXT**, either a pair for up and down or a single value for both directions. If the latter is a list it must be enclosed in a list. NAME is the symbol of an existing script like `accent marcato trill turn upbow open lheel segno` etc. It determines the vertical positioning of the script. [\[Ly \]](#)

```
\ekmScriptSmall #'NAME #'(EXTEXT-UP . EXTEXT-DOWN)
```

```
\ekmScriptSmall #'NAME EXTEXT
```

Create a script with a 3 steps smaller font size. [\[Ly \]](#)

Articulations

```
\accent
U+E4A0 articAccentAbove
U+E4A1 articAccentBelow
```

```
\ekmScript #'accent #'((#xE4A0 1) . (#xE4A1 1))
```

```
U+F42A articAccentAboveLarge
```

```
U+F42B articAccentBelowLarge
```

```
\ekmScript #'accent #'((#xE4A0 2) . (#xE4A1 2))
```

```
U+F532 articAccentAboveRossini
```

```
U+F533 articAccentBelowRossini
```



```
\ekmScript #'accent #'(#xE4B0 . #xE4B1)
```

```
U+E4B0 articAccentStaccatoAbove
```

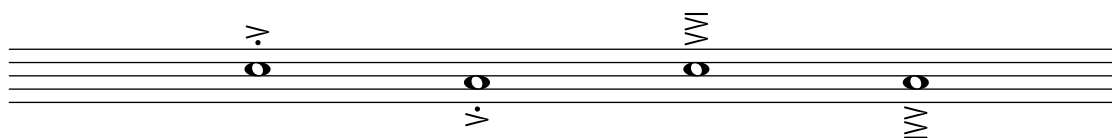
```
U+E4B1 articAccentStaccatoBelow
```

```
\ekmScript #'accent #'((#xE4A4 #xE4A0 #xE4A0) .
```

```
(#xE4A5 #xE4A1 #xE4A1))
```

```
U+F698 articTenutoDoubleAccentAbove
```

```
U+F699 articTenutoDoubleAccentBelow
```

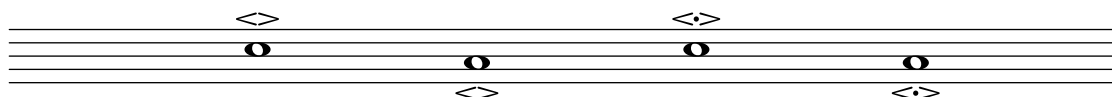


```
\espressivo
U+ED40 articSoftAccentAbove
U+ED41 articSoftAccentBelow
```

```
\ekmScript #'espressivo #'(#xED42 . #xED43)
```

```
U+ED42 articSoftAccentStaccatoAbove
```

```
U+ED43 articSoftAccentStaccatoBelow
```



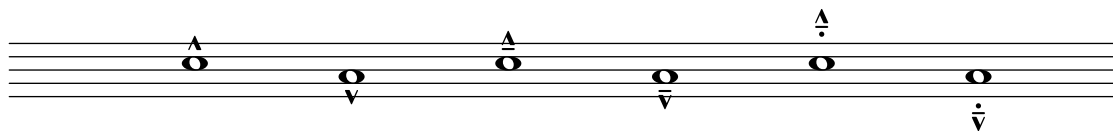
```

\marcato                U+E4AC  articMarcatoAbove
                        U+E4AD  articMarcatoBelow

\ekmScript #'marcato #'(#xE4BC . #xE4BD)
                        U+E4BC  articMarcatoTenutoAbove
                        U+E4BD  articMarcatoTenutoBelow

\ekmScript #'portato #'((#xE4AC #xE4A4 #xE4A2) .
                        (#xE4AD #xE4A5 #xE4A3))
                        U+F692  articMarcatoTenutoStaccatoAbove
                        U+F693  articMarcatoTenutoStaccatoBelow

```

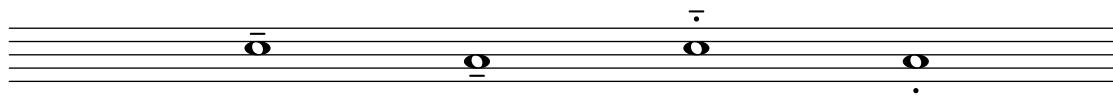


```

\tenuto                 U+E4A4  articTenutoAbove
                        U+E4A5  articTenutoBelow

\portato                U+E4B2  articTenutoStaccatoAbove
                        U+E4B3  articTenutoStaccatoBelow

```



```

\staccato               U+E4A2  articStaccatoAbove
                        U+E4A3  articStaccatoBelow

\staccatissimo          U+E4A6  articStaccatissimoAbove
                        U+E4A7  articStaccatissimoBelow

\ekmScript #'staccatissimo #'(#xE4A8 . #xE4A9)
                        U+E4A8  articStaccatissimoWedgeAbove
                        U+E4A9  articStaccatissimoWedgeBelow

\ekmScript #'staccatissimo #'(#xE4AA . #xE4AB)
                        U+E4AA  articStaccatissimoStrokeAbove
                        U+E4AB  articStaccatissimoStrokeBelow

```

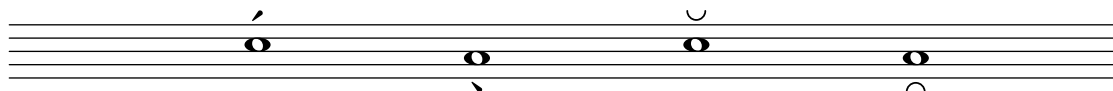


```

\ekmScript #'accent #'(#xE4B6 . #xE4B7)
                        U+E4B6  articStressAbove
                        U+E4B7  articStressBelow

\ekmScript #'accent #'(#xE4B8 . #xE4B9)
                        U+E4B8  articUnstressAbove
                        U+E4B9  articUnstressBelow

```

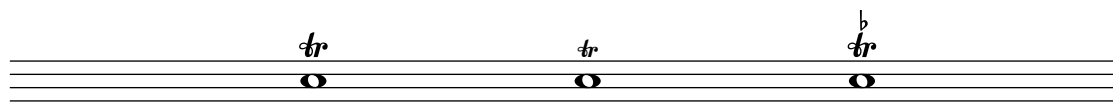


Ornamentations

`\trill` U+E566 ornamentTrill

`\ekmScriptSmall #'trill ##xE566`
U+E566 ornamentTrill

`\ekmScript #'trill #'((#xE260 #xE566))`
U+F5BD ornamentTrillFlatAbove

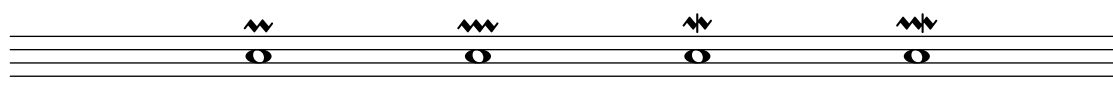


`\prall` U+E56C ornamentShortTrill

`\prallprall` U+E56E ornamentTremblement

`\mordent` U+E56D ornamentMordent

`\prallmordent` U+E5BD ornamentPrecompTrillWithMordent



`\upprall` U+E59A ornamentBottomLeftConcaveStroke

U+E59D ornamentZigZagLineNoRightEnd

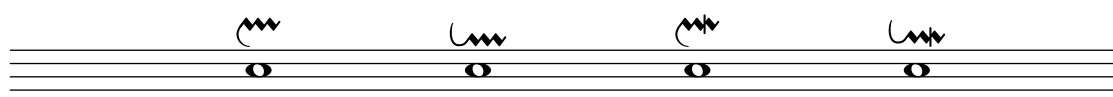
U+E59D ornamentZigZagLineNoRightEnd

U+E59E ornamentZigZagLineWithRightEnd

`\downprall` U+E5C6 ornamentPrecompMordentUpperPrefix

`\upmordent` U+E5B8 ornamentPrecompSlideTrillBach

`\downmordent` U+E5C7 ornamentPrecompInvertedMordentUpperPrefix



`\prallup` U+E59D ornamentZigZagLineNoRightEnd

U+E59D ornamentZigZagLineNoRightEnd

U+E59D ornamentZigZagLineNoRightEnd

U+E5A4 ornamentRightVerticalStroke

`\pralldown` U+E5C8 ornamentPrecompTrillLowerSuffix

`\lineprall` U+E5B2 ornamentPrecompAppoggTrill



`\turn` U+E567 ornamentTurn

`\reverseturn` U+E568 ornamentTurnInverted

`\slashturn` U+E569 ornamentTurnSlash

`\haydnturn` U+E56F ornamentHaydn

`\ekmScript #'turn ##xE56A`

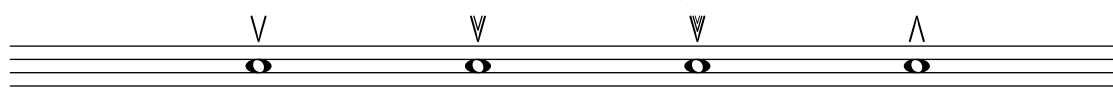
U+E56A ornamentTurnUp

`\ekmScript #'turn #'((#xE260 #xE567 #xE262))`
U+F5C1 ornamentTurnFlatAboveSharpBelow

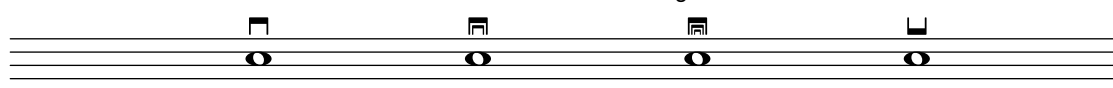


Performance indications

| | | |
|---|--------|----------------------------------|
| <code>\upbow</code> | U+E612 | stringsUpBow |
| <code>\ekmScript #'upbow ##xE61C</code> | U+E61C | stringsOverpressureUpBow |
| <code>\ekmScript #'upbow ##xE61E</code> | U+E61E | stringsOverpressurePossibleUpBow |
| <code>\ekmScript #'upbow ##xE613</code> | U+E613 | stringsUpBowTurned |



| | | |
|---|--------|------------------------------------|
| <code>\downbow</code> | U+E610 | stringsDownBow |
| <code>\ekmScript #'downbow ##xE61B</code> | U+E61B | stringsOverpressureDownBow |
| <code>\ekmScript #'downbow ##xE61D</code> | U+E61D | stringsOverpressurePossibleDownBow |
| <code>\ekmScript #'downbow ##xE611</code> | U+E611 | stringsDownBowTurned |



| | | |
|--|--------|----------------------------------|
| <code>\ekmScript #'downbow ##xE626</code> | U+E626 | stringsChangeBowDirection |
| <code>\ekmScript #'downbow #'((#xE626 1))</code> | U+F431 | stringsChangeBowDirectionLiga |
| <code>\ekmScript #'downbow #'((#xE626 2))</code> | U+F43E | stringsChangeBowDirectionImposed |



| | | |
|---|--------|--------------------------------|
| <code>\ekmScript #'upbow ##xE61F</code> | U+E61F | stringsOverpressureNoDirection |
| <code>\ekmScript #'downbow #'(#xE620 . #xE621)</code> | U+E620 | stringsJeteAbove |
| | U+E621 | stringsJeteBelow |



| | | |
|---|--------|-------------------------|
| <code>\flageolet</code> | U+E614 | stringsHarmonic |
| <code>\ekmScriptSmall #'flageolet ##xE614</code> | U+E614 | stringsHarmonic |
| <code>\open</code> | U+F63C | stringsOpen |
| <code>\halfopen</code> | U+F63D | stringsHalfOpen |
| <code>#(make-articulation 'halfopenvertical)</code> | U+F63E | stringsHalfOpenVertical |

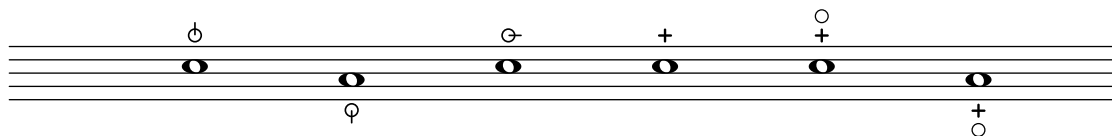


\snappizzicato U+E631 pluckedSnapPizzicatoAbove
 U+E630 pluckedSnapPizzicatoBelow

\ekmScript #'snappizzicato ##xE632
 U+E632 pluckedBuzzPizzicato

\stopped U+E633 pluckedLeftHandPizzicato

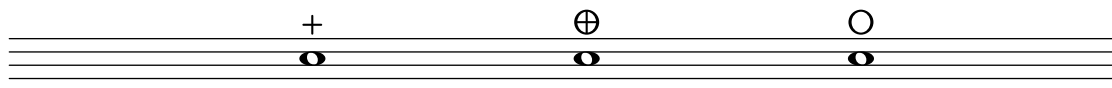
\ekmScript #'stopped #'((#xE614 #xE633) .
 (#xE633 #xE614))
 U+F6AD pluckedLeftHandPizzicatoHarmonicAbove
 U+F6AE pluckedLeftHandPizzicatoHarmonicBelow



\ekmScript #'stopped ##xE5E5
 U+E5E5 brassMuteClosed

\ekmScript #'halfopen ##xE5E6
 U+E5E6 brassMuteHalfClosed

\ekmScript #'open ##xE5E7
 U+E5E7 brassMuteOpen



\lheel U+E661 keyboardPedalHeel1

\rheel U+E662 keyboardPedalHeel2

\ltoe U+E664 keyboardPedalToe1

\rtoe U+E665 keyboardPedalToe2

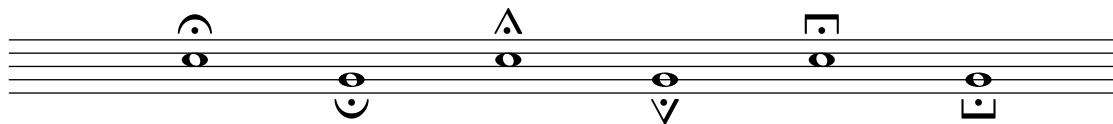
\ekmScript #'lheel ##xE663
 U+E663 keyboardPedalHeel3

\ekmScript #'rtoe ##xE674
 U+E674 keyboardPedalHeelToToe

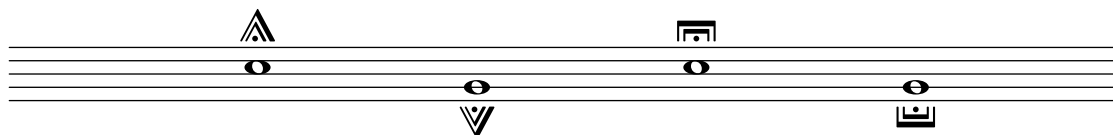


Fermatas

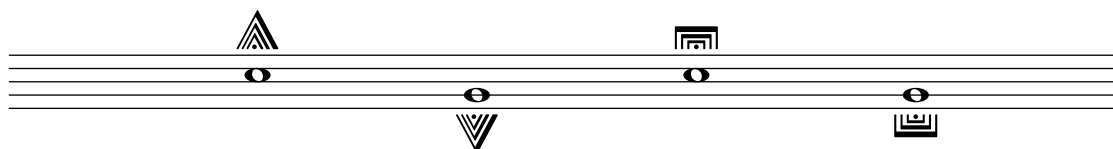
| | | |
|----------------------------|--------|-------------------|
| <code>\fermata</code> | U+E4C0 | fermataAbove |
| | U+E4C1 | fermataBelow |
| <code>\shortfermata</code> | U+E4C4 | fermataShortAbove |
| | U+E4C5 | fermataShortBelow |
| <code>\longfermata</code> | U+E4C6 | fermataLongAbove |
| | U+E4C7 | fermataLongBelow |



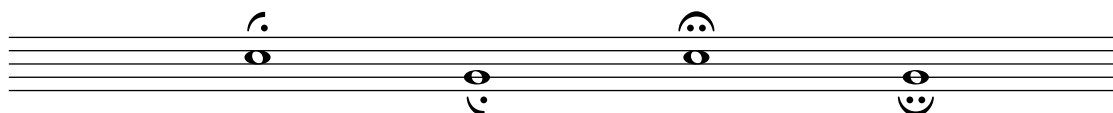
| | | |
|--------------------------------|--------|-----------------------|
| <code>\veryshortfermata</code> | U+E4C2 | fermataVeryShortAbove |
| | U+E4C3 | fermataVeryShortBelow |
| <code>\verylongfermata</code> | U+E4C8 | fermataVeryLongAbove |
| | U+E4C9 | fermataVeryLongBelow |



| | | |
|---|--------|------------------------|
| <code>\ekmScript #'veryshortfermata #'</code> (#xF69E . #xF69F) | U+F69E | fermataExtraShortAbove |
| | U+F69F | fermataExtraShortBelow |
| <code>\ekmScript #'verylongfermata #'</code> (#xF6A0 . #xF6A1) | U+F6A0 | fermataExtraLongAbove |
| | U+F6A1 | fermataExtraLongBelow |

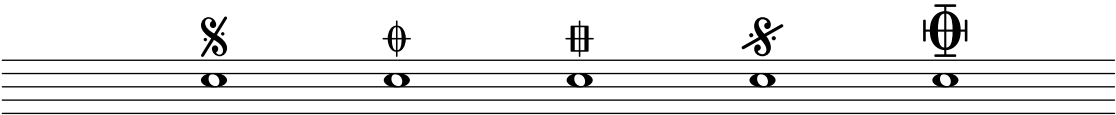


| | | |
|---------------------------------|--------|------------------------|
| <code>\henzeshortfermata</code> | U+E4CC | fermataShortHenzeAbove |
| | U+E4CD | fermataShortHenzeBelow |
| <code>\henzelongfermata</code> | U+E4CA | fermataLongHenzeAbove |
| | U+E4CB | fermataLongHenzeBelow |



Repeat signs

| | | |
|--|--------|---------------|
| <code>\segno</code> | U+E047 | segno |
| <code>\coda</code> | U+E048 | coda |
| <code>\varcoda</code> | U+E049 | codaSquare |
| <code>\ekmScript #'segno #'((#xE047 1))</code> | U+F404 | segnoJapanese |
| <code>\ekmScript #'coda #'((#xE048 1))</code> | U+F405 | codaJapanese |



Trill spans and pitches

`\ekmSmuflOn #'trill`

Draw SMuFL trill spans (trills with extender lines) and trill pitches.

`\ekmStartTrillSpan TEMPO`

Start a trill span. TEMPO is an integer in the range -4 thru 4 from slowest to fastest, i.e. from longest to shortest width of the extender line segments. [[Ly](#)]

`\startTrillSpan` is equivalent to `\ekmStartTrillSpan #0`

| | | |
|----|--------|---------------|
| #0 | U+E566 | ornamentTrill |
| | U+EAA4 | wiggleTrill |

| | | |
|-----|--------|------------------------|
| #-4 | U+EAA8 | wiggleTrillSlowest |
| #-3 | U+EAA7 | wiggleTrillSlowerStill |
| #-2 | U+EAA6 | wiggleTrillSlower |
| #-1 | U+EAA5 | wiggleTrillSlow |

| | | |
|----|--------|------------------------|
| #1 | U+EAA3 | wiggleTrillFast |
| #2 | U+EAA2 | wiggleTrillFaster |
| #3 | U+EAA1 | wiggleTrillFasterStill |
| #4 | U+EAA0 | wiggleTrillFastest |

`\ekmPitchedTrill NOTEHEAD-STYLE PARENS-STYLE`
`MAIN-NOTE AUXILIARY-NOTE`

Draw a trill pitch. For NOTEHEAD-STYLE see [Noteheads](#) . PARENS-STYLE can be one of the following symbols. Variable accidentals for auxiliary notes are supported by [Ekmelily](#) . [[Err](#)]

| | | |
|---------|--------|------------------------|
| default | U+E26A | accidentalParensLeft |
| | U+E26B | accidentalParensRight |
| bracket | U+E26C | accidentalBracketLeft |
| | U+E26D | accidentalBracketRight |
| brace | U+F6D4 | accidentalBraceLeft |
| | U+F6D5 | accidentalBraceRight |
| angle | U+F6D6 | accidentalAngleLeft |
| | U+F6D7 | accidentalAngleRight |

Laissez vibrer

```
\ekmSmuflOn #'lv
```

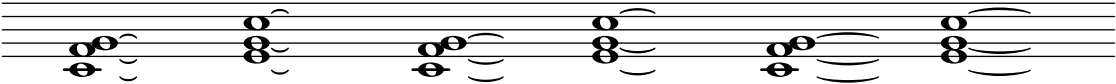
Draw SMuFL laissez vibrer ties.

```
\ekmLaissezVibrer SIZE
```

Draw a laissez vibrer tie after a note. SIZE is an integer in the range 0 thru 2. [Ly]

```
\laissezVibrer is equivalent to \ekmLaissezVibrer #0
```

| | | |
|----|--------|----------------------------------|
| #0 | U+E4BA | articLaissezVibrerAbove |
| | U+E4BB | articLaissezVibrerBelow |
| #1 | U+F6FC | articLaissezVibrerAboveLong |
| | U+F6FD | articLaissezVibrerBelowLong |
| #2 | U+F6FE | articLaissezVibrerAboveExtraLong |
| | U+F6FF | articLaissezVibrerBelowExtraLong |

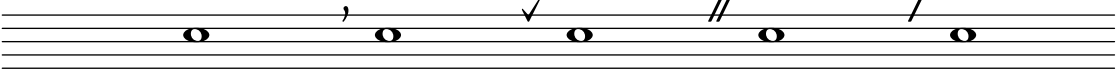


Breathing signs and caesuras

\ekmBreathing EXTEXT

Draw a breathing sign or caesura from EXTEXT .

| | | |
|----------------|--------|--------------------------|
| ##xE4CE | U+E4CE | breathMarkComma |
| ##xE4CF | U+E4CF | breathMarkTick |
| ##xE4D1 | U+E4D1 | caesura |
| #' (##xE4D1 1) | U+F42C | caesuraSlashSingleStroke |

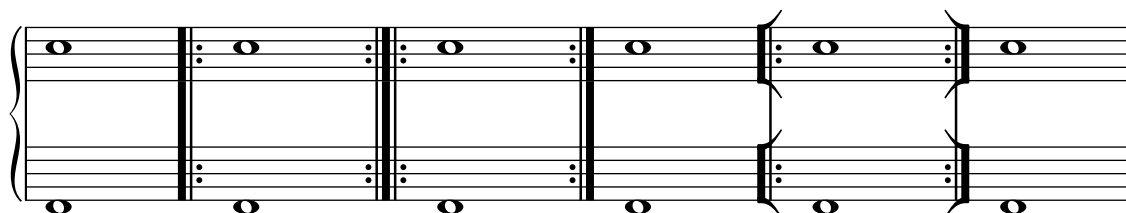


Colon bar lines

```
\ekmSmuflOn #'colon
```

Draw SMuFL colon (repeat) bar lines. Note that `colon` is set independently of a context and cannot be turned off. Therefore, the SMuFL colon symbol is also drawn at the segno bar lines on the next page.

```
\bar ".|:"           U+E043   repeatDots
\bar ":|.|:"
\bar ":|."
\bar "[|:"
\bar "[:|]"
```

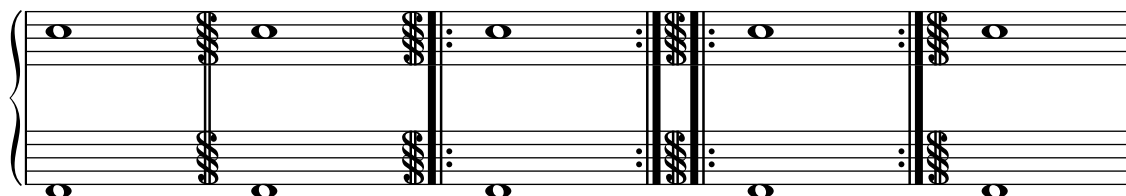


Segno bar lines

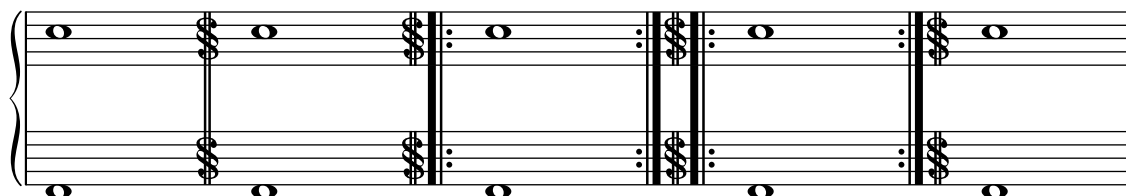
\ekmSmuflOn #'segno

Draw SMuFL segno bar lines. Note that `segno` is set independently of a context and cannot be turned off.

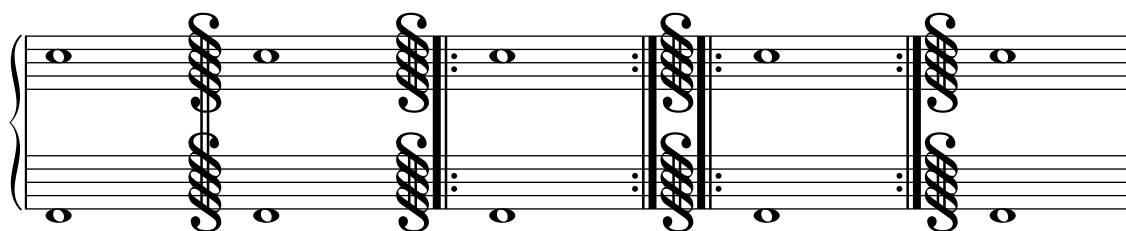
```
\bar "S"                                U+E04A  segnoSerpent1
\bar "S. | :-S"
\bar " : | .S. | :-S"
\bar " : | .S-S"
```



```
\bar "s"                                U+F6C8  segnoSerpentSmall1
\bar "s. | :-s"
\bar " : | .s. | :-s"
\bar " : | .s-s"
```



```
\bar "$"                                U+F6CA  segnoSerpentLarge1
\bar "$. | :- $"
\bar " : | .$. | :- $"
\bar " : | .$.-$"
```



Percent repeats

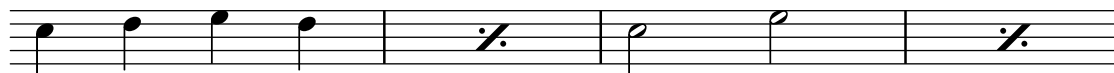
\ekmSmuflOn #'percent

Draw SMuFL percent repeats.

\repeat percent 4 {...} U+E504 repeatBarSlash



\repeat percent 2 {...} U+E500 repeat1Bar



\repeat percent 2 {...} U+E501 repeat2Bars



Tremolo marks

`\ekmSmuflOn #'tremolo`

Draw SMuFL tremolo marks on stems. The style (shape) can be one of the following symbols. Note: The symbol `ekm` is used internally by `\ekmTremolo` (see below).

| | | | |
|-----------|------|--------|----------|
| beam-like | :8 | U+E220 | tremolo1 |
| | :16 | U+E221 | tremolo2 |
| | :32 | U+E222 | tremolo3 |
| | :64 | U+E223 | tremolo4 |
| | :128 | U+E224 | tremolo5 |



| | | | |
|----------|------|--------|------------------|
| fingered | :8 | U+E225 | tremoloFingered1 |
| | :16 | U+E226 | tremoloFingered2 |
| | :32 | U+E227 | tremoloFingered3 |
| | :64 | U+E228 | tremoloFingered4 |
| | :128 | U+E229 | tremoloFingered5 |



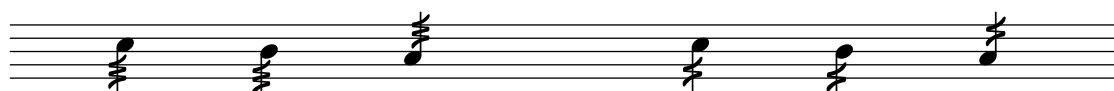
`\ekmTremolo EXTEXT MUSIC`

Draw a tremolo mark from [EXTEXT](#) on the stems of the tremolo notes in **MUSIC**, independent of the subdivision `:N`. The following names (strings) draw predefined symbols. A list of code points or a markup is centered horizontally, while a single code point is assumed being a centered stem decoration. [\[Ly \]](#)

| | | |
|-------------|--------|--------------------|
| buzzroll | U+E22A | buzzRoll |
| penderecki | U+E22B | pendereckiTremolo |
| stockhausen | U+E232 | stockhausenTremolo |

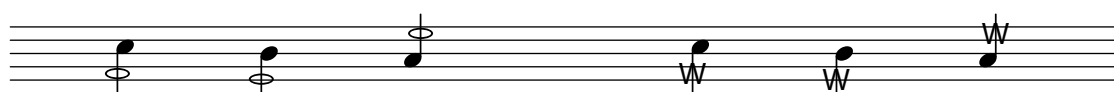


| | | |
|-------------|--------|-------------------------|
| unmeasured | U+E22C | unmeasuredTremolo |
| unmeasuredS | U+E22D | unmeasuredTremoloSimple |



| | | |
|----------------------|--------|----------------------|
| <code>##xE233</code> | U+E233 | oneHandedRollStevens |
|----------------------|--------|----------------------|

`\markup { \sans "W" }`



Symbols on stem (stem decoration)

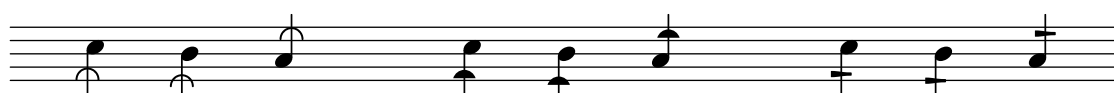
\ekmStem EXTEXT MUSIC

Draw a symbol from **EXTEXT** vertically centered on the stems in **MUSIC**. The following names (strings) draw predefined symbols. A list of code points or a markup is centered horizontally, while a single code point is assumed being a centered stem decoration.

| | | |
|--------------|--------|-------------------|
| sprechgesang | U+E645 | vocalSprechgesang |
| halbGesungen | U+E64B | vocalHalbGesungen |
| sussurando | U+E646 | vocalsSussurando |



| | | |
|-----------------|--------|------------------------|
| bowBehindBridge | U+E618 | stringsBowBehindBridge |
| bowOnBridge | U+E619 | stringsBowOnBridge |
| bowOnTailpiece | U+E61A | stringsBowOnTailpiece |



| | | |
|---------|--------|---------------------|
| fouette | U+E622 | stringsFouette |
| vibrato | U+E623 | stringsVibratoPulse |
| damp | U+E63B | pluckedDampOnStem |



| | | |
|--------------|--------|---------------------------|
| stringNoise | U+E694 | harpStringNoiseStem |
| multiphonics | U+E607 | windMultiphonicsBlackStem |
| deadNote | U+E80D | pictDeadNoteStem |



| | | |
|---------|--------|-------------------|
| crush | U+E80C | pictCrushStem |
| rimShot | U+E7FD | pictRimShotOnStem |
| swish | U+E808 | pictSwishStem |

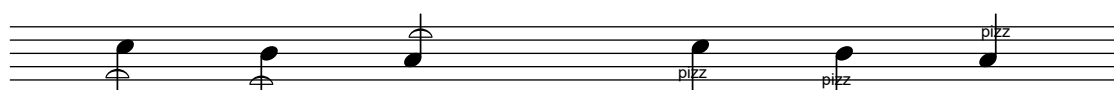


| | | |
|---------------|--------|-----------------------|
| turnRight | U+E809 | pictTurnRightStem |
| turnLeft | U+E80A | pictTurnLeftStem |
| turnRightLeft | U+E80B | pictTurnRightLeftStem |



| | | |
|---------|--------|-------------|
| ##xF6A9 | U+F6A9 | stringsArco |
|---------|--------|-------------|



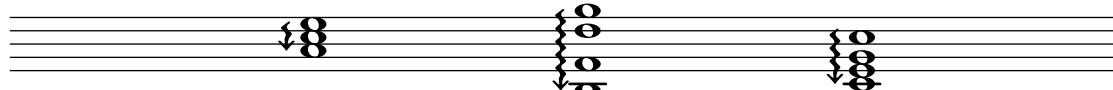
\markup { \fontsize #-5 \sans "pizz" }



Arpeggios

```
\ekmSmuflOn #'arpeggio
```

Draw SMuFL arpeggios.

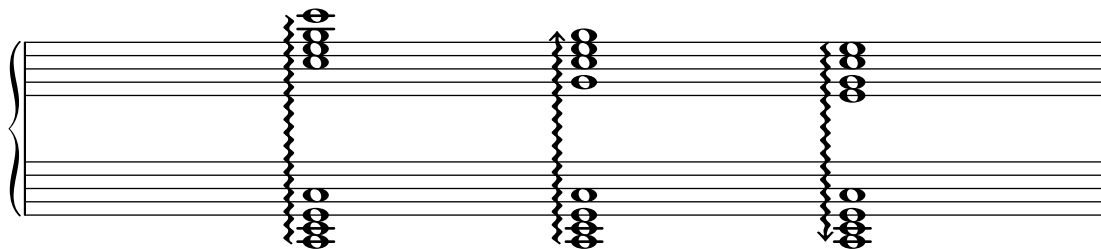
| | | |
|---|------------------|---|
| <code>\arpeggio</code> | U+EAA9 | wiggleArpeggiatoUp |
|  | | |
| <code>\arpeggioArrowUp</code> | U+EAA9 U+EAAD | wiggleArpeggiatoUp wiggleArpeggiatoUpArrow |
|  | | |
| <code>\arpeggioArrowDown</code> | U+EAAA U+EAAE | wiggleArpeggiatoDown wiggleArpeggiatoDownArrow |
|  | | |

Cross-staff arpeggios with

```
\set PianoStaff.connectArpeggios = ##t
```

Note: Instead of `\arpeggioArrowUp|Down`, they require

```
\override PianoStaff.Arpeggio.arpeggio-direction = #UP|#DOWN
```



Ottavation

The following predefined lists of ottavation texts support the octave numbers $\pm 1, 2, 3, 4$.

ekm-ottavation-numbers

| | | |
|---------|--------|--------------|
| ± 1 | U+E510 | ottava |
| ± 2 | U+E514 | quindicesima |



| | | |
|---------|--------|---------------|
| ± 3 | U+E517 | ventiduesima |
| ± 4 | U+F6F8 | ventinovesima |



ekm-ottavation-ordinals

| | | |
|----|--------|-------------------|
| 1 | U+E511 | ottavaAlta |
| -1 | U+E512 | ottavaBassa |
| 2 | U+E515 | quindicesimaAlta |
| -2 | U+E516 | quindicesimaBassa |



| | | |
|----|--------|--------------------|
| 3 | U+E518 | ventiduesimaAlta |
| -3 | U+E519 | ventiduesimaBassa |
| 4 | U+F6F9 | ventinovesimaAlta |
| -4 | U+F6FA | ventinovesimaBassa |



ekm-ottavation-simple-ordinals

| | | |
|----|--------|---------------------|
| 1 | U+E510 | ottava |
| | U+EC97 | octaveBaselineV |
| | U+EC91 | octaveBaselineA |
| -1 | U+E51C | ottavaBassaVb |
| 2 | U+E514 | quindicesima |
| | U+EC95 | octaveBaselineM |
| | U+EC91 | octaveBaselineA |
| -2 | U+E51D | quindicesimaBassaMb |



| | | |
|----|--------|----------------------|
| 3 | U+E517 | ventiduesima |
| | U+EC95 | octaveBaselineM |
| | U+EC91 | octaveBaselineA |
| -3 | U+E51E | ventiduesimaBassaMb |
| 4 | U+F6F8 | ventinovesima |
| | U+EC95 | octaveBaselineM |
| | U+EC91 | octaveBaselineA |
| -4 | U+F6FB | ventinovesimaBassaMb |



ekm-ottavation-ordinals-b

| | | |
|----|--------|---------------------|
| 1 | U+E511 | ottavaAlta |
| -1 | U+E51C | ottavaBassaVb |
| 2 | U+E515 | quindicesimaAlta |
| -2 | U+E51D | quindicesimaBassaMb |



| | | |
|----|--------|----------------------|
| 3 | U+E518 | ventiduesimaAlta |
| -3 | U+E51E | ventiduesimaBassaMb |
| 4 | U+F6F9 | ventinovesimaAlta |
| -4 | U+F6FB | ventinovesimaBassaMb |



ekm-ottavation-ordinals-bassa

| | | |
|----|--------|-------------------|
| 1 | U+E511 | ottavaAlta |
| -1 | U+E512 | ottavaBassa |
| | U+2009 | thinspace |
| | U+E51F | octaveBassa |
| 2 | U+E515 | quindicesimaAlta |
| -2 | U+E516 | quindicesimaBassa |
| | U+2009 | thinspace |
| | U+E51F | octaveBassa |



| | | |
|----|--------|--------------------|
| 3 | U+E518 | ventiduesimaAlta |
| -3 | U+E519 | ventiduesimaBassa |
| | U+2009 | thinspace |
| | U+E51F | octaveBassa |
| 4 | U+F6F9 | ventinovesimaAlta |
| -4 | U+F6FA | ventinovesimaBassa |
| | U+2009 | thinspace |
| | U+E51F | octaveBassa |



ekm-ottavation-ordinals-ba

| | | |
|----|--------|------------------|
| 1 | U+E511 | ottavaAlta |
| -1 | U+E513 | ottavaBassaBa |
| 2 | U+E515 | quindicesimaAlta |
| -2 | U+E514 | quindicesima |
| | U+EC93 | octaveBaselineB |
| | U+EC91 | octaveBaselineA |



| | | |
|----|--------|-------------------|
| 3 | U+E518 | ventiduesimaAlta |
| -3 | U+E517 | ventiduesima |
| | U+EC93 | octaveBaselineB |
| | U+EC91 | octaveBaselineA |
| 4 | U+F6F9 | ventinovesimaAlta |
| -4 | U+F6F8 | ventinovesima |
| | U+EC93 | octaveBaselineB |
| | U+EC91 | octaveBaselineA |



ekm-ottavation-numbers-ba

- 1 U+E510 ottava
- 1 U+E513 ottavaBassaBa
- 2 U+E514 quindicesima
- 2 U+E514 quindicesima
- U+EC93 octaveBaselineB
- U+EC91 octaveBaselineA

8

15

8ba15ba

- 3 U+E517 ventiduesima
- 3 U+E517 ventiduesima
- U+EC93 octaveBaselineB
- U+EC91 octaveBaselineA
- 4 U+F6F8 vintinovesima
- 4 U+F6F8 vintinovesima
- U+EC93 octaveBaselineB
- U+EC91 octaveBaselineA

22

29

22ba29ba

Note: According to the implementation notes of SMuFL Octaves, the suffixes *vb* and *mb* as used in ekm-ottavation-simple-ordinals and ekm-ottavation-ordinals-b are corruptions of the more correct forms *va bassa* and *ma bassa* as used in ekm-ottavation-ordinals-bassa . The recommended abbreviation for *8va bassa* is *8ba* as used in ekm-ottavation-ordinals-ba and ekm-ottavation-numbers-ba .

\ekm-ottavation DEFINITION

Draw an ottavation text as markup. **DEFINITION** may consist of the following keys.

| | | | |
|-------|------------------------|--------|-------------------------|
| 8 | 8 | U+E510 | ottava |
| 8^va | 8^{va} | U+E511 | ottavaAlta |
| 8va | 8_{va} | U+E512 | ottavaBassa |
| 8ba | 8_{ba} | U+E513 | ottavaBassaBa |
| 8vb | 8_{vb} | U+E51C | ottavaBassaVb |
| 8^vb | 8^{vb} | U+F652 | ottavaBassaSupVb |
| 15 | 15 | U+E514 | quindicesima |
| 15^ma | 15^{ma} | U+E515 | quindicesimaAlta |
| 15ma | 15_{ma} | U+E516 | quindicesimaBassa |
| 15mb | 15_{mb} | U+E51D | quindicesimaBassaMb |
| 15^mb | 15^{mb} | U+F653 | quindicesimaBassaSupMb |
| 22 | 22 | U+E517 | ventiduesima |
| 22^ma | 22^{ma} | U+E518 | ventiduesimaAlta |
| 22ma | 22_{ma} | U+E519 | ventiduesimaBassa |
| 22mb | 22_{mb} | U+E51E | ventiduesimaBassaMb |
| 22^mb | 22^{mb} | U+F654 | ventiduesimaBassaSupMb |
| 29 | 29 | U+F6F8 | ventinovesima |
| 29^ma | 29^{ma} | U+F6F9 | ventinovesimaAlta |
| 29ma | 29_{ma} | U+F6FA | ventinovesimaBassa |
| 29mb | 29_{mb} | U+F6FB | ventinovesimaBassaMb |
| 29^mb | 29^{mb} | U+F655 | ventinovesimaBassaSupMb |
| (| (| U+E51A | octaveParensLeft |
|) |) | U+E51B | octaveParensRight |
| bassa | bassa | U+E51F | octaveBassa |
| loco | loco | U+EC90 | octaveLoco |
| ^a | a | U+EC92 | octaveSuperscriptA |
| ^b | b | U+EC94 | octaveSuperscriptB |
| ^m | m | U+EC96 | octaveSuperscriptM |
| ^v | v | U+EC98 | octaveSuperscriptV |
| a | a | U+EC91 | octaveBaselineA |
| b | b | U+EC93 | octaveBaselineB |
| m | m | U+EC95 | octaveBaselineM |
| v | v | U+EC97 | octaveBaselineV |

Tuplet numbers

```
\ekmSmuflOn #'tuplet
```

Draw SMuFL tuplet numbers as numerator only. Set the first formatting function listed below, so this switch is not required if one of these functions is set explicitly.

| | | | |
|---|----------|--------|-------------|
| 0 | 0 | U+E880 | tuplet0 |
| | : | | |
| 9 | 9 | U+E889 | tuplet9 |
| : | : | U+E88A | tupletColon |

```
ekm-tuplet-number::calc-denominator-text
ekm-tuplet-number::calc-fraction-text
(ekm-tuplet-number::non-default-tuplet-denominator-text NUM)
(ekm-tuplet-number::non-default-tuplet-fraction-text NUM DENOM)
(ekm-tuplet-number::append-note-wrapper
  FUNCTION DURATION)
(ekm-tuplet-number::fraction-with-notes
  NUM-DURATION DENOM-DURATION)
(ekm-tuplet-number::non-default-fraction-with-notes
  NUM NUM-DURATION DENOM DENOM-DURATION)
```

Tuplet formatting functions. The last three draw `metronome` style notes for the specified durations.

```
(ekm-tuplet-number NUM DENOM)
```

Draw NUM:DENOM, or NUM only if DENOM is 0. Use the actual tuplet fraction for NUM or DENOM if `#f` is specified. It is called by the first four functions above, i.e. they are equivalent to:

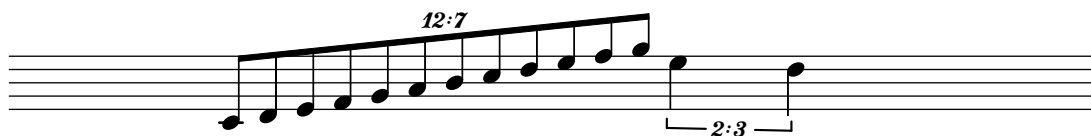
```
(ekm-tuplet-number #f 0)
(ekm-tuplet-number #f #f)
(ekm-tuplet-number NUM 0)
(ekm-tuplet-number NUM DENOM)
```

Examples:

```
ekm-tuplet-number::calc-denominator-text
```



```
ekm-tuplet-number::calc-fraction-text
```




```
(ekm-tuplet-number::append-note-wrapper
  ekm-tuplet-number::calc-fraction-text
  (ly:make-duration 2 0))
```



```
(ekm-tuplet-number::fraction-with-notes
  (ly:make-duration 2 1)
  (ly:make-duration 3 0))
```



```
(ekm-tuplet-number::non-default-fraction-with-notes
  12 (ly:make-duration 3 0)
  4 (ly:make-duration 2 0))
```



Fingering instructions

`\ekmSmuflOn #'fingering`

Draw SMuFL fingering instructions specified with a digit or with `\finger`, as well as right-hand fingerings specified with `\rightHandFinger`, using `\ekm-finger`.

`\ekm-finger DEFINITION`

Draw a fingering instruction as markup with a 5 steps larger font size intended for use in `\finger`.

DEFINITION may consist of the following keys. If the first character is *** the italic versions of digits, parentheses and brackets are drawn.

| | | | |
|--------|----------|--------|---------------------------------|
| 0 | 0 | U+ED10 | fingering0 |
| | : | | |
| 5 | 5 | U+ED15 | fingering5 |
| 6 | 6 | U+ED24 | fingering6 |
| | : | | |
| 9 | 9 | U+ED27 | fingering9 |
| *...0 | <i>0</i> | U+ED80 | fingering0Italic |
| | : | | |
| *...9 | <i>9</i> | U+ED89 | fingering9Italic |
| th | ø | U+E624 | stringsThumbPosition |
| ht | ó | U+E625 | stringsThumbPositionTurned |
| T | T | U+ED16 | fingeringTUpper |
| t | <i>t</i> | U+ED18 | fingeringTLower |
| p | <i>p</i> | U+ED17 | fingeringPLower |
| i | <i>i</i> | U+ED19 | fingeringILower |
| m | <i>m</i> | U+ED1A | fingeringMLower |
| a | <i>a</i> | U+ED1B | fingeringALower |
| c | <i>c</i> | U+ED1C | fingeringCLower |
| x | <i>x</i> | U+ED1D | fingeringXLower |
| e | <i>e</i> | U+ED1E | fingeringELower |
| o | <i>o</i> | U+ED1F | fingeringOLower |
| q | <i>q</i> | U+ED8E | fingeringQLower |
| s | <i>s</i> | U+ED8F | fingeringSLower |
| (| (| U+ED28 | fingeringLeftParenthesis |
|) |) | U+ED29 | fingeringRightParenthesis |
| [| [| U+ED2A | fingeringLeftBracket |
|] |] | U+ED2B | fingeringRightBracket |
| *... (| (| U+ED8A | fingeringLeftParenthesisItalic |
| *...) |) | U+ED8B | fingeringRightParenthesisItalic |
| *... [| [| U+ED8C | fingeringLeftBracketItalic |
| *...] |] | U+ED8D | fingeringRightBracketItalic |

| | | | |
|----|---|--------|----------------------------------|
| . | • | U+ED2C | fingeringSeparatorMiddleDot |
| , | ◦ | U+ED2D | fingeringSeparatorMiddleDotWhite |
| / | / | U+ED2E | fingeringSeparatorSlash |
| ~~ | ⤿ | U+ED20 | fingeringSubstitutionAbove |
| ~ | ⤿ | U+ED21 | fingeringSubstitutionBelow |
| - | - | U+ED22 | fingeringSubstitutionDash |
| M | [| U+ED23 | fingeringMultipleNotes |
| R | ⌊ | U+E66E | keyboardPlayWithRH |
| RE | ⌋ | U+E66F | keyboardPlayWithRHEnd |
| L | ⌈ | U+E670 | keyboardPlayWithLH |
| LE | ⌋ | U+E671 | keyboardPlayWithLHEnd |

Note: The `\thumb` command always produces normal LilyPond output. Use `\finger "th"` to draw the corresponding SMuFL glyph.

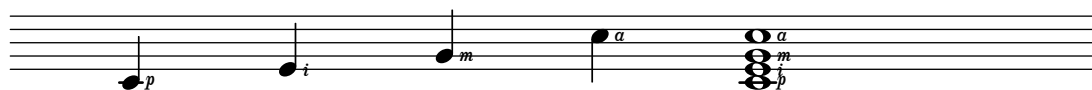
Examples:

```
-2
-\finger ...
  "4~~3"
  "* (5) "
  "th"
  "ht"
  "[s]"
  \markup \concat { "[" \ekm-finger #"s" "]" }
  "t"
  "( m/_i )"

```



```
\rightHandFinger #1 ... #4
```



String number indications

`\ekmSmuflOn #'stringnumber`

Draw SMuFL string number indications specified with `\NUMBER`, using `\ekm-string-number`.

Note: `\romanStringNumbers` overrides the SMuFL switch so that reverting with `\arabicStringNumbers` produces normal LilyPond output.

`\ekm-string-number ARG`

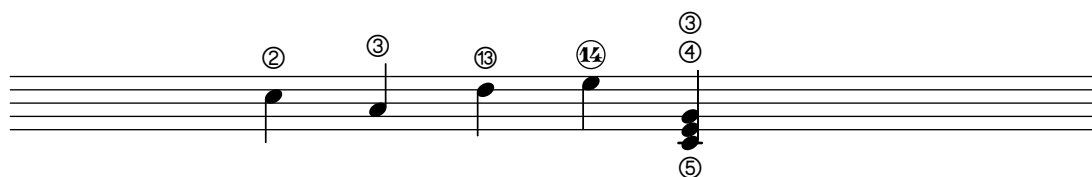
Draw a string number indication as markup. ARG is a number or string. For a number or a string representing a number, the respective SMuFL symbol is drawn if the number is in the range 0 thru 13, else the number itself is drawn with a circle around. Any other string, e.g. a Roman numeral, is drawn in italic style.

| | | | |
|----|---|--------|----------------|
| 0 | ① | U+E833 | guitarString0 |
| | : | | |
| 9 | ⑨ | U+E83C | guitarString9 |
| 10 | ⑩ | U+E84A | guitarString10 |
| | : | | |
| 13 | ⑬ | U+E84D | guitarString13 |

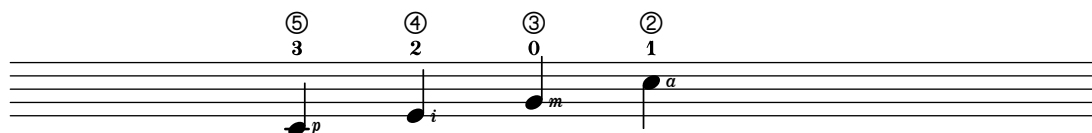
Examples:

The second staff combines SMuFL left-hand fingerings, string number indications, and right-hand fingerings, which requires `\ekmSmuflOn #'(fingering stringnumber)`.

```
c\2
a\3
d\13
e\14
< c,\5 e\4 g\3 >
```



```
< c -3 \5 \rightHandFinger #1 >
< e -2 \4 \rightHandFinger #2 >
< g -0 \3 \rightHandFinger #3 >
< c -1 \2 \rightHandFinger #4 >
```































Piano pedals

\ekmSmuflOn #'pedal

Draw SMuFL piano pedals for sustain, sostenuto, and una corda, using \ekm-piano-pedal.

\ekm-piano-pedal DEFINITION

Draw piano pedal symbols as markup. **DEFINITION** may consist of the following keys.

| | | | |
|----------|---|--------|-------------------------------|
| Ped. |  | U+E650 | keyboardPedalPed |
| Ped |  | U+F434 | keyboardPedalPedNoDot |
| P |  | U+E651 | keyboardPedalP |
| e |  | U+E652 | keyboardPedalE |
| d |  | U+E653 | keyboardPedalD |
| Sost. |  | U+E659 | keyboardPedalSost |
| Sost |  | U+F435 | keyboardPedalSostNoDot |
| Sos. |  | U+F6D1 | keyboardPedalSos2 |
| sos. |  | U+F6D0 | keyboardPedalSos |
| S |  | U+E65A | keyboardPedalS |
| unacorda | <i>una corda</i> | U+F6CC | keyboardPedalUnaCorda |
| trecorde | <i>tre corde</i> | U+F6CD | keyboardPedalTreCorde |
| u.c. | <i>u.c.</i> | U+F6CE | keyboardPedalUC |
| t.c. | <i>t.c.</i> | U+F6CF | keyboardPedalTC |
| . |  | U+E654 | keyboardPedalDot |
| - |  | U+E658 | keyboardPedalHyphen |
| * |  | U+E655 | keyboardPedalUp |
| o |  | U+E65D | keyboardPedalUpSpecial |
| , |  | U+E65B | keyboardPedalHalf2 |
| ' |  | U+E65C | keyboardPedalHalf3 |
| H |  | U+E656 | keyboardPedalHalf |
| ^ |  | U+E657 | keyboardPedalUpNotch |
| 1/2Ped |  | U+F6B0 | keyboardPedalHalf4 |
| 1/4 |  | U+F6BA | keyboardPedalPosQuarter |
| 1/2 |  | U+F6BB | keyboardPedalPosHalf |
| 3/4 |  | U+F6BC | keyboardPedalPosThreeQuarters |
| 1 |  | U+F6BD | keyboardPedalPosFull |
| l |  | U+E65E | keyboardLeftPedalPictogram |
| m |  | U+E65F | keyboardMiddlePedalPictogram |
| r |  | U+E660 | keyboardRightPedalPictogram |
| (|  | U+E676 | keyboardPedalParensLeft |
|) |  | U+E677 | keyboardPedalParensRight |

Examples:

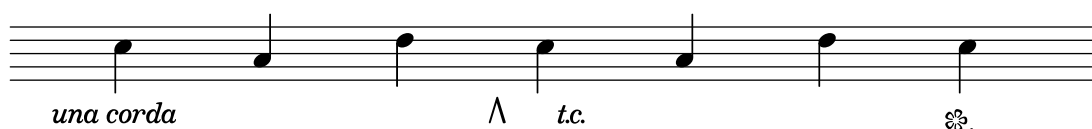
```
\set Staff.pedalSustainStrings =
  #'("Ped" ", |1/4" "*")
```



```
\set Staff.pedalSostenutoStyle = #'text
\set Staff.pedalSostenutoStrings =
  #'("Sost-P" "(" "S__*")
```










```
\set Staff.pedalUnaCordaStyle = #'text
\set Staff.pedalUnaCordaStrings =
  #'("unacorda" "^____t.c." "o_.")
```



Harp pedals

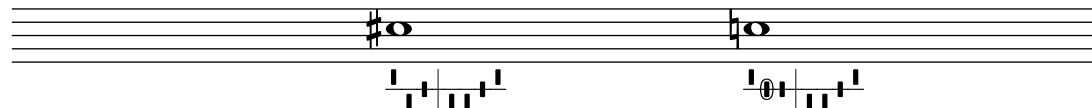
`\ekm-harp-pedal` DEFINITION

Draw a harp pedal diagram as markup, similar to `\harp-pedal` but composed of the following glyphs. Note that the glyphs for pedal changes (`o^` `o-` `ov`) are [Ekmelos](#) specific. Space characters are allowed between the keys.

| | | | |
|-----------------|---|--------|--------------------------------------|
| <code>^</code> |  | U+E680 | <code>harpPedalRaised</code> |
| <code>o^</code> |  | U+F648 | <code>harpPedalRaisedChange</code> |
| <code>-</code> |  | U+E681 | <code>harpPedalCentered</code> |
| <code>o-</code> |  | U+F649 | <code>harpPedalCenteredChange</code> |
| <code>v</code> |  | U+E682 | <code>harpPedalLowered</code> |
| <code>ov</code> |  | U+F64A | <code>harpPedalLoweredChange</code> |
| <code> </code> |  | U+E683 | <code>harpPedalDivider</code> |

Examples:






`#" ^ v - | v v - ^ "`
`#" ^ o- - | v v - ^ "`



Fret diagrams

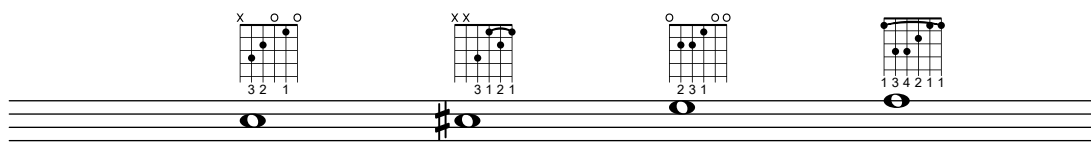
\ekm-fret-diagram-terse DEFINITION

Draw a fret diagram as markup, similar to \fret-diagram-terse but composed of the following glyphs and simplified, i.e. the properties `fret-diagram-details`, `thickness`, `size`, and `align-dir` are ignored. Fingering is always placed below.

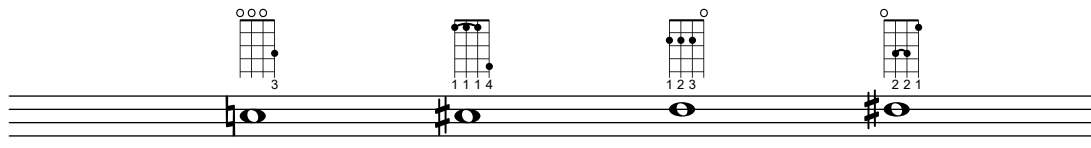
| | | | |
|---|---|--------|-----------------------|
| 3 |  | U+E851 | fretboard3StringNut |
| 4 |  | U+E853 | fretboard4StringNut |
| 5 |  | U+E855 | fretboard5StringNut |
| 6 |  | U+E857 | fretboard6StringNut |
| . |  | U+E858 | fretboardFilledCircle |
| x |  | U+E859 | fretboardX |
| o |  | U+E85A | fretboardO |

Examples:

```
#"x;3-3;2-2;o;1-1;o;"
#"x;x;3-3;1-1-(;2-2;1-1-);"
#"o;2-2;2-3;1-1;o;o;"
#"1-1-(;3-3;3-4;2-2;1-1;1-1-);"
```



```
#"o;o;o;3-3;"
#"1-1-(;1-1;1-1-);4-4;"
#"2-1;2-2;2-3;o;"
#"o;3-2-(;3-2-);1-1;"
```



Accordion registers

`\ekm-accordion NAME`

Draw an accordion register symbol as markup, similar to the commands in `(scm accreg)` . The name can include a prefix for the register type, separated by a space:
























- `d` Discant (default)
- `sb sb4 sb5 sb6` Standard bass, four / five / six reed
- `fb` Free bass
- `sq` Square









Most of the symbols use precomposed glyphs. The others are composed using `accdnCombRH3RanksEmpty` (U+E8C6) et al.




`\ekmAccordion NAME`









Set an accordion register symbol as a standalone music event.

This is equivalent to `<> ^ \markup \ekm-accordion NAME`

| | | | |
|----------|---|--------|------------------------------------|
| "d 1" |  | U+E8A4 | accdnRH3RanksBassoon |
| "d 10" |  | U+E8A1 | accdnRH3RanksClarinet |
| "d 11" |  | U+E8AB | accdnRH3RanksBandoneon |
| "d 1+0" |  | U+E8A2 | accdnRH3RanksUpperTremolo8 |
| "d 1+1" |  | | |
| "d 1-0" |  | U+E8A3 | accdnRH3RanksLowerTremolo8 |
| "d 1-1" |  | | |
| "d 20" |  | U+E8AE | accdnRH3RanksTwoChoirs |
| "d 21" |  | U+E8AF | accdnRH3RanksTremoloLower8ve |
| "d 2+0" |  | U+E8A6 | accdnRH3RanksViolin |
| "d 2+1" |  | U+E8AC | accdnRH3RanksAccordion |
| "d 2-0" |  | | |
| "d 2-1" |  | | |
| "d 30" |  | U+E8A8 | accdnRH3RanksAuthenticMusette |
| "d 31" |  | U+E8B1 | accdnRH3RanksDoubleTremoloLower8ve |
| "d 100" |  | U+E8A0 | accdnRH3RanksPiccolo |
| "d 101" |  | U+E8A9 | accdnRH3RanksOrgan |
| "d 110" |  | U+E8A5 | accdnRH3RanksOboe |
| "d 111" |  | U+E8AA | accdnRH3RanksHarmonium |
| "d 11+0" |  | | |
| "d 11+1" |  | | |
| "d 11-0" |  | | |
| "d 11-1" |  | | |

| | | | |
|----------|---|--------|------------------------------------|
| "d 120" |  | U+E8B0 | accdnRH3RanksTremoloUpper8ve |
| "d 121" |  | U+E8AD | accdnRH3RanksMaster |
| "d 12+0" |  | U+E8A7 | accdnRH3RanksImitationMusette |
| "d 12+1" |  | | |
| "d 12-0" |  | | |
| "d 12-1" |  | | |
| "d 130" |  | U+E8B2 | accdnRH3RanksDoubleTremoloUpper8ve |
| "d 131" |  | U+E8B3 | accdnRH3RanksFullFactory |

| | | | |
|-----------------|---|--------|------------------------|
| "sb Soprano" |  | U+E8B4 | accdnRH4RanksSoprano |
| "sb Alto" |  | U+E8B5 | accdnRH4RanksAlto |
| "sb Tenor" |  | U+E8B6 | accdnRH4RanksTenor |
| "sb Master" |  | U+E8B7 | accdnRH4RanksMaster |
| "sb Soft Bass" |  | U+E8B8 | accdnRH4RanksSoftBass |
| "sb Soft Tenor" |  | U+E8B9 | accdnRH4RanksSoftTenor |
| "sb Bass/Alto" |  | U+E8BA | accdnRH4RanksBassAlto |

| | | | |
|----------------------|---|--------|------------------------|
| "sb4 Soprano" |  | U+E8B4 | accdnRH4RanksSoprano |
| "sb4 Alto" |  | U+E8B5 | accdnRH4RanksAlto |
| "sb4 Tenor" |  | | |
| "sb4 Master" |  | | |
| "sb4 Soft Bass" |  | | |
| "sb4 Bass/Alto" |  | U+E8BA | accdnRH4RanksBassAlto |
| "sb4 Soft Bass/Alto" |  | | |
| "sb4 Soft Tenor" |  | U+E8B9 | accdnRH4RanksSoftTenor |

| | | | |
|----------------------|--|--------|--------------------------------|
| "sb5 Bass/Alto" | | U+E8BA | accdnRH4RanksBassAlto |
| "sb5 Soft Bass/Alto" | | | |
| "sb5 Alto" | | | |
| "sb5 Tenor" | | | |
| "sb5 Master" | | | |
| "sb5 Soft Bass" | | | |
| "sb5 Soft Tenor" | | U+E8B9 | accdnRH4RanksSoftTenor |
| "sb5 Soprano" | | U+E8B4 | accdnRH4RanksSoprano |
| "sb5 Sopranos" | | | |
| "sb5 Solo Bass" | | | |
| "sb6 Soprano" | | U+E8B4 | accdnRH4RanksSoprano |
| "sb6 Alto" | | | |
| "sb6 Soft Tenor" | | U+E8B9 | accdnRH4RanksSoftTenor |
| "sb6 Master" | | U+E8B7 | accdnRH4RanksMaster |
| "sb6 Alto/Soprano" | | | |
| "sb6 Bass/Alto" | | U+E8BA | accdnRH4RanksBassAlto |
| "sb6 Soft Bass" | | U+E8B8 | accdnRH4RanksSoftBass |
| "fb 10" | | U+E8BB | accdnLH2Ranks8Round |
| "fb 1" | | U+E8BC | accdnLH2Ranks16Round |
| "fb 11" | | U+E8BD | accdnLH2Ranks8Plus16Round |
| "fb Master" | | U+E8BE | accdnLH2RanksMasterRound |
| "fb Master 1" | | U+E8BF | accdnLH2RanksMasterPlus16Round |
| "fb Master 11" | | U+E8C0 | accdnLH2RanksFullMasterRound |
| "sq 1" | | U+E8C1 | accdnLH3Ranks8Square |
| "sq 100" | | U+E8C2 | accdnLH3Ranks2Square |
| "sq 2" | | U+E8C3 | accdnLH3RanksDouble8Square |
| "sq 101" | | U+E8C4 | accdnLH3Ranks2Plus8Square |
| "sq 102" | | U+E8C5 | accdnLH3RanksTuttiSquare |

Accordion ricochet

\ekmRicochet NUMBER

Draw a ricochet symbol as an expressive mark (script). NUMBER is an integer in the range 2 thru 6. [Ly]

#2
#3
#4
#5
#6

U+E8CD
U+E8CE
U+E8CF
U+E8D0
U+E8D1

accdnRicochet2
accdnRicochet3
accdnRicochet4
accdnRicochet5
accdnRicochet6

\ekmStemRicochet NUMBER MUSIC

Draw a ricochet symbol vertically centered on the stems in MUSIC. NUMBER is an integer in the range 2 thru 6.

#2
#3
#4
#5
#6

U+E8D2
U+E8D3
U+E8D4
U+E8D5
U+E8D6

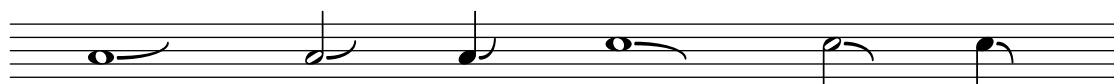
accdnRicochetStem2
accdnRicochetStem3
accdnRicochetStem4
accdnRicochetStem5
accdnRicochetStem6

Falls and doits

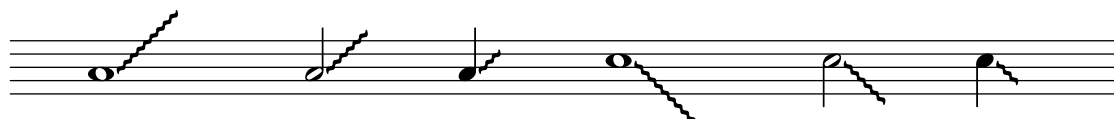
\ekmBendAfter STYLE DIRECTION

Draw a fall or doit (lift) symbol after a note. The style can be one of the following symbols. Note that only the sign of the direction is respected, contrary to \bendAfter.

| | | |
|--------------|--------|--------------------|
| #'bend #UP | U+E5D6 | brassDoitLong |
| | U+E5D5 | brassDoitMedium |
| | U+E5D4 | brassDoitShort |
| #'bend #DOWN | U+E5D9 | brassFallLipLong |
| | U+E5D8 | brassFallLipMedium |
| | U+E5D7 | brassFallLipShort |



| | | |
|---------------|--------|----------------------|
| #'rough #UP | U+E5D3 | brassLiftLong |
| | U+E5D2 | brassLiftMedium |
| | U+E5D1 | brassLiftShort |
| #'rough #DOWN | U+E5DF | brassFallRoughLong |
| | U+E5DE | brassFallRoughMedium |
| | U+E5DD | brassFallRoughShort |



| | | |
|----------------|--------|-----------------------|
| #'smooth #UP | U+E5EE | brassLiftSmoothLong |
| | U+E5ED | brassLiftSmoothMedium |
| | U+E5EC | brassLiftSmoothShort |
| #'smooth #DOWN | U+E5DC | brassFallSmoothLong |
| | U+E5DB | brassFallSmoothMedium |
| | U+E5DA | brassFallSmoothShort |



Figured bass

\ekmSmuflOn #'fbass

Draw SMuFL bass figures with \figuremode. Some raised / diminished figures use precomposed glyphs which ignore the property figuredBassPlusDirection.

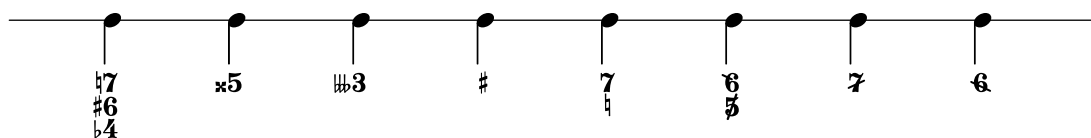
| | | | |
|-----|------------|--------|--------------------------|
| 0 | 0 | U+EA50 | figbass0 |
| 1 | 1 | U+EA51 | figbass1 |
| 2 | 2 | U+EA52 | figbass2 |
| 3 | 3 | U+EA54 | figbass3 |
| 4 | 4 | U+EA55 | figbass4 |
| 5 | 5 | U+EA57 | figbass5 |
| 6 | 6 | U+EA5B | figbass6 |
| 7 | 7 | U+EA5D | figbass7 |
| 8 | 8 | U+EA60 | figbass8 |
| 9 | 9 | U+EA61 | figbass9 |
| ! | ♮ | U+EA65 | figbassNatural |
| - | ♭ | U+EA64 | figbassFlat |
| + | ♯ | U+EA66 | figbassSharp |
| -- | ♭♭ | U+EA63 | figbassDoubleFlat |
| ++ | ♯♯ | U+EA67 | figbassDoubleSharp |
| --- | ♭♭♭ | U+ECC1 | figbassTripleFlat |
| +++ | ♯♯♯ | U+ECC2 | figbassTripleSharp |
| \+ | + | U+EA6C | figbassPlus |
| / | / | U+EA6D | figbassCombiningRaising |
| \\ | \ | U+EA6E | figbassCombiningLowering |
| 2\+ | 2+ | U+EA53 | figbass2Raised |
| 4\+ | 4+ | U+EA56 | figbass4Raised |
| 5\+ | 5+ | U+EA58 | figbass5Raised1 |
| 5\\ | 5 | U+EA59 | figbass5Raised2 |
| 5/ | 5 | U+EA5A | figbass5Raised3 |
| 6\\ | 6 | U+EA5C | figbass6Raised |
| 6\+ | 6 | U+EA6F | figbass6Raised2 |
| 7\+ | 7 | U+EA5E | figbass7Raised1 |
| 7\\ | 7 | U+EA5F | figbass7Raised2 |
| 7/ | 7 | U+ECC0 | figbass7Diminished |
| 9\\ | 9 | U+EA62 | figbass9Raised |

Examples:

```

< 7! 6+ 4- >
< 5++ >
< 3--- >
< + >
< 7̄! >
< 6\+ 5/ >
< 7/ >
< 6\\ >

```



```

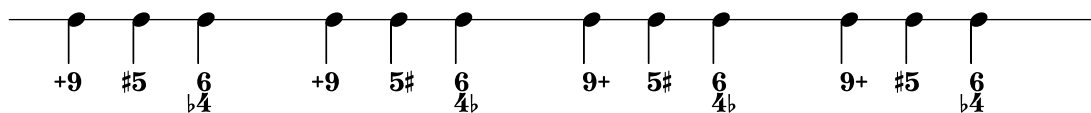
< 9\+ >
< 5+ >
< 6 4- >

```

```

with
\set figuredBassAlterationDirection = #LEFT | #RIGHT
\set figuredBassPlusDirection = #LEFT | #RIGHT

```



Lyrics

`\ekmSmuflOn #'lyric`

Draw the words in a lyric input mode (`\lyricmode` etc.) with `\ekm-tied-lyric`.

Note that the characters `_ %` must be quoted in order to be passed on to this command.

`\ekm-tied-lyric STRING`

Draw the string as markup, replacing the characters `~ _ %` with the glyphs specified below. The space between the adjoining words depends on the width of the respective glyph, while the property `word-space` is ignored. The narrow elision for single characters works with all Unicode characters, contrary to `\tied-lyric`.

| | | | |
|-----|---|--------|----------------------|
| ~ | ⸗ | U+E551 | lyricsElision |
| ~x~ | ⸘ | U+E550 | lyricsElisionNarrow |
| ~~ | ⸚ | U+E552 | lyricsElisionWide |
| _ | ⸗ | U+E553 | lyricsHyphenBaseline |
| % | ⸚ | U+E555 | lyricsTextRepeat |

Examples:

"Siam navi~all'onde~~algenti" Siam navi⸗all'onde⸗algenti

"Tutta la_vita~ē~un mar %" Tutta la_vita⸗ēun mar ⸚













{ Che~~in ques -- ta~è~in quel -- l'al -- "tr_on" -- "da %" }



Analytics symbols

\ekm-analytics DEFINITION

Draw analytics symbols as markup. **DEFINITION** may consist of the following keys.

| | | | |
|-----|---|--------|-----------------------------------|
| H |  | U+E860 | analyticsHauptstimme |
| CH |  | U+E86A | analyticsChoralmelodie |
| RH |  | U+E86B | analyticsHauptrhythmus |
| N |  | U+E861 | analyticsNebenstimme |
| [|  | U+E862 | analyticsStartStimme |
|] |  | U+E863 | analyticsEndStimme |
| Th |  | U+E864 | analyticsTheme |
| hT |  | U+E865 | analyticsThemeRetrograde |
| ihT |  | U+E866 | analyticsThemeRetrogradeInversion |
| iTh |  | U+E867 | analyticsThemeInversion |
| T |  | U+E868 | analyticsTheme1 |
| iT |  | U+E869 | analyticsInversion1 |

Function theory symbols

`\ekm-func` DEFINITION

Draw a function theory symbol as markup. **DEFINITION** is a string of the form:
 Paren Function , Bass , Soprano ^ Extra ... Paren
All parts are optional and may consist of the keys specified further below.
The bass / soprano symbol is placed below / above the function symbol.
The extra symbols are stacked vertically and raised to the right of the function symbol.
A leading / trailing parenthesis () [] { } is placed separately before / after the entire symbol.

Used properties:

- `font-size` (0) for the function symbol.
- `func-size` (-4) relative to the font size for bass, soprano, and extra symbols.
- `func-skip` (2.5) for vertical distances.
- `func-space` (0.3) for horizontal space around the function symbol.

`\ekmFunc` DEFINITION

Set a function theory symbol as a music expression, for use in a `Lyrics` context. The symbol is drawn with a 4 steps smaller font size compared to `\ekm-func` . **DEFINITION** is a string as described above, with a further optional suffix:

- Starts an extender line after the symbol.
- . Stops an extender line at the symbol.
- + Inserts the symbol between notes with `\set stanza .`
- * Dito but with the 4 steps larger font size of `\ekm-func` .

Note that the `Lyrics` context requires the `Text_spanner_engraver` to draw extender lines.

`\ekmFuncList` DEFINITION-LIST

Set a sequence of function theory symbols as music expressions, for use in a `Lyrics` context.
DEFINITION-LIST is a list of strings as for `\ekmFunc` .

| | | | |
|-----|----------------|--------|-------------------|
| T | T | U+EA8B | functionTUpper |
| Tg | T _g | | |
| Tp | T _p | | |
| t | t | U+EA8C | functionTLower |
| D | D | U+EA7F | functionDUpper |
| /D | ∅ | U+F644 | functionSlashedD |
| Dp | D _p | | |
| DD | Ⓓ | U+EA81 | functionDD |
| /DD | ∅ | U+EA82 | functionSlashedDD |
| d | d | U+EA80 | functionDLower |

| | | | |
|----|----|--------|---------------------|
| S | Š | U+EA89 | functionSUpper |
| Sg | Šg | | |
| Sp | Šp | | |
| SS | Šš | U+EA7D | functionSSUpper |
| s | š | U+EA8A | functionSLower |
| ss | šš | U+EA7E | functionSSLower |
| F | F | U+EA99 | functionFUpper |
| G | G | U+EA83 | functionGUpper |
| g | g | U+EA84 | functionGLower |
| I | I | U+EA9A | functionIUpper |
| i | i | U+EA9B | functionILower |
| K | K | U+EA9C | functionKUpper |
| k | k | U+EA9D | functionKLower |
| L | L | U+EA9E | functionLUpper |
| l | l | U+EA9F | functionLLower |
| M | M | U+ED00 | functionMUpper |
| m | m | U+ED01 | functionMLower |
| N | N | U+EA85 | functionNUpper |
| n | n | U+EA86 | functionNLower |
| P | P | U+EA87 | functionPUpper |
| p | p | U+EA88 | functionPLower |
| r | r | U+ED03 | functionRLower |
| V | V | U+EA8D | functionVUpper |
| v | v | U+EA8E | functionVLower |
| 0 | 0 | U+EA70 | functionZero |
| : | : | | |
| 9 | 9 | U+EA79 | functionNine |
| < | < | U+EA7A | functionLessThan |
| > | > | U+EA7C | functionGreaterThan |
| - | - | U+EA7B | functionMinus |
| + | + | U+EA98 | functionPlus |
| o | o | U+EA97 | functionRing |

| | | | |
|-----|-----|--------|---------------------------|
| (| (| U+EA91 | functionParensLeft |
|) |) | U+EA92 | functionParensRight |
| [| [| U+EA8F | functionBracketLeft |
|] |] | U+EA90 | functionBracketRight |
| { | < | U+EA93 | functionAngleLeft |
| } | > | U+EA94 | functionAngleRight |
| .. | .. | U+EA95 | functionRepetition1 |
| ..+ | ..+ | U+EA96 | functionRepetition2 |
| b | b | U+ED60 | csymAccidentalFlat |
| # | # | U+ED62 | csymAccidentalSharp |
| bb | bb | U+ED64 | csymAccidentalDoubleFlat |
| x | x | U+ED63 | csymAccidentalDoubleSharp |
| = | = | U+ED61 | csymAccidentalNatural |
| ~ | | | |

The keys `b` `#` `bb` `x` `=` draw standard accidentals for chord symbols.

The key `~` draws a space with the dimensions of functionZero (U+EA70) . This is especially useful for empty extra symbols.

Example 1:

Uses `\ekm-func` in text scripts to attach function theory symbols to chords and spacer rest.

Sets `\textLengthOn` and `TextScript.staff-padding` for a consistent vertical alignment.

```
\relative c' {
  \textLengthOn
  \override TextScript.staff-padding = #6
  <c e g bes>2_\markup \ekm-func "D^7 "
  <e g bes! c>_\markup \ekm-func "(D,3^7)"

  \override TextScript.staff-padding = #11
  <c e g c>4_\markup \ekm-func "T____"
  <g e' g c>_\markup \ekm-func "D^4^6"
  s_\markup \ekm-func "^-^-"
  <g d' g b>_\markup \ekm-func "^3^5"

  \key es \major
  \override TextScript.staff-padding = #7
  <g' b d>1_\markup \ekm-func "V#"
  <f as c e>_\markup \ekm-func "IV^7#"
  <ces es as!>_\markup \ekm-func "VI,b"
}
```

The musical notation shows a sequence of chords and a rest on a treble clef staff in common time. The chords are: D⁷ (D⁷₃), T, D⁴⁻⁵₄₋₃, V[#], IV^{7#}, and VI_b. The function theory symbols are placed below the chords, and the staff padding is adjusted for consistent vertical alignment.

Example 2:

Uses `\ekmFuncList` in a Lyrics context to synchronise function theory symbols to music and to ensure a consistent vertical alignment. The Lyrics context requires the `Text_spanner_engraver` and is aligned to a `NullVoice` context.

The sample is taken from lsr.di.unimi.it/LSR/Item?id=967 by Klaus Blum and adapted for Esmuflily.

```
funcSoprano = \relative c'' {
  e4 e e( d)
  c4 d d2
  d4 e8 d c4 c
  d8( c) <b g>4 c2
}

funcAltTenor = \relative c'' {
  <c g>4 <bes g> <a f>2
  <a d,>4 <c a> <c a>( <b g>)
  <b e,>2 <g e>4 <a f>
  <a d,>4 d,8( f) <g e>2
}

funcBass = \relative c {
  \clef bass
  c4 cis d2
  f4 fis g2
  gis2 bes4 a8 g
  fis4 g c,2
}

funcAligner = \relative c {
  c4 cis d d
  f4 fis g g
  gis4 gis8 gis bes4 a8 g
  fis8 fis g g c,2
}

funcSymbols = \lyricmode {
  \set stanza = #"C major:"
  \ekmFuncList #'(
    "T,,3" " (*" "/D,3^7^9>" ")*" "Sp^9-" "^8."
    "S^5^6" "(D,3^7)" "D^2^4-" "^1^3."
    "(D,3^7-" "^8" "^7." "_" [Tp] +" "(D,7)" "S,3-" " ,2."
    "DD,3^8-" "^7." "D^5-" "^7." "T"
  )
}

\layout {
  \context {
    \Lyrics
    \consists "Text_spanner_engraver"
    \override StanzaNumber.font-family = #'sans
    \override StanzaNumber.font-series = #'medium
  }
}
```

```

\new GrandStaff
<<
  \new Staff
    \new Voice \partCombine \funcSoprano \funcAltTenor

  \new Staff
  <<
    \new Voice \funcBass
    \new NullVoice = "funcaligner" \funcAligner
    \new Lyrics \lyricsto "funcaligner" \funcSymbols
  >>
>>

```

C major: $\overset{3}{T} (\overset{9}{\underset{3}{D^7}}) \overset{9}{S_p} \overset{8}{\text{---}}$ $\overset{6}{S^5} (\overset{4}{\underset{3}{D^7}}) \overset{3}{D^2} \overset{1}{\text{---}}$ $(\overset{7}{\underset{3}{D^7}} \overset{8}{\text{---}} \overset{7}{\text{---}}) [T_p] (\overset{7}{D}) \overset{3}{S} \overset{2}{\text{---}}$ $\overset{8}{\underset{3}{D^7}} \overset{7}{\text{---}} \overset{5}{D^7} \overset{7}{\text{---}} T$

Arrows and arrow heads

\ekm-arrow STYLE ORIENTATION

Draw an arrow, an arrow head, or a geometric shape according to **ORIENTATION** as markup. The style can be one of the following symbols. For most of the styles, diagonal and / or “bilateral” orientations are not supported, e.g. there are no both-sided arrow heads.

| | | | |
|----------------------|---|--------|------------------|
| black | ↑ | U+EB60 | arrowBlackUp |
| white | ↑ | U+EB68 | arrowWhiteUp |
| open | ↑ | U+EB70 | arrowOpenUp |
| simple | ↑ | U+2191 | |
| double | ⇑ | U+21D1 | |
| triple | ⇓ | U+290A | |
| quadruple | ⇓ | U+27F0 | |
| black-wide | ⇑ | U+2B06 | |
| white-wide | ⇑ | U+21E7 | |
| triangle | ↑ | U+2B61 | |
| triangle-bar | ↑ | U+2B71 | |
| two-headed | ↕ | U+2BED | |
| dashed | ⋈ | U+21E1 | |
| triangle-dashed | ⋈ | U+2B6B | |
| opposite | ↕ | U+21C5 | |
| triangle-opposite | ↕ | U+2B81 | |
| paired | ⇑ | U+21C8 | |
| triangle-paired | ⇑ | U+2B85 | |
| bent-tip | ↗ | U+21B1 | |
| long-bent-tip | ↗ | U+2BA3 | |
| curving | ↗ | U+2934 | |
| black-head | ▲ | U+EB78 | arrowheadBlackUp |
| white-head | △ | U+EB80 | arrowheadWhiteUp |
| open-head | ^ | U+EB88 | arrowheadOpenUp |
| equilateral-head | ▲ | U+2B9D | |
| three-d-head | ▲ | U+2B99 | |
| black-triangle | ▲ | U+25B2 | |
| white-triangle | △ | U+25B3 | |
| black-small-triangle | ▲ | U+25B4 | |
| white-small-triangle | ▲ | U+25B5 | |
| half-circle | ◐ | U+2BCA | |
| circle-half-black | ◑ | U+25D3 | |
| square-half-black | ◼ | U+2B12 | |
| diamond-half-black | ◼ | U+2B18 | |
| circle-quarters | ◑ | U+25D4 | |

Examples:

| ORIENTATION | #N | #NE | #E | #SE | #S | #SW | #W | #NW | #NS | #NESW | #EW | #SENW |
|-----------------|----|-----|----|-----|----|-----|----|-----|-----|-------|-----|-------|
| black | ↑ | ↗ | → | ↘ | ↓ | ↙ | ← | ↖ | ↕ | | ↔ | |
| simple | ↑ | ↗ | → | ↘ | ↓ | ↙ | ← | ↖ | ↕ | ↗↖ | ↔ | ↘↙ |
| bent-tip | ↗ | ↗ | ↗ | ↘ | ↘ | ↙ | ↙ | ↖ | | | | |
| open-head | ^ | ↗ | > | ↘ | v | ↙ | < | ↖ | | | | |
| black-triangle | ▲ | ▴ | ▶ | ▵ | ▼ | ▾ | ◀ | ▾ | | | | |
| circle-quarters | ● | | ◐ | | ◑ | | ◒ | | | | | |




























`\ekm-arrow-head` AXIS DIRECTION FILLED
Draw an arrow head as markup, i.e. `black-head` if `FILLED` is a true value, else `open-head`.














Percussion symbols

\ekm-beater STYLE ORIENTATION

























Draw a percussion beater according to **ORIENTATION** as markup. The style can be one of the following symbols. The suffix separated by – is optional. If it is not specified or unknown the first matching style in the list is drawn. Styles in the list without –... actually have the suffix `-normal` which need not be specified.

Most of the beaters have predefined glyphs for the orientations `N S NE NW`, the others only for `N S` or `N`. The remaining orientations are achieved by flipping or by rotating through 90 or 30 degrees.

| | | | |
|----------------|---|--------|------------------------------|
| xyl-soft |  | U+E770 | pictBeaterSoftXylophoneUp |
| xyl-medium |  | U+E774 | pictBeaterMediumXylophoneUp |
| xyl-hard |  | U+E778 | pictBeaterHardXylophoneUp |
| xyl-wood |  | U+E77C | pictBeaterWoodXylophoneUp |
| glsp-soft |  | U+E780 | pictBeaterSoftGlockenspielUp |
| glsp-hard |  | U+E784 | pictBeaterHardGlockenspielUp |
| timpani-soft |  | U+E788 | pictBeaterSoftTimpaniUp |
| timpani-medium |  | U+E78C | pictBeaterMediumTimpaniUp |
| timpani-hard |  | U+E790 | pictBeaterHardTimpaniUp |
| timpani-wood |  | U+E794 | pictBeaterWoodTimpaniUp |
| yarn-soft |  | U+E7A2 | pictBeaterSoftYarnUp |
| yarn-medium |  | U+E7A6 | pictBeaterMediumYarnUp |
| yarn-hard |  | U+E7AA | pictBeaterHardYarnUp |
| gum-soft |  | U+E7BB | pictGumSoftUp |
| gum-medium |  | U+E7BF | pictGumMediumUp |
| gum-hard |  | U+E7C3 | pictGumHardUp |
| bass-soft |  | U+E798 | pictBeaterSoftBassDrumUp |
| bass-medium |  | U+E79A | pictBeaterMediumBassDrumUp |
| bass-hard |  | U+E79C | pictBeaterHardBassDrumUp |
| bass-metal |  | U+E79E | pictBeaterMetalBassDrumUp |
| bass-double |  | U+E7A0 | pictBeaterDoubleBassDrumUp |
| hammer-plastic |  | U+E7CD | pictBeaterHammerPlasticUp |
| hammer-wood |  | U+E7CB | pictBeaterHammerWoodUp |
| hammer-metal |  | U+E7CF | pictBeaterHammerMetalUp |
| stick |  | U+E7E8 | pictDrumStick |
| stick-snare |  | U+E7D1 | pictBeaterSnareSticksUp |
| stick-jazz |  | U+E7D3 | pictBeaterJazzSticksUp |

| | | | |
|-----------------|---|--------|--------------------------|
| triangle |  | U+E7D5 | pictBeaterTriangleUp |
| triangle-plain |  | U+E7EF | pictBeaterTrianglePlain |
| wound-soft |  | U+E7B7 | pictWoundSoftUp |
| wound-hard |  | U+E7B3 | pictWoundHardUp |
| hand |  | U+E7E3 | pictBeaterHand |
| hand-finger |  | U+E7E4 | pictBeaterFinger |
| hand-fist |  | U+E7E5 | pictBeaterFist |
| hand-fingernail |  | U+E7E6 | pictBeaterFingernails |
| superball |  | U+E7AE | pictBeaterSuperballUp |
| metal |  | U+E7C7 | pictBeaterMetalUp |
| brass |  | U+E7D9 | pictBeaterBrassMalletsUp |
| brushes |  | U+E7D7 | pictBeaterWireBrushesUp |
| mallet |  | U+E7DF | pictBeaterMallet |

Examples:

| | | | | | | | | |
|-------------|---|---|---|---|---|---|--|---|
| ORIENTATION | #N | #NE | #E | #SE | #S | #SW | #W | #NW |
| xyl-medium |  |  |  |  |  |  |  |  |
| bass-metal |  |  |  |  |  |  |  |  |
| hand-finger |  |  |  |  |  |  |  |  |

Electronic music symbols

```
\ekm-fader LEVEL ORIENTATION
\ekm-midi LEVEL ORIENTATION
```

Draw a fader (volume control) and a MIDI controller, respectively, as markup. For the thumb position, the level is rounded to the nearest integral percent value, limited to 100. If this is a multiple of 20, the respective precomposed glyph is used. Else the empty control and the thumb glyphs are combined. Note that they are [Ekmelos](#) specific for the MIDI controller.

- LEVEL ≥ 0 is a percent value.
- LEVEL < 0 is a decibel (dB) value, e.g. -6.0 is equivalent to 50.

It is drawn as a label next to the control according to [ORIENTATION](#) or #f for no label.

Used properties:

- label-format (#f): #f uses "~a%" for percent and "~adB" for decibel values.
- font-size (0)
- label-size (-4) relative to the font size.
- padding (0.3)

| | | | |
|-----|---|--------|-------------------------|
| 0 | | U+EB2E | elecVolumeLevel0 |
| | : | | |
| 100 | | U+EB33 | elecVolumeLevel100 |
| or | | U+EB2C | elecVolumeFader |
| | | U+EB2D | elecVolumeFaderThumb |
| 0 | | U+EB36 | elecMIDIController0 |
| | : | | |
| 100 | | U+EB3B | elecMIDIController100 |
| or | | U+F6D2 | elecMIDIController |
| | | U+F6D3 | elecMIDIControllerThumb |

Examples:

| | | | | | | | | |
|-------------|---------|--------|--------|--------|------|------|-------|-------|
| ORIENTATION | #N | #NE | #E | #SE | #S | #SW | #W | #NW |
| \ekm-fader | | | | | | | | |
| | -0.18dB | -0.9dB | -2.5dB | -4.4dB | -6dB | -8dB | -17dB | -25dB |
| \ekm-midi | | | | | | | | |
| | -0.18dB | -0.9dB | -2.5dB | -4.4dB | -6dB | -8dB | -17dB | -25dB |










Other symbols

\ekm-fermata STYLE

Draw a fermata as markup. The style can be one of the following symbols.



Used property:

- direction

| | | | |
|------------|---|--------|------------------------|
| default |  | U+E4C0 | fermataAbove |
| | | U+E4C1 | fermataBelow |
| short |  | U+E4C4 | fermataShortAbove |
| | | U+E4C5 | fermataShortBelow |
| long |  | U+E4C6 | fermataLongAbove |
| | | U+E4C7 | fermataLongBelow |
| veryshort |  | U+E4C2 | fermataVeryShortAbove |
| | | U+E4C3 | fermataVeryShortBelow |
| verylong |  | U+E4C8 | fermataVeryLongAbove |
| | | U+E4C9 | fermataVeryLongBelow |
| extrashort |  | U+F69E | fermataExtraShortAbove |
| | | U+F69F | fermataExtraShortBelow |
| extralong |  | U+F6A0 | fermataExtraLongAbove |
| | | U+F6A1 | fermataExtraLongBelow |
| henzeshort |  | U+E4CC | fermataShortHenzeAbove |
| | | U+E4CD | fermataShortHenzeBelow |
| henzelong |  | U+E4CA | fermataLongHenzeAbove |
| | | U+E4CB | fermataLongHenzeBelow |

\ekm-eyeglasses DIRECTION

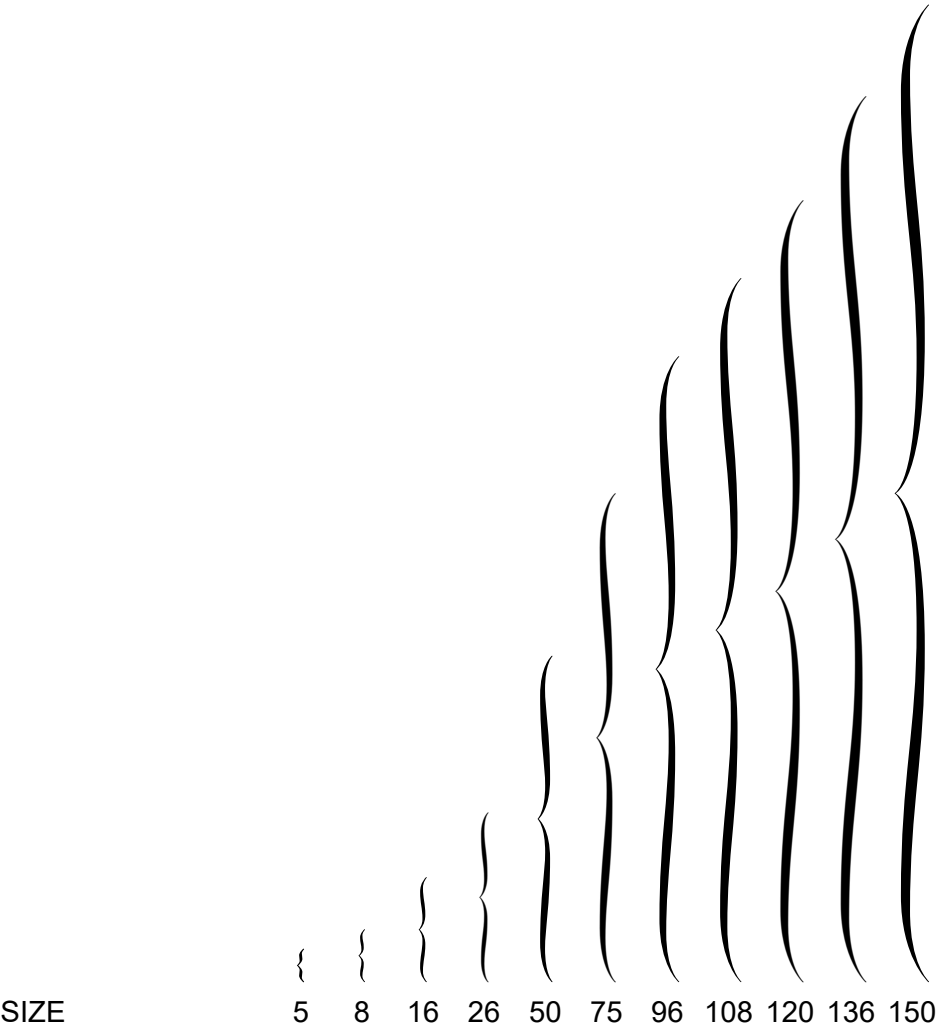
Draw eyeglasses as markup.

| | | | |
|-------|---|--------|---------------------|
| LEFT |  | U+EC62 | miscEyeglasses |
| RIGHT |  | U+F65F | miscEyeglassesRight |

\ekm-brace SIZE DIRECTION

Draw a brace as markup with the size (height) in staff units. It makes use of the [Ekmelos](#) specific size variants, each for a specific range of sizes.

| | | |
|-----------|--------|------------------|
| 0 – 5 | U+F706 | brace005 |
| | U+F707 | reversedBrace005 |
| 6 – 11 | U+E000 | brace |
| | U+E001 | reversedBrace |
| 12 – 23 | U+F708 | brace020 |
| | U+F709 | reversedBrace020 |
| 24 – 39 | U+F70A | brace040 |
| | U+F70B | reversedBrace040 |
| 40 – 55 | U+F70C | brace060 |
| | U+F70D | reversedBrace060 |
| 56 – 71 | U+F70E | brace080 |
| | U+F70F | reversedBrace080 |
| 72 – 87 | U+F710 | brace100 |
| | U+F711 | reversedBrace100 |
| 88 – 103 | U+F712 | brace120 |
| | U+F713 | reversedBrace120 |
| 104 – 119 | U+F714 | brace140 |
| | U+F715 | reversedBrace140 |
| 120 – 135 | U+F716 | brace160 |
| | U+F717 | reversedBrace160 |
| 136 – ... | U+F718 | brace180 |
| | U+F719 | reversedBrace180 |



\ekm-note-by-number STYLE LOG DOTS DIRECTION

Draw a note with augmentation dots as markup. It does not support stem lengths. The style can be one of the following symbols or one of the [notehead style symbols](#) . LOG can be in the range -2 (or -1) thru 10. Some styles have notes only for LOG ≤ 5 (32nd note) with stem up.

note

U+F637

noteheadLongaUp

U+F638

noteheadLongaDown

U+E1D0

noteDoubleWhole

U+E1D2

noteWhole

U+E1D3

noteHalfUp


U+E1D4

noteHalfDown

:

U+E1E6

note1024thDown



metronome

U+ECA0

metNoteDoubleWhole

U+ECA2

metNoteWhole

U+ECA3

metNoteHalfUp


U+ECA4

metNoteHalfDown

:

U+ECB6

metNote1024thDown



straight

U+F637

noteheadLongaUp

U+E1D0

noteDoubleWhole

U+E1D2

noteWhole

U+E1D3

noteHalfUp

U+E1D5

noteQuarterUp

U+F683


note8thUpStraight

U+F686

note16thUpStraight

U+F689

note32ndUpStraight



short

U+F637

noteheadLongaUp

U+E1D0

noteDoubleWhole

U+E1D2

noteWhole

U+E1D3

noteHalfUp

U+E1D5

noteQuarterUp

U+F684

note8thUpShort

U+F687

note16thUpShort

U+F68A

note32ndUpShort



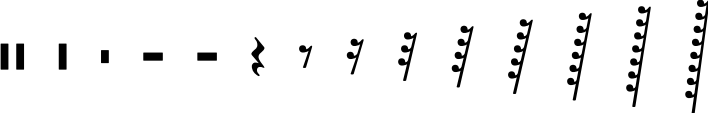
| | | |
|--------|--------|------------------|
| beamed | U+F637 | noteheadLongaUp |
| | U+E1D0 | noteDoubleWhole |
| | U+E1D2 | noteWhole |
| | U+E1D3 | noteHalfUp |
| | U+E1D5 | noteQuarterUp |
| | U+F685 | note8thUpBeamed |
| | U+F688 | note16thUpBeamed |
| | U+F68B | note32ndUpBeamed |



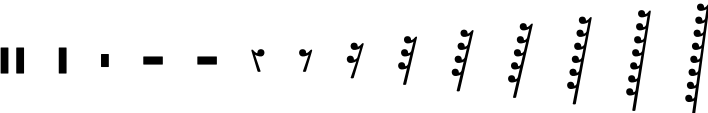
\ekm-rest-by-number STYLE LOG DOTS

Draw a rest with augmentation dots as markup. It does not support multi-measure-rests. The style can be one of the following symbols. LOG can be in the range -3 thru 10.

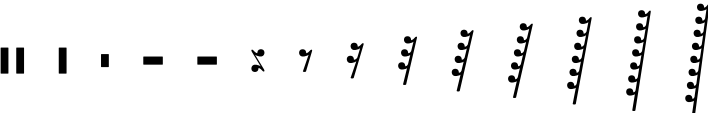
| | | |
|---------|--------|-------------|
| default | U+E4E0 | restMaxima |
| | : | |
| | U+E4E5 | restQuarter |
| | : | |
| | U+E4ED | rest1024th |



| | | |
|-----------|--------|----------------|
| classical | U+E4E0 | restMaxima |
| | : | |
| | U+E4F2 | restQuarterOld |
| | : | |
| | U+E4ED | rest1024th |



| | | |
|---|--------|--------------|
| z | U+E4E0 | restMaxima |
| | : | |
| | U+E4F6 | restQuarterZ |
| | : | |
| | U+E4ED | rest1024th |



`\ekm-metronome COUNT`

Draw COUNT metronome strokes as markup, i.e. the glyph `noteTick` (U+F614) which is [Ekmelos](#) specific. COUNT is a positive integer.

Used property:

- `stroke-space (1)`

`\ekmMetronome MUSIC`

Attach metronome strokes to each note, chord, or rest in MUSIC as a horizontally centered markup above the staff, using `\ekm-metronome`. The number of strokes equals the number of quarter note values of the respective duration (possibly rounded up).

Examples:

`\ekmMetronome ...`

`c4`

`c2`

`c2.`

`<g c>1`

`r4`

`r1*5/4`

`R1`



General markup commands

These are the basic functions of Esmuflily to draw music symbols.

`\ekm-str STRING`

Draw the string, e.g. from `(ly:wide-char->utf-8)` for a single code point.

`\ekm-char CODEPOINT`

Draw the glyph of the code point, or nothing (the empty string) for zero.

`\ekm-char ##xE048`



`\ekm-char ##xEB27`



`\ekm-charf CODEPOINT FEATURES`

Draw the glyph of the code point with font features. FEATURES is either a list of one or more strings or the number of a stylistic alternate. #1 and #' (1) and #' ("salt 1") are equivalent. #0 and #' () do not set font features, i.e. they behave like `\ekm-char`.

`\ekm-charf ##xE4A0 #0`



`\ekm-charf ##xE4A0 #1`



`\ekm-charf ##xE4A0 #2`



`\ekm-cchar CENTER CODEPOINT`

Draw the glyph of the code point, centered horizontally if CENTER is 1 or 3 (bit 0), and vertically if CENTER is 2 or 3 (bit 1).

`\ekm-chars CODEPOINT-LIST`

Draw the glyphs of the code points in the list concatenated to a string, or nothing (the empty string) for an empty list. This can be used to draw a ligature by specifying the code points of the corresponding character sequence.

`\ekm-chars #'(#xE260 #xE2B4 #xE2B2)`



`\ekm-chars #'(#xE262 #xE566 #xEAA6 #xEAA5)`



`\ekm-chars #'(#xE1F0 #xE1F7 #xE1FC #xE1F7 #xE1F4)`



`\ekm-text EXTEXT`

Draw **EXTEXT**. Depending on the argument type, it behaves like `\ekm-char`, `\ekm-charf`, or `\ekm-chars`, or it draws markup.

`\ekm-text #'(#xE4A0 0)`



`\ekm-text #'(#xE4A0 2)`



`\ekm-text #'(#xE4A0 #xE4A4)`



`\ekm-ctext CENTER EXTEXT`

Draw **EXTEXT** . Markup is centered like `\ekm-cchar` . A list of code points is centered only horizontally. A single code point (possibly with font features) is never centered. This command is intended to draw symbols on stem.

`\ekm-line EXTEXT-LIST`

Draw the **EXTEXTs** in the list in a horizontal line.

Used properties:

- `word-space`
- `text-direction`

`\ekm-line #'(#xE046 "al fine")`

D.C. al fine

`\ekm-line #'(#xE6D0 "with" #xE78E)`

 with 

`\ekm-line #'((#xE6D0 1) "with" #xE78E)`

 with 




`\ekm-def MAP DEFINITION`

Draw a text according to **DEFINITION** .

MAP is an alist of **EXTEXTs** mapped onto key strings. A key which is a prefix of other keys must be arranged after them in MAP, i.e. the correct order is "abc", "ab", "a" . A common key (" " , "_" , etc.) can be overridden. The special value `#f` draws nothing, i.e. the key is simply ignored.

```
#(define my-map `(
  (".|:" . #xE040)
  ("tr#~" . (#xE262 #xE566 #xEAA6 #xEAA5))
  ("timp" . (#xE6D0 1))
  (" " . #f)
  ("w" . "with")
  ("box/" . , (markup #:box #:ekm-beater 'timpani-medium NE))
))
```

`\ekm-def #my-map #".|:___tr#~"`

:  

`\ekm-def #my-map #"timp w box/"`

 with 

`\ekm-label ORIENTATION LABEL ARG`

Combine a markup with another markup placed as a label next to it according to **ORIENTATION** (= `#f` ignores the label).


Used properties:

- `font-size (0)`
- `label-size (-4) relative to the font size.`
- `padding (0.3)`

`\ekm-label #SE \ekm-char ##xE836 "G"`

G³

`\ekm-label #NW "Medium" \ekm-char ##xE78E`

Medium 

\ekm-number CODEPOINT NUMBER

Draw the integer number as a decimal digit string. CODEPOINT is either the code point of digit 0, or a vector with the code points of digit 0 - 9.

\ekm-number ##xE880 #1234

1234

\ekm-number ##xEA70 #2345

2345

```
#(define my-dig '#(
  #xEA50 #xEA51 #xEA52 #xEA54 #xEA55
  #xEA57 #xEA5B #xEA5D #xEA60 #xEA61))
\ekm-number #my-dig #3456
```

3456

\ekm-combine CODEPOINT X Y CODEPOINT2

Combine the glyphs of the code points, where the second is translated by X,Y scaled.

\ekm-combine ##xECA5 #-0.5 #1.0 ##xE56E

♪

\ekm-combine ##xEA7F #0.3 #0 ##xE87B

Ø

Extended text

Some commands accept an EXTEXT value (or a list of EXTEXTs) which is one of the following:

A single code point (integer). See `\ekm-char`.

```
##xE695
```

A list of a single code point followed by font features, i.e. one or more strings or a number less than 32 of a stylistic alternate. Higher values are treated as code points. See `\ekm-charf`.

```
#' (#xE626 "salt 2")
```

```
#' (#xE626 2)
```

A list of one or more code points. See `\ekm-chars`.

```
#' (#xE260 #xE567 #xE262)
```

Any markup. Note that the commands `\ekmTremolo` and `\ekmStem` interpret some strings to draw predefined symbols.

```
#"poco a poco"
```

```
#(markup #:box #:ekm-char #xED19)
```

Definition string

Some commands and properties accept a DEFINITION value. This is a string of one or more keys, each consisting of one or more characters. Their corresponding values (mostly single glyphs) are stacked in a line. Any other character in the string produces a warning and only the text created so far is drawn.

Common keys

These keys are always applicable but can be overridden in the MAP specified with `\ekm-def`.

| | | |
|----------------------------|--------|-----------|
| <code><space></code> | U+0020 | space |
| <code>_</code> | U+200A | hairspace |
| <code>—</code> | U+2009 | thinspace |
| <code>---</code> | U+2002 | enspace |
| <code>----</code> | U+2003 | emspace |

Orientation

Some commands accept an ORIENTATION value. This is the sum of axis (0, 1, or ± 0.5 for diagonal) and direction (± 1). The following symbols are defined for the 12 possible values. The last four values are intended for “bilateral” orientations. Currently, only `\ekm-arrow` supports them for a few styles.

An unsupported value is substituted with N .

| | | | |
|------|------|------|---------|
| N | 2 | Y | + UP |
| NE | 1.5 | 0.5 | + UP |
| E | 1 | X | + RIGHT |
| SE | 0.5 | -0.5 | + RIGHT |
| S | 0 | Y | + DOWN |
| SW | -0.5 | 0.5 | + DOWN |
| W | -1 | X | + LEFT |
| NW | -1.5 | -0.5 | + LEFT |
| NS | -2 | Y | + -3 |
| NESW | -2.5 | 0.5 | + -3 |
| EW | -3 | X | + -3 |
| SENW | -3.5 | -0.5 | + -3 |