

## 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, note heads, articulations, etc.

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

This documentation uses the [Ekmelos](#) font for all SMuFL glyph.

Esmuflily requires LilyPond version 2.24.0 or higher.

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

20 November 2025

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## Author and License

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## Download, Installation, Usage

---

### Download

The folder `ly` contains the include files.

Copy the following files into an appropriate folder:

```
esmufl.ily  
ekmd.scm  
ekmd-template.scm
```

`ekmd-template.scm` is required only if no [metadata cache file](#) exists for the desired [font](#).

For some fonts, a cache file is already available, among others:

```
ekmd-bravura.scm  
ekmd-ekmelos.scm
```

### Usage

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

```
ekmFont = FONT  
\include "esmufl.ily"
```

## Esmuflily + Ekmelily

Copy `cosmufl.ily`, as well as the [Ekmelily](#) file(s) for the desired tuning(s) (e.g. `ekmel-24.ily`) and `ekmel-main.ily` into an appropriate folder, additional to the Esmuflily files.

### Usage

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

```
ekmFont = FONT
ekmUse = USE
\include "cosmufl.ily"
```

`USE` is a sequence of `TUNING`, `STYLE`, and `LANGUAGE` (each is optional), followed by any number of SMuFL [switches](#) `TYPE`, either as a string separated by – or space, or as a list of symbols or strings. `TUNING` can be a number or string. In a list, `TYPE` can have a preceding +, or a – which turns on all switches except for `TYPE`.

`cosmufl.ily` includes the [Ekmelily](#) file for `TUNING`, and calls `\ekmStyle`, `\language`, and `\ekmSmuflOn` (in the `Score` context).

Default settings:

|                       |   |
|-----------------------|---|
| <code>FONT</code>     | <a href="#">Ekmelos</a>                                     |
| <code>TUNING</code>   | <code>24</code> , includes <code>ekmel-24.ily</code>        |
| <code>STYLE</code>    | <code>stc</code> ( <code>Stein/Couper</code> ) in tuning 24 |
| <code>LANGUAGE</code> | <code>nederlands</code> in most tunings                     |
| <code>TYPE</code>     | <code>all</code> , turns on all SMuFL switches              |

Examples:

```
ekmUse = 36
ekmUse = "72 sims english clef"
ekmUse = #'(24 + clef flag)
ekmUse = #'(31 sag - fingering)
```

See the [cosmufl.ily commands](#).

## Fonts

---

Esmuflily requires a SMuFL compliant font.

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

```
ekmFont = FONT
```

preceding the include file,

or with the command line option

```
-dekmfont=FONT
```

Note that 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`.

## Drawing paths

Esmuflily supports drawing paths instead of font glyphs, which allows e.g. to produce stand-alone SVG output. This requires the Scheme procedure `ekm-path-stencil` as it is provided for [Ekmelos](#) by the include file `ly/ekmelos-paths.ly`.

A trailing (or solitary) # in FONT draws paths globally, i.e. it effects all SMuFL output except for the [markup commands](#) `\ekm-charf` and `\ekm-str`.

Note that spaces and other glyphs without a contour, as well as side-bearing and font features like stylistic alternates or ligatures are not available with paths. See the second output below:

|   |  |
|---|--|
| <code>\ekm-chars #' (#xE262 #xE566 #xEAA6 #xEA5)</code> | <br> |
|---|--|

To draw Ekmelos glyphs as paths, add the following lines near the top of your LilyPond input file. A single "#" is equivalent to "`\ekm-chars #`".

```
ekmFont = "#"
\include "ekmelos-paths.ly"
...
```

## Font Metadata

---

Esmuflily can use font-specific metadata provided by a SMuFL compliant [JSON](#) file or by a cache file. If the latter doesn't exist, the [JSON](#) file is read and a cache file is created to be used subsequently.

Note: In the JSON file, glyphs must be given with their canonical glyph name, not with the Unicode code point.

JSON file path:

MD\_LOC/MD\_NAME

MD\_NAME is one of the file names:

1. FNAME\_metadata.json
2. FNAME.json
3. metadata.json

FNAME is FONT in all lowercase.

MD\_LOC is one of the locations (see SMuFL ch. 3.11):

1. PRIVATE\_LOC
2. USER\_LOC/SMuFL/Fonts/FONT
3. SYSTEM\_LOC/SMuFL/Fonts/FONT

PRIVATE\_LOC can be specified either with the variable

`ekmMetadata = PRIVATE_LOC`

preceding the include file,

or with the command line option

`-dekmMetadata=PRIVATE_LOC`

A trailing (or solitary) % in PRIVATE\_LOC forces creating a cache file even if it already exists.

USER\_LOC and SYSTEM\_LOC are platform-specific.

|         | USER_LOC                      | SYSTEM_LOC  |
|---------|-------------------------------|---|
| Linux   | \$XDG_DATA_HOME               | \$XDG_DATA_DIRS                                   |
| macOS   | ~/Library/Application Support | /Library/Application Support                      |
| Windows | %LOCALAPPDATA%                | %CommonProgramFiles%<br>%CommonProgramFiles(x86)% |

Cache file path:

EKMD\_LOC/ekmd-FNAME.scm

EKMD\_LOC is one of the locations:

1. a LilyPond include directory (usually the location of `esmufl.ily`)
2. MD\_LOC (as for the JSON file)

## Font Symbols

---

The musical symbols supported by Esmuflily are SMuFL-compliant glyphs given with their Unicode code point.

All symbols are assembled in a single table arranged according to type (usage), where some types correspond to LilyPond's graphical objects, like note heads, flags, rests, and clefs.

The standard table contains SMuFL recommended characters. The cache file `ekmd-FNAME.scm` can provide a font-specific table (beside the metadata) that is merged into the standard table.

The styles, names, tokens, and size ranges for musical symbols listed in this documentation come from the standard table. The font-specific details for [Ekmelos](#) or other fonts are listed separately after that.

```
\ekmMergeType TYPE TABLE
```

Merge TABLE into the table for TYPE. New styles, names, and tokens are added. Already existing ones are replaced. See `internals.md` for all supported types and their required table structures.

Use this command with care.

Note: The style `ekm` is used for internal purposes, (tremolo marks, arrows, percussion beaters, etc.)

## 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 a few provide additional features.

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 tokens.
- **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 ...)
\ekmSmuflOn #'- TYPE ...
\ekmSmuflOff #'TYPE
\ekmSmuflOff #'(TYPE ...)
```

Turn the SMuFL support on and off, respectively, for one or more types of graphical objects. A leading – turns on all types except for TYPE ... These commands set/undo context and grob properties (usually the stencil) in the current bottom context, except for colon and segno.

TYPE is one of the following symbols. Any other value is ignored.

|              |  |
|--------------|--|
| all          | All following types                    |
| clef         | Clefs and clef modifiers               |
| time         | Time signatures                        |
| notehead     | Note heads                             |
| dot          | Augmentation dots                      |
| flag         | Flags and grace note slashes           |
| rest         | Rests and multi-measure rests          |
| systemstart  | System start delimiters                |
| dynamic      | Absolute dynamic marks                 |
| script       | Scripts                                |
| textspan     | Text span                              |
| trill        | Trill span and trill pitch             |
| lv           | Laissez vibrer                         |
| colon        | Colon bar lines (cannot be turned off) |
| segno        | Segno bar lines (cannot be turned off) |
| percent      | Percent repeats                        |
| tremolo      | Tremolos                               |
| arpeggio     | Arpeggios                              |
| tuplet       | Tuplet numbers                         |
| fingering    | Fingering instructions                 |
| stringnumber | String number indications              |
| pedal        | Piano pedals                           |
| fbass        | Figured bass                           |
| lyric        | Lyric text                             |
| chord        | Chord name symbols                     |

The following example demonstrates possible places for SMuFL switches : a \with block, a \layout block, and in the music stream. Note that \ekmTremolo works independent of the tremolo switch which is turned on after that.

```
\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>

        \ekmFlag #'default
        \ekmPitchedTrill #'slash #'bracket
        d2 \ekmStartTrillSpan #'(-4 . 0) e d4 c8. a16 \stopTrillSpan

        \ekmTremolo unmeasured { c4:16 a: }

        \ekmSmuflOn #'tremolo
        { c4:16 a: }
    }
    \layout {
        \context {
            \Score
            \ekmSmuflOn #'(flag dot)
        }
    }
}
```



## Clefs

---

\ekmSmuflOn #'clef

Draw SMuFL clefs and clef modifiers.

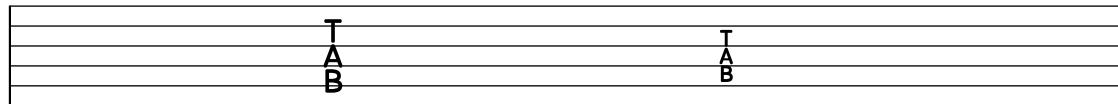
|                           |        |               |
|---------------------------|--------|---------------|
| "G" "treble" "french" ... | U+E050 | gClef         |
| "GG"                      | U+E055 | gClef8vbOld   |
| "tenorG"                  | U+E056 | gClef8vbCClef |
| "F" "bass" ...            | U+E062 | fClef         |
| "C" "alto" ...            | U+E05C | cClef         |
| "neomensural-c1" ...      | 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+E06D | 6stringTabClef |
| "4stringtab" | U+E06E | 4stringTabClef |

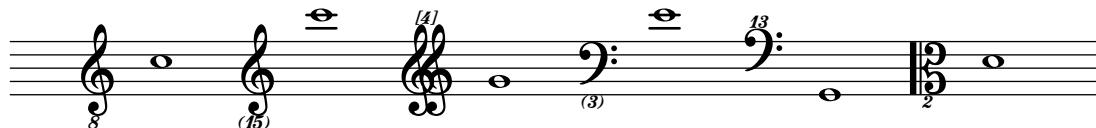


## Clef modifiers

Transposition and style are drawn with the fingering italic symbols for digits, parentheses, and brackets, and with the following special symbols (i.e. not with precomposed clef glyphs).

|    |           |        |        |
|----|-----------|--------|--------|
| 8  | <i>8</i>  | U+E07D | clef8  |
| 15 | <i>15</i> | U+E07E | clef15 |

```
"G_8"
"G_(15)"
"GG^[4]"
"F_(3)"
"subbass^13"
"C_2"
```



## Change clefs

They are drawn either with a special glyph or with the normal glyph but smaller.

The relative font size for change clefs can be set with:

```
#(set! ekm:clef-change-font-size '(SPECIAL-SIZE . NORMAL-SIZE))
```

The standard value is '(1.5 . -2).

|     |        |             |
|-----|--------|-------------|
| "G" | U+E07A | gClefChange |
| "F" | U+E07C | fClefChange |
| "C" | U+E07B | cClefChange |

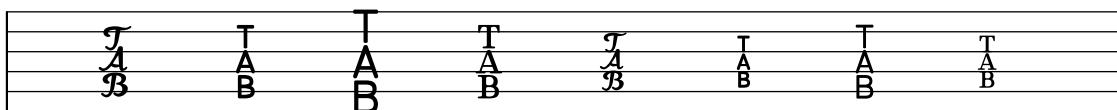


## Ekmelos clefs

|                      |        |                        |
|----------------------|--------|------------------------|
| "frenchG"            | U+F40E | gClef8vbFrench         |
| "varC" "altovarC"    | U+F633 | cClefFrench20C         |
| "tenorvarC"          | :      |                        |
| "baritonevarC"       | :      |                        |
| "string"             | U+F71C | stringClef             |
| "behindbridgestring" | U+F71D | behindBridgeStringClef |



|                    |        |                       |
|--------------------|--------|-----------------------|
| "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   |



## Ekmelos change clefs

|                  |        |                                  |
|------------------|--------|----------------------------------|
| "GG"             | U+F630 | gClef8vbOldChange                |
| "tenorG"         | U+F631 | gClef8vbCClefChange              |
| "varC"           | U+F634 | cClefFrench20CChange             |
| "neomensural-c3" | U+F632 | cClefSquareChange                |
| "percussion"     | U+F635 | unpitchedPercussionClef1Change   |
| "varpercussion"  | U+F636 | unpitchedPercussionClef2Change   |
| "semipitched"    | U+F6BE | semipitchedPercussionClef1Change |
| "varsempitched"  | U+F6BF | semipitchedPercussionClef2Change |



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

```
\relative c' {
  \ekmCompoundMeter #'(5 8)
  c8 c c c c
  \ekmCompoundMeter #'((2 8) (3 8))
  c8 c c c c
  \ekmCompoundMeter #'(2 3 8)
  c8 c c c c
  \break

  \ekmCompoundMeter #'(1 1/4 2)
  c8 c c c c
  \ekmCompoundMeter #'(((1 . 1/4) 2))
  c8 c c c c
  \break

  \ekmCompoundMeter #'((2 4) (1 4) (1 8))
  c8 c c c c c c
  \ekmCompoundMeter #'((2 4) (2 1 8))
  c8 c c c c c c
  \ekmCompoundMeter #'((2 4) (1 1/2 4))
  c8 c c c c c c
  \break

  \ekmCompoundMeter #'((2 4) (3 8))
  c8 c c c c c c
  \ekmCompoundMeter #'((2 4) ((1 . 1/2) 4))
  c8 c c c c c c
  \ekmCompoundMeter #'(2 (1 . 1/2) 4)
  c8 c c c c c c
}
```



## Cadenza signatures

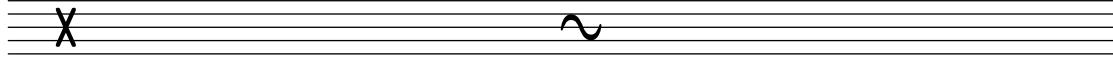
---

\ekmCadenzaOn STYLE

Start a **cadenza** like `\cadenzaOn` and set a SMuFL signature.

### Styles

|                  |            |                       |
|------------------|------------|-----------------------|
| "X"              | U+E09C     | timeSigX              |
| "~"              | U+E09D     | timeSigOpenPenderecki |
| 'time-x          | deprecated |                       |
| 'time-penderecki | deprecated |                       |



## 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 |

system-separator-markup = \ekmSlashSeparator SIZE

Draw a system separator mark, corresponding to SIZE (set within a \paper block).

Size ranges

|          |   |        |                        |
|----------|---|--------|------------------------|
| 0        |  | U+E007 | systemDivider          |
| $\leq 1$ |  | U+E008 | systemDividerLong      |
| $> 1$    |  | U+E009 | systemDividerExtraLong |

```
\new Staff
<<
  \new Voice {
    \relative c' {
      \voiceOne
      g a b c
      \bar "||" \ekmStaffDivider #CENTER
    }
  }
  \new Voice {
    \relative c' {
      \voiceTwo
      e c f e
    }
  }
>>
```



## Note heads

---

```
\ekmSmuflOn #'notehead
```

Draw SMuFL note heads. The harmonic and cross glyphs are also used with commands like `\harmonic` and `\xNote`.

### Styles

|          |        |                     |
|----------|--------|---------------------|
| 'default | U+E0A0 | noteheadDoubleWhole |
|          | U+E0A2 | noteheadWhole       |
|          | U+E0A3 | noteheadHalf        |
|          | U+E0A4 | noteheadBlack       |



|          |        |                           |
|----------|--------|---------------------------|
| '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        |



'plus

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



'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       |



'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



'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



'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

## Ekmelos

'default

U+F637 noteheadLongaUp  
 U+F638 noteheadLongaDown  
 :



'altdefault

U+F637 noteheadLongaUp  
 U+F638 noteheadLongaDown  
 U+F639 noteheadDoubleWholeAlt  
 :



'withx-black

U+F680 noteheadBlackWithX  
 :



'parenthesised

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



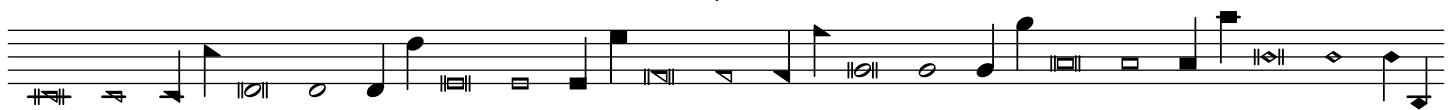
## Shape note heads

All forms in LilyPond are supported, but some note heads 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`.

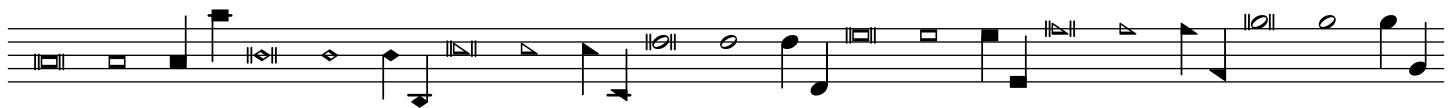
### Sacred Harp

```
\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             |



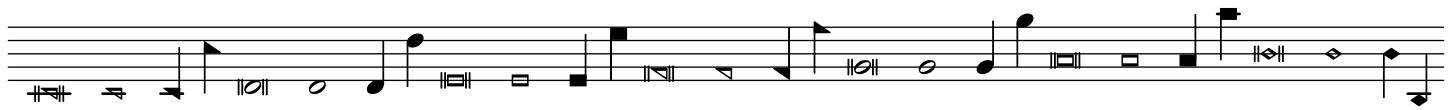
```
\sacredHarpHeadsMinor
```



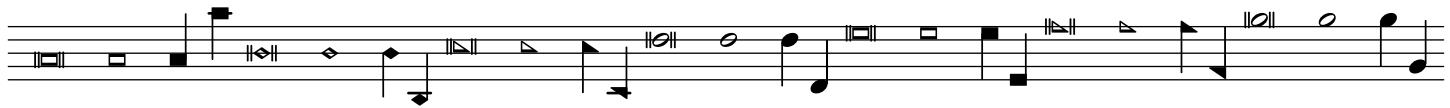
### Southern Harmony

```
\southernHarmonyHeads
```

|     |        |                                   |
|-----|--------|-----------------------------------|
| fa  | U+ECD3 | noteShapeTriangleLeftDoubleWhole  |
|     | U+E1B6 | noteShapeTriangleLeftWhite        |
|     | U+E1B7 | noteShapeTriangleLeftBlack        |
|     | U+ECD2 | noteShapeTriangleRightDoubleWhole |
|     | U+E1B4 | noteShapeTriangleRightWhite       |
|     | 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             |



```
\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



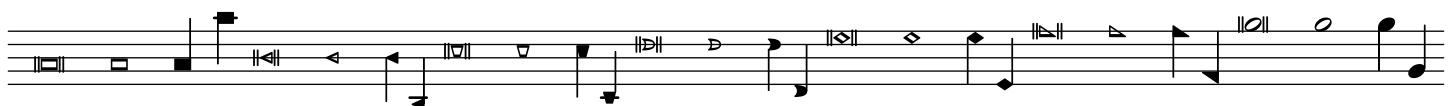
## Walker

### \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 | noteShapeIsoscelesTriangleDoubleWhole |
|     | U+E1C4 | noteShapeIsoscelesTriangleWhite       |
|     | U+E1C5 | noteShapeIsoscelesTriangleBlack       |



### \walkerHeadsMinor



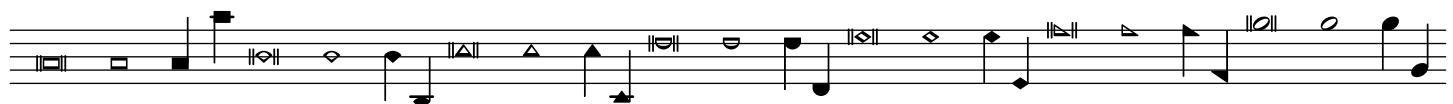
## Aiken (Christian Harmony)

\aikenHeads

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



\aikenHeadsMinor



## Note name note heads

---

\ekmNameHeads...

Draw note heads 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 |

A musical staff with seven vertical stems. Each stem has a note head with a solfège name: 'do' (white), 're' (white), 'mi' (black), 'fa' (white), 'so' (white), 'la' (white), and 'si' (black). The stems are positioned at regular intervals along the staff.

\ekmNameHeadsMinor

A musical staff with seven vertical stems. Each stem has a note head with a solfège name: 'la' (white), 'si' (black), 'do' (white), 're' (white), 'mi' (black), 'fa' (white), 'so' (white). A sharp sign is placed above the staff, indicating a key signature of one sharp.

\ekmNameHeadsTi

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

A musical staff with seven vertical stems. Each stem has a note head with a solfège name: 'do' (white), 're' (white), 'mi' (black), 'fa' (white), 'so' (white), 'la' (white), and 'ti' (black). A sharp sign is placed above the staff, indicating a key signature of one sharp.

\ekmNameHeadsTiMinor

A musical staff with seven vertical stems. Each stem has a note head with a solfège name: 'la' (white), 'ti' (black), 'do' (white), 're' (white), 'mi' (black), 'fa' (white), 'so' (white). A sharp sign is placed above the staff, indicating a key signature of one sharp.

## Note clusters

---

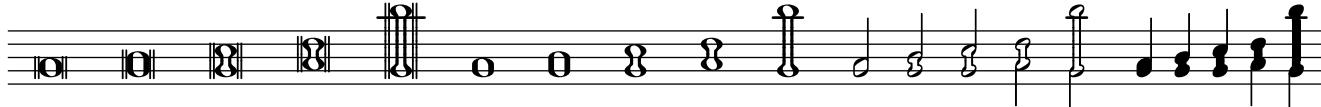
\ekmMakeClusters MUSIC

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').

### Styles

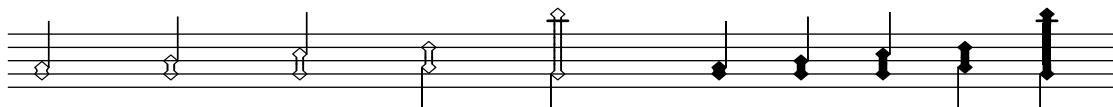
'default

|        |                                  |
|--------|----------------------------------|
| 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     |



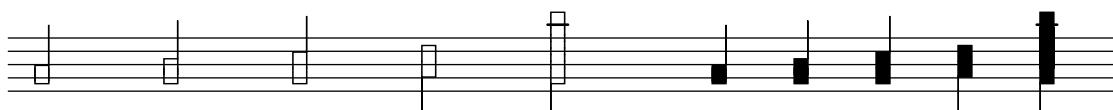
'harmonic

|        |                                   |
|--------|-----------------------------------|
| 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 |



'square

|        |                                       |
|--------|---------------------------------------|
| U+E145 | noteheadRectangularClusterWhiteTop    |
| U+E146 | noteheadRectangularClusterWhiteMiddle |
| U+E147 | noteheadRectangularClusterWhiteBottom |
| U+E142 | noteheadRectangularClusterBlackTop    |
| U+E143 | noteheadRectangularClusterBlackMiddle |
| U+E144 | noteheadRectangularClusterBlackBottom |

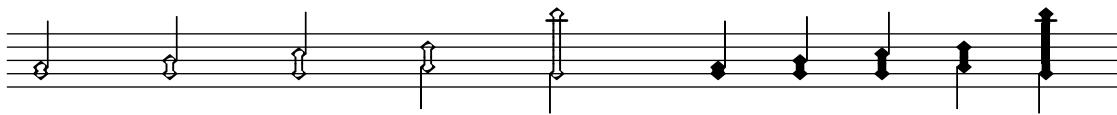


## Ekmelos

'diamond

|        |                                  |
|--------|----------------------------------|
| U+F64B | noteheadDiamondClusterHalf2nd    |
| U+F64C | noteheadDiamondClusterHalf3rd    |
| U+F64D | noteheadDiamondClusterHalfTop    |
| U+F64E | noteheadDiamondClusterHalfMiddle |
| U+F64F | noteheadDiamondClusterHalfBottom |

:



### 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 octave cluster is said to have 3 middle segments, while the 6th cluster has 2 middle segments. The “appropriate number of middle segments” varies apparently depending on the font.

## Note head markup

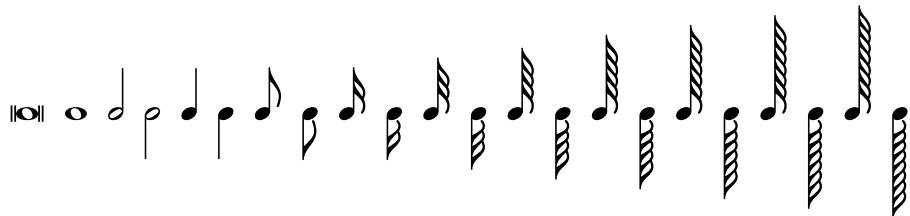
---

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

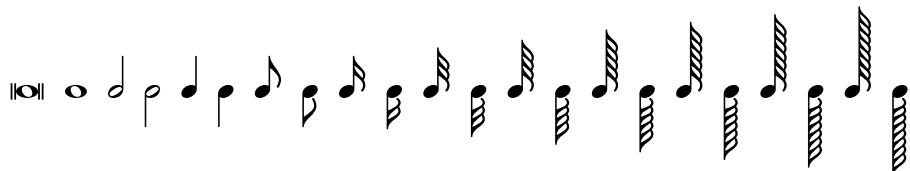
Draw a note with augmentation dots as markup. It does not support stem lengths. STYLE can also be one of the note head styles . LOG is usually in the range -1 to 10.

### Styles

|       |        |                 |
|-------|--------|-----------------|
| 'note | U+E1D0 | noteDoubleWhole |
|       | U+E1D2 | noteWhole       |
|       | U+E1D3 | noteHalfUp      |
|       | U+E1D4 | noteHalfDown    |
| :     |        |                 |
|       | U+E1E6 | note1024thDown  |



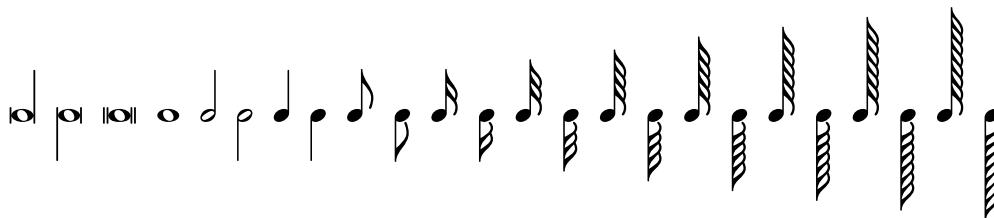
|            |        |                    |
|------------|--------|--------------------|
| 'metronome | U+ECA0 | metNoteDoubleWhole |
|            | U+ECA2 | metNoteWhole       |
|            | U+ECA3 | metNoteHalfUp      |
|            | U+ECA4 | metNoteHalfDown    |
| :          |        |                    |
|            | U+ECB6 | metNote1024thDown  |



## Ekmelos

'note

U+F637 noteheadLongaUp  
 U+F638 noteheadLongaDown  
 :



'straight

U+F637 noteheadLongaUp  
 :  
 U+F683 note8thUpStraight  
 U+F686 note16thUpStraight  
 U+F689 note32ndUpStraight



'short

U+F637 noteheadLongaUp  
 :  
 U+F684 note8thUpShort  
 U+F687 note16thUpShort  
 U+F68A note32ndUpShort



'beamed

U+F637 noteheadLongaUp  
 :  
 U+F685 note8thUpBeamed  
 U+F688 note16thUpBeamed  
 U+F68B note32ndUpBeamed



## Augmentation dots

---

\ekmSmuflOn #'dot

Draw SMuFL augmentation dots.

.

U+E1E7 augmentationDot

A musical staff consisting of five horizontal lines and four spaces. Six black note heads are placed on the staff, each followed by a small black dot representing an augmentation dot. The dots increase in quantity from left to right: one dot on the first note, two on the second, three on the third, one on the fourth, two on the fifth, and three on the sixth.

## Flags and Grace note slashes

---

```
\ekmSmuflOn #'flag
```

Draw SMuFL flags and grace note slashes with `\slashedGrace`.

```
\ekmFlag STYLE
```

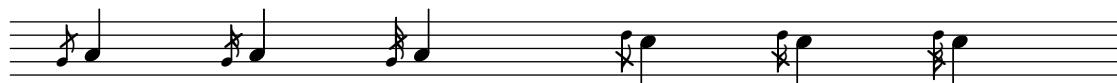
Set the specified flag style. It overrides the properties `Flag.style` and `Stem.details.lengths`. [ Err ]

### Styles

|          |        |                |
|----------|--------|----------------|
| '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 |



|        |                    |
|--------|--------------------|
| U+E564 | graceNoteSlashUp   |
| U+E565 | graceNoteSlashDown |



## Bravura and Ekmelos

'short



'straight



## Rests

---

```
\ekmSmuflOn #'rest
```

Draw SMuFL rests and multi-measure rests, as well as SMuFL time signature digits for multi-measure rest numbers.

### Styles

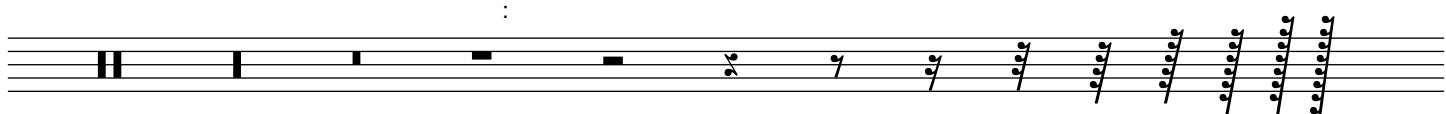
|          |        |                 |
|----------|--------|-----------------|
| 'default | U+E4E0 | restMaxima      |
|          | U+E4E1 | restLonga       |
|          | U+E4E2 | restDoubleWhole |
|          | U+E4E3 | restWhole       |
|          | U+E4E4 | restHalf        |
|          | U+E4E5 | 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 |
|    | : |        |              |



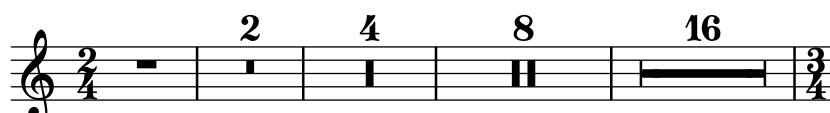
In the following example, the time signatures are LilyPond's Emmentaler glyphs while the multi-measure rest numbers are SMuFL glyphs.

```
\relative c' {
  \ekmSmuflOn #'rest

  \compressMMRests {
    \time 2/4
    R2 R1 R\breve R\longa R\maxima
    \break

    \time 3/4
    R2. R2.*3 R2.*7 R2.*10
    R2.*35
    \override MultiMeasureRest.space-increment = 2.5
    R2.*35
    \break
  }

  \time 4/4
  R1
  \override MultiMeasureRest.staff-position = #1
  R1
  \override MultiMeasureRest.staff-position = #2
  R1
  \override MultiMeasureRest.staff-position = #4
  R1
  \override MultiMeasureRest.staff-position = #-1
  R1
  \override MultiMeasureRest.staff-position = #-2
  R1
  \override MultiMeasureRest.staff-position = #-8
  R1
}
```



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## Rest markup

---

```
\ekm-rest-by-number LOG DOTS
```

Draw a rest with augmentation dots as markup. LOG is in the range -3 to 10. The dots are vertically centered, contrary to \rest-by-number.

Used properties:

- font-size (0)
- ledgers ('(-1 0 1))
- style ('())

```
\ekm-multi-measure-rest-by-number MEASURES
```

Draw a multi-measure rest as markup, with the number placed centered above unless it is 1.

Used properties:

- font-size (0)
- expand-limit (10)
- style ('())
- word-space
- width (8)
- multi-measure-rest-number (#t)

```
\ekm-rest DURATION
```

Draw either a rest or a multi-measure rest as markup.

```
\ekm-rest-by-number #-1 #1
\ekm-rest-by-number #2 #2
\ekm-rest-by-number #3 #1
```

```
\ekm-multi-measure-rest-by-number #7
\ekm-multi-measure-rest-by-number #16
```

```
\ekm-rest { \breve. }
\ekm-rest { 4.. }
\ekm-rest { 8. }
```

```
\override #'(multi-measure-rest . #t)
\override #'(multi-measure-rest-number . #f)
\ekm-rest { 1*7 }
```

```
\override #'(multi-measure-rest . #t)
\ekm-rest { 1*16 }
```

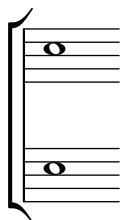
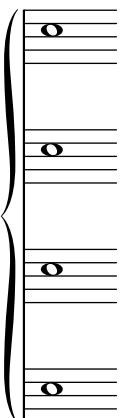
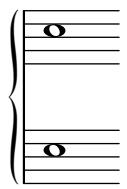


## System start delimiters

---

```
\ekmSmuflOn #'systemstart
```

Draw SMuFL system start delimiters, using `\ekm-system-start`.



```
\ekm-system-start STYLE HEIGHT
```

Draw a system start delimiter of HEIGHT in staff units as markup.

Used property:

- `font-size (0)`

## Styles

|          |   |        |               |
|----------|---|--------|---------------|
| 'brace   | { | U+E000 | brace         |
| 'bracket | ✓ | U+E003 | bracketTop    |
|          | ✗ | U+E004 | bracketBottom |

## Bravura and Ekmelos

'brace makes use of Bravura's stylistic alternates or Ekmelos' size variants, each intended for a specific size range.

## Dynamics

---

```
\ekmSmuflOn #'dynamic
```

Draw SMuFL absolute dynamic marks, using `\ekm-dynamic`.

```
\ekm-dynamic DEFINITION
```

Draw a dynamic symbol according to **DEFINITION** as markup.

**DEFINITION** must be either a single token or a sequence of the letters f, m, n, p, r, s, z, whose corresponding symbols are concatenated. This is slightly different from the usual interpretation of definition strings.

|        |               |        |                            |
|--------|---------------|--------|----------------------------|
| p      | <b>p</b>      | U+E520 | dynamicPiano               |
| m      | <b>m</b>      | U+E521 | dynamicMezzo               |
| f      | <b>f</b>      | U+E522 | dynamicForte               |
| r      | <b>r</b>      | U+E523 | dynamicRinforzando         |
| s      | <b>s</b>      | U+E524 | dynamicSforzando           |
| z      | <b>z</b>      | U+E525 | dynamicZ                   |
| n      | <b>n</b>      | U+E526 | dynamicNiente              |
| mp     | <b>mp</b>     | U+E52C | dynamicMP                  |
| mf     | <b>mf</b>     | U+E52D | dynamicMF                  |
| pf     | <b>pf</b>     | U+E52E | dynamicPF                  |
| fp     | <b>fp</b>     | U+E534 | dynamicFortePiano          |
| pppppp | <b>pppppp</b> | U+E527 | dynamicPPPPPP              |
| :      |               |        |                            |
| pp     | <b>pp</b>     | U+E52B | dynamicPP                  |
| ff     | <b>ff</b>     | U+E52F | dynamicFF                  |
| :      |               |        |                            |
| ffffff | <b>ffffff</b> | U+E533 | dynamicFFFFFF              |
| fz     | <b>fz</b>     | U+E535 | dynamicForzando            |
| sf     | <b>sf</b>     | U+E536 | dynamicSforzando1          |
| sfp    | <b>sfp</b>    | U+E537 | dynamicSforzandoPiano      |
| sfff   | <b>sfff</b>   | U+E538 | dynamicSforzandoPianissimo |
| sfz    | <b>sfz</b>    | U+E539 | dynamicSforzato            |
| sfzp   | <b>sfzp</b>   | U+E53A | dynamicSforzatoPiano       |
| sffz   | <b>sffz</b>   | U+E53B | dynamicSforzatoFF          |
| rf     | <b>rf</b>     | U+E53C | dynamicRinforzando1        |
| r fz   | <b>r fz</b>   | U+E53D | dynamicRinforzando2        |

### Ekmelos

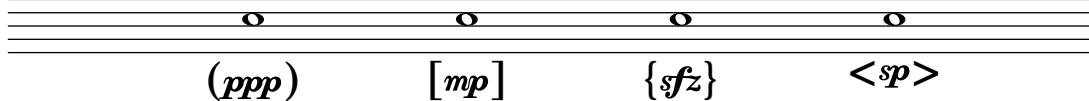
|        |               |        |                     |
|--------|---------------|--------|---------------------|
| sff    | <b>sff</b>    | U+F645 | dynamicSforzandoFF  |
| sp     | <b>sp</b>     | U+F646 | dynamicSP           |
| spp    | <b>spp</b>    | U+F647 | dynamicSPP          |
| sfffz  | <b>sfffz</b>  | U+F6F4 | dynamicSforzatoFFF  |
| sffffz | <b>sffffz</b> | U+F6F5 | dynamicSforzatoFFFF |

\ekmParensDyn STYLE DYNAMIC-MARK

Draw the absolute dynamic mark parenthesized.

### Styles

- 'default
- 'bracket
- 'brace
- 'angle



\ekmParensHairpin STYLE

Draw the subsequent hairpin parenthesized.

### Styles

|          |        |                                |
|----------|--------|--------------------------------|
| 'default | U+E542 | dynamicHairpinParenthesisLeft  |
|          | U+E543 | dynamicHairpinParenthesisRight |
| 'bracket | U+E544 | dynamicHairpinBracketLeft      |
|          | U+E545 | dynamicHairpinBracketRight     |



## Scripts - Expressive marks

---

```
\ekmSmuflOn #'script
```

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

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

Create a script from **EXTTEXT**, 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. **SCRIPT-NAME** is the symbol of an existing script like **accent**, **marcato**, **trill**, **turn**, **upbow**, **open**, **segno**, etc. It determines the vertical positioning of the script. [ [Ly](#) ]

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

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

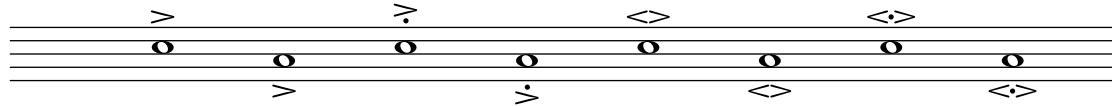
### Articulations

|         |        |                  |
|---------|--------|------------------|
| \accent | U+E4A0 | articAccentAbove |
|         | U+E4A1 | articAccentBelow |

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

|             |        |                      |
|-------------|--------|----------------------|
| \espressivo | U+ED40 | articSoftAccentAbove |
|             | U+ED41 | articSoftAccentBelow |

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

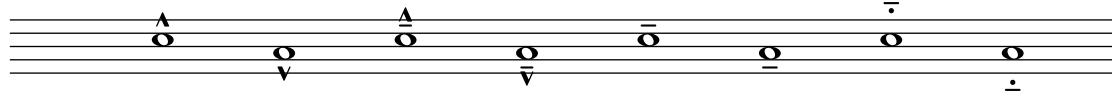


|          |        |                   |
|----------|--------|-------------------|
| \marcato | U+E4AC | articMarcatoAbove |
|          | U+E4AD | articMarcatoBelow |

```
\ekmScript #'marcato #'(#xE4BC . #xE4BD)
```

|         |        |                  |
|---------|--------|------------------|
| \tenuto | U+E4A4 | articTenutoAbove |
|         | U+E4A5 | articTenutoBelow |

|          |        |                          |
|----------|--------|--------------------------|
| \portato | U+E4B2 | articTenutoStaccatoAbove |
|          | U+E4B3 | articTenutoStaccatoBelow |



|           |        |                    |
|-----------|--------|--------------------|
| \staccato | U+E4A2 | articStaccatoAbove |
|           | U+E4A3 | articStaccatoBelow |

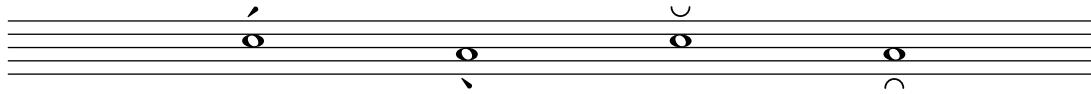
|                |        |                         |
|----------------|--------|-------------------------|
| \staccatissimo | U+E4A6 | articStaccatissimoAbove |
|                | U+E4A7 | articStaccatissimoBelow |

```
\ekmScript #'staccatissimo #'(#xE4A8 . #xE4A9)
```

```
\ekmScript #'staccatissimo #'(#xE4AA . #xE4AB)
```

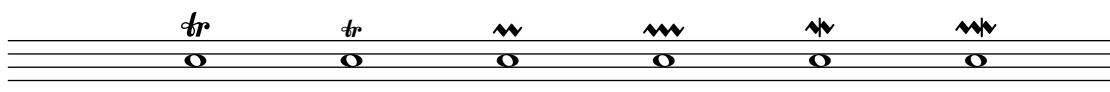


```
\ekmScript #'accent #'(xE4B6 . xE4B7)
\ekmScript #'accent #'(xE4B8 . xE4B9)
```



## Ornamentations

|                                 |        |                                 |
|---------------------------------|--------|---------------------------------|
| \trill                          | U+E566 | ornamentTrill                   |
| \ekmScriptSmall #'trill ##xE566 |        |                                 |
| \prall                          | U+E56C | ornamentShortTrill              |
| \prallprall                     | U+E56E | ornamentTremblement             |
| \mordent                        | U+E56D | ornamentMordent                 |
| \prallmordent                   | U+E5BD | ornamentPrecompTrillWithMordent |



|              |     |        |   |
|--------------|-----|--------|---|
| \upprall     | 2 × | U+E59A | ornamentBottomLeftConcaveStroke           |
|              |     | U+E59D | ornamentZigZagLineNoRightEnd              |
|              |     | U+E59E | ornamentZigZagLineWithRightEnd            |
| \downprall   |     | U+E5C6 | ornamentPrecompMordentUpperPrefix         |
| \upmordent   |     | U+E5B8 | ornamentPrecompSlideTrillBach             |
| \downmordent |     | U+E5C7 | ornamentPrecompInvertedMordentUpperPrefix |
| \prallup     | 3 × | 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 |  |        |                      |



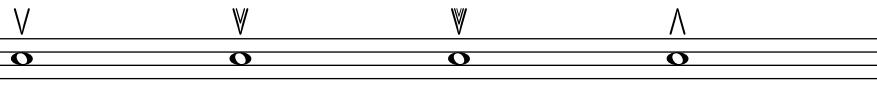
## Performance indications

```
\upbow U+E612 stringsUpBow
```

```
\ekmScript #'upbow ##xE61C
```

```
\ekmScript #'upbow ##xE61E
```

```
\ekmScript #'upbow ##xE613
```



```
\downbow U+E610 stringsDownBow
```

```
\ekmScript #'downbow ##xE61B
```

```
\ekmScript #'downbow ##xE61D
```

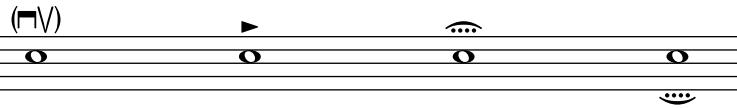
```
\ekmScript #'downbow ##xE611
```



```
\ekmScript #'downbow ##xE626
```

```
\ekmScript #'upbow ##xE61F
```

```
\ekmScript #'downbow #'(##xE620 . ##xE621)
```



```
\flageolet U+E614 stringsHarmonic
```

```
\snappizzicato U+E631 pluckedSnapPizzicatoAbove
```

```
U+E630 pluckedSnapPizzicatoBelow
```

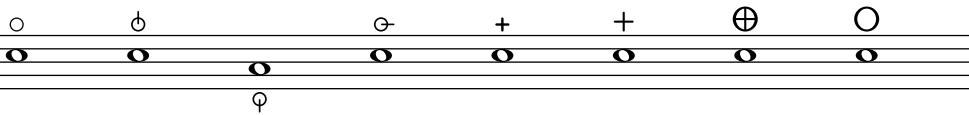
```
\ekmScript #'snappizzicato ##xE632
```

```
\stopped U+E633 pluckedLeftHandPizzicato
```

```
\ekmScript #'stopped ##xE5E5
```

```
\ekmScript #'halfopen ##xE5E6
```

```
\ekmScript #'open ##xE5E7
```



```
\lheel U+E661 keyboardPedalHeel1
```

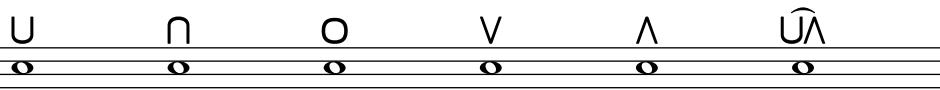
```
\rheel U+E662 keyboardPedalHeel2
```

```
\ekmScript #'lheel ##xE663
```

```
\ltoe U+E664 keyboardPedalToe1
```

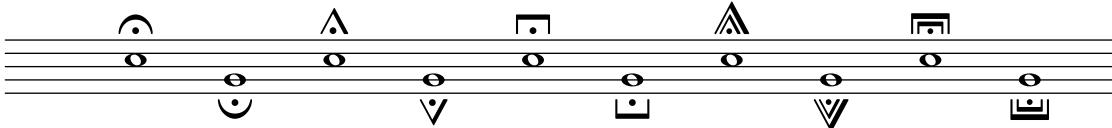
```
\rtoe U+E665 keyboardPedalToe2
```

```
\ekmScript #'rtoe ##xE674
```



## Fermatas

|                   |                  |  |
|-------------------|------------------|--|
| \fermata          | U+E4C0<br>U+E4C1 | fermataAbove<br>fermataBelow                   |
| \shortfermata     | U+E4C4<br>U+E4C5 | fermataShortAbove<br>fermataShortBelow         |
| \longfermata      | U+E4C6<br>U+E4C7 | fermataLongAbove<br>fermataLongBelow           |
| \veryshortfermata | U+E4C2<br>U+E4C3 | fermataVeryShortAbove<br>fermataVeryShortBelow |
| \verylongfermata  | U+E4C8<br>U+E4C9 | fermataVeryLongAbove<br>fermataVeryLongBelow   |

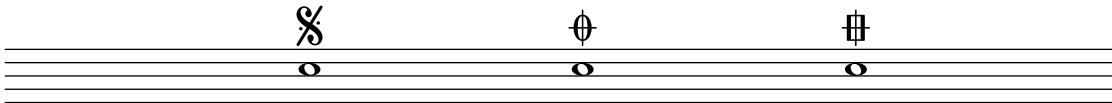


|                    |                  |  |
|--------------------|------------------|--|
| \henzeshortfermata | U+E4CC<br>U+E4CD | fermataShortHenzeAbove<br>fermataShortHenzeBelow |
| \henzelongfermata  | U+E4CA<br>U+E4CB | fermataLongHenzeAbove<br>fermataLongHenzeBelow   |



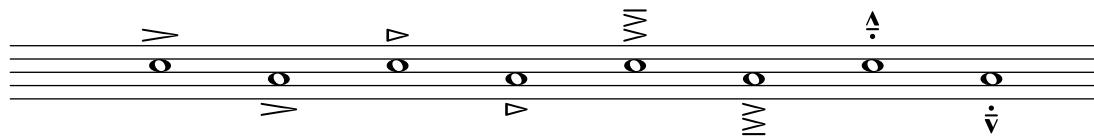
## Repeat signs

|          |        |            |
|----------|--------|------------|
| \segno   | U+E047 | segno      |
| \coda    | U+E048 | coda       |
| \varcoda | U+E049 | codaSquare |

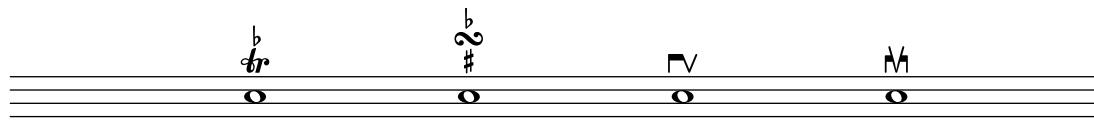


## Ekmeles (Examples)

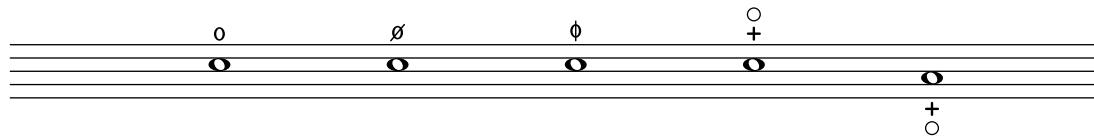
```
\ekmScript #'accent #'((#xE4A0 1) . (#xE4A1 1))
\ekmScript #'accent #'((#xE4A0 2) . (#xE4A1 2))
\ekmScript #'accent #'((#xE4A4 #xE4A0 #xE4A0) .
                      (#xE4A5 #xE4A1 #xE4A1))
\ekmScript #'portato #'((#xE4AC #xE4A4 #xE4A2) .
                        (#xE4AD #xE4A5 #xE4A3))
```



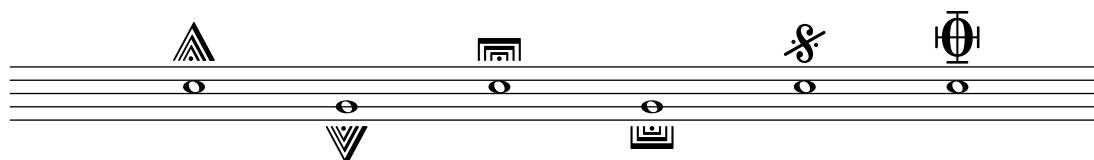
```
\ekmScript #'trill #'((#xE260 #xE566))
\ekmScript #'turn #'((#xE260 #xE567 #xE262))
\ekmScript #'downbow #'((#xE626 1))
\ekmScript #'downbow #'((#xE626 2))
```



```
\open
\halfopen
#(make-articulation 'halfopenvertical)
\ekmScript #'stopped #'((#xE614 #xE633) . (#xE633 #xE614))
```



```
\ekmScript #'veryshortfermata #'(#xF69E . #xF69F)
\ekmScript #'verylongfermata #'(#xF6A0 . #xF6A1)
\ekmScript #'segno #'((#xE047 1))
\ekmScript #'coda #'((#xE048 1))
```



## Multi-segment spanner

---

```
\ekmSmuflOn #'textspan
```

Draw text spans assembled from SMuFL multi-segment glyphs.

```
\ekmSmuflOn #'trill
```

Draw trill spans assembled from SMuFL multi-segment glyphs, and SMuFL trill pitches.

See also [Trill spans and pitches](#).

```
\ekmStartSpan STYLE TEMPO ATTACHMENT
```

Start a text span or trill span. [ [Ly](#) ]

The style `trill` starts a trill span. A second style can be added to draw other glyphs, e.g.

`trill-vibrato-large`. Any other style starts a text span. An undefined style like `dashed-line` produces normal LilyPond output.

`TEMPO` is a number or a pair of numbers (rounded to integer) for the segments of the spanner. 0 is the main (medium) segment. Positive values mean faster (narrower) segments. Negative values mean slower (wider) segments. A pair '(A . B)' draws all segments from A through B, evenly distributed over the spanner. The available range of numbers depends on the style.

`ATTACHMENT` is an [EXTEXT](#) or a pair '(EXTEXT-LEFT . EXTEXT-RIGHT)' for the edge symbols. A single [EXTEXT](#) is equivalent to '(EXTEXT . 0)'. It must be specified in a pair if itself is a list.

#f draws the standard glyph on the left and right edge according to the style.

```
\ekmStartSpanMusic STYLE TEMPO ATTACHMENT MUSIC
```

Start a text span or trill span at MUSIC. [ [Ly](#) ]

This is a music function that doesn't need the `textspan` or `trill` [SMuFL switch](#) turned on.

### Styles

'trill

|      |  |        |                    |
|------|--|--------|--------------------|
| left |  | U+E566 | ornamentTrill      |
| 4    |  | U+EAA0 | wiggleTrillFastest |
| :    |  |        |                    |
| 0    |  | U+EAA4 | wiggleTrill        |
| :    |  |        |                    |
| -4   |  | U+EAA8 | wiggleTrillSlowest |

'vibrato

|      |  |        |                            |
|------|--|--------|----------------------------|
| left |  | U+EACC | wiggleVibratoStart         |
| 3    |  | U+EADB | wiggleVibratoMediumFastest |
| :    |  |        |                            |
| 0    |  | U+EADE | wiggleVibratoMediumFast    |
| :    |  |        |                            |
| -3   |  | U+EAE1 | wiggleVibratoMediumSlowest |

## 'vibrato-small

|      |   |        |                           |
|------|---|--------|---------------------------|
| left |  | U+EACC | wiggleVibratoStart        |
| 3    |  | U+EAD4 | wiggleVibratoSmallFastest |
| :    |   |        |                           |
| 0    |  | U+EAD7 | wiggleVibratoSmallFast    |
| :    |   |        |                           |
| -3   |  | U+EADA | wiggleVibratoSmallSlowest |

## 'vibrato-smallest

|      |   |        |                              |
|------|---|--------|------------------------------|
| left |  | U+EACC | wiggleVibratoStart           |
| 3    |  | U+EACD | wiggleVibratoSmallestFastest |
| :    |   |        |                              |
| 0    |  | U+EAD0 | wiggleVibratoSmallestFast    |
| :    |   |        |                              |
| -3   |  | U+EAD3 | wiggleVibratoSmallestSlowest |

## 'vibrato-large

|      |   |        |                           |
|------|---|--------|---------------------------|
| left |    | U+EACC | wiggleVibratoStart        |
| 3    |    | U+EAE2 | wiggleVibratoLargeFastest |
| :    |   |        |                           |
| 0    |    | U+EAЕ5 | wiggleVibratoLargeFast    |
| :    |   |        |                           |
| -3   |  | U+EAЕ8 | wiggleVibratoLargeSlowest |

## 'vibrato-largest

|      |   |        |                             |
|------|---|--------|-----------------------------|
| left |  | U+EACC | wiggleVibratoStart          |
| 3    |  | U+EAЕ9 | wiggleVibratoLargestFastest |
| :    |   |        |                             |
| 0    |  | U+EAEC | wiggleVibratoLargestFast    |
| :    |   |        |                             |
| -3   |  | U+EAЕF | wiggleVibratoLargestSlowest |

## 'circular

|       |   |        |                       |
|-------|---|--------|-----------------------|
| left  |  | U+EAC4 | wiggleCircularStart   |
| 4     |  | U+EACA | wiggleCircularSmall   |
| :     |   |        |                       |
| 0     |  | U+EAC9 | wiggleCircular        |
| :     |   |        |                       |
| -4    |  | U+EAC5 | wiggleCircularLargest |
| right |  | U+EACB | wiggleCircularEnd     |

## 'circular-constant

|    |   |        |                                    |
|----|---|--------|------------------------------------|
| 2  |  | U+EAC2 | wiggleCircularConstantLarge        |
| 1  |  | U+EAC0 | wiggleCircularConstant             |
| 0  |  | U+EAC0 | wiggleCircularConstant             |
| -1 |  | U+EAC1 | wiggleCircularConstantFlipped      |
| -2 |  | U+EAC3 | wiggleCircularConstantFlippedLarge |

|           |   |        |                        |  |
|-----------|---|--------|------------------------|--|
| 'wavy     |   |        |                        |  |
| 1         |   | U+EAB4 | wiggleWavyNarrow       |  |
| 0         |   | U+EAB5 | wiggleWavy             |  |
| -1        |   | U+EAB6 | wiggleWavyWide         |  |
| 'square   |   |        |                        |  |
| 1         |   | U+EAB7 | wiggleSquareWaveNarrow |  |
| 0         |   | U+EAB8 | wiggleSquareWave       |  |
| -1        |   | U+EAB9 | wiggleSquareWaveWide   |  |
| 'sawtooth |   |        |                        |  |
| 1         |   | U+EABA | wiggleSawtoothNarrow   |  |
| 0         |   | U+EABB | wiggleSawtooth         |  |
| -1        |   | U+EABC | wiggleSawtoothWide     |  |
| 'beam     |   |        |                        |  |
| 7         |   | U+EB02 | beamAccelRit15         |  |
|           | : |        |                        |  |
| 0         |   | U+EAFB | beamAccelRit8          |  |
|           | : |        |                        |  |
| -7        |   | U+EAF4 | beamAccelRit1          |  |
|           |   |        |                        |  |
| right     |   | U+EB03 | beamAccelRitFinal      |  |

## Ekmelos

'wavy

|        |  |        |                         |
|--------|--|--------|-------------------------|
| 6 .. 2 |  | U+F6B3 | wiggleWavyNarrower      |
| 1      |  | U+EAB4 | wiggleWavyNarrow        |
| 0      |  | U+EAB5 | wiggleWavy              |
| -1     |  | U+EAB6 | wiggleWavyWide          |
| -2     |  | U+F6B4 | wiggleWavyWider         |
| :      |  |        |                         |
| -6     |  | U+F727 | wiggleWavyQuadrupleWide |

'square

|        |  |        |                               |
|--------|--|--------|-------------------------------|
| 6 .. 2 |  | U+F6B5 | wiggleSquareWaveNarrower      |
| 1      |  | U+EAB7 | wiggleSquareWaveNarrow        |
| 0      |  | U+EAB8 | wiggleSquareWave              |
| -1     |  | U+EAB9 | wiggleSquareWaveWide          |
| -2     |  | U+F6B6 | wiggleSquareWaveWider         |
| :      |  |        |                               |
| -6     |  | U+F72B | wiggleSquareWaveQuadrupleWide |

'sawtooth

|        |  |        |                             |
|--------|--|--------|-----------------------------|
| 6 .. 2 |  | U+F6B7 | wiggleSawtoothNarrower      |
| 1      |  | U+EABA | wiggleSawtoothNarrow        |
| 0      |  | U+EABB | wiggleSawtooth              |
| -1     |  | U+EABC | wiggleSawtoothWide          |
| -2     |  | U+F6B8 | wiggleSawtoothWider         |
| :      |  |        |                             |
| -6     |  | U+F72F | wiggleSawtoothQuadrupleWide |

```

\relative c' {
  \ekmSmuflOn #'textspan

  c1 \ekmStartSpan
    #'vibrato
    #'(3 . -3)
    ##f
  c c c c2 \stopTextSpan

  d2 \ekmStartSpan
    #'vibrato-large
    #'(3 . -3)
    #0
  d1 d d \stopTextSpan
  R1

  c1 \ekmStartSpan
    #'circular
    #'(-4 . -1)
    ##f
  c d d e e f \stopTextSpan
  R1

  \textSpannerDown
  d1 \ekmStartSpan
    #'wavy
    #'(0 . -6) % this range uses Ekmelos glyphs
    #'((#xE651 #xE652) . #xE653)
  d d d d d d d d d d d d
  R1 \stopTextSpan
  \textSpannerNeutral

  c1 \ekmStartSpan
    #'beam
    #'(-5 . 5)
    ##f
  c c c c c c
  R1 \stopTextSpan
}

```

13

26

39

## Trill spans and pitches

---

```
\ekmSmuflOn #'trill
```

Draw trill spans assembled from SMuFL multi-segment glyphs, and SMuFL trill pitches.

```
\ekmStartTrillSpan TEMPO
```

Start a trill span with the style `trill`. See [Multi-segment spanner](#) . [ Ly ]

`TEMPO` is a number or a pair of numbers (rounded to integer) for the segments of the spanner, usually in the range 4 to -4.

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

and to `\ekmStartSpan #'trill #0 ##f`

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

Draw a trill pitch. For NOTEHEAD-STYLE see [Noteheads](#) . For variable accidentals on AUXILIARY-NOTE see [Ekmelily](#) . [ Err ]

```
\pitchedTrill is equivalent to \ekmPitchedTrill #'default #'default
```

### Parenthesis styles

|          |        |                        |
|----------|--------|------------------------|
| 'default | U+E26A | accidentalParensLeft   |
|          | U+E26B | accidentalParensRight  |
| 'bracket | U+E26C | accidentalBracketLeft  |
|          | U+E26D | accidentalBracketRight |



### Ekmelos

|        |        |                      |
|--------|--------|----------------------|
| 'brace | U+F6D4 | accidentalBraceLeft  |
|        | U+F6D5 | accidentalBraceRight |
| 'angle | U+F6D6 | accidentalAngleLeft  |
|        | U+F6D7 | accidentalAngleRight |



```

\relative c' {
  \ekmSmuflOn #'trill

  c1 \ekmStartTrillSpan #0
  c c2. d4 \stopTrillSpan
  R1

  c \ekmStartTrillSpan #-1
  d \ekmStartTrillSpan #-2
  e \ekmStartTrillSpan #-3
  f \ekmStartTrillSpan #-4
  g \stopTrillSpan
  R1

  c, \ekmStartTrillSpan #'(-1 . -4)
  d e f g \stopTrillSpan
  R1

  \afterGrace
  d2 \ekmStartTrillSpan #2
  { c16[ d] }
  c2 \stopTrillSpan
  R1

  \ekmPitchedTrill #'triangle #'bracket
  d1 \ekmStartTrillSpan #4
  e
  d d2 c \stopTrillSpan
  R1

  c1 \ekmStartSpan
    #'trill
    #-1
    #'((#xE262 #xE566) . 0) % draws an Ekmelos ligature
  c c2. d4 \stopTrillSpan
  R1

  c1 \ekmStartSpan
    #'trill
    #-3
    #'(, (markup #:concat
      (#:ekm-char #xE566
       #:general-align Y -0.7
       #:fontsize -2
       #:ekm-char #xE262))
      . 0)
  c c2. d4 \stopTrillSpan
  R1

  c1 \ekmStartSpan
    #'trill-vibrato-large
    #'(3 . -3)
    #"tr"
  c c c c c c c c \stopTrillSpan
}

```

A musical score consisting of four staves of music. The first staff starts at measure 1, the second at measure 13, the third at measure 25, and the fourth at measure 37. Each staff uses a treble clef and a common time signature. The music consists of various notes (open circles) and rests (solid black shapes). The first staff features a series of eighth-note pairs connected by wavy lines. The second staff includes a sixteenth-note group and a note with a sharp sign. The third staff contains a continuous eighth-note pattern. The fourth staff begins with a single eighth note followed by three more eighth notes.

## Laissez vibrer

---

\ekmSmuflOn #'1v

Draw SMuFL laissez vibrer ties.

\ekmLaissezVibrer SIZE

Draw a laissez vibrer tie after a note, corresponding to SIZE. [ Ly ]

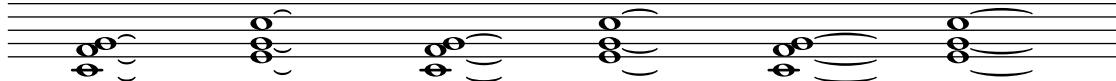
\laissezVibrer is equivalent to \ekmLaissezVibrer #0

### Size ranges

|            |        |                         |
|------------|--------|-------------------------|
| any number | U+E4BA | articLaissezVibrerAbove |
|            | U+E4BB | articLaissezVibrerBelow |

### Ekmelos

|       |        |                                  |
|-------|--------|----------------------------------|
| ≤ 5.5 | U+E4BA | articLaissezVibrerAbove          |
|       | U+E4BB | articLaissezVibrerBelow          |
| ≤ 8   | U+F6FC | articLaissezVibrerAboveLong      |
|       | U+F6FD | articLaissezVibrerBelowLong      |
| > 8   | 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)



## Colon and Segno bar lines

---

```
\ekmSmuflOn #'colon
```

Draw SMuFL colon bar lines.

```
\ekmSmuflOn #'segno
```

Draw SMuFL segno bar lines.

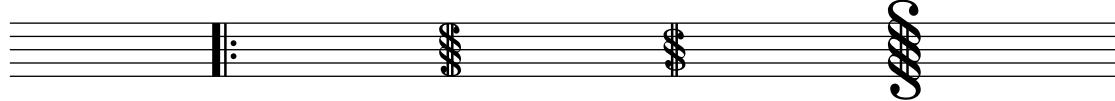
Note that both, `colon` and `segno` are set independently of a context and cannot be turned off.

### Bar glyphs

|   |        |               |
|---|--------|---------------|
| : | U+E043 | repeatDots    |
| S | U+E04A | segnoSerpent1 |

### Ekmelos

|    |        |                    |
|----|--------|--------------------|
| s  | U+F6C8 | segnoSerpentSmall1 |
| \$ | U+F6CA | segnoSerpentLarge1 |



```
\new PianoStaff \with {
  \ekmSmuflOn #'segno
}
<<
\new Staff \relative c' {
  c1 \bar "S"
  c \bar "S.|:-S"

  % Ekmelos bar glyphs
  c \bar "s"
  c \bar ":-| .s.|:-s"

  c \bar "$"
  c \bar ":-| .\$-\$"
}
\new Staff \relative c' {
  d1 d d d d d
}
>>
```

## Percent repeats

---

\ekmSmuflOn #'percent

Draw SMuFL percent repeats.

|  |        |                |
|--|--------|----------------|
|  | U+E504 | repeatBarSlash |
|  | U+E500 | repeat1Bar     |
|  | U+E501 | repeat2Bars    |

```
\relative c' {
    \ekmSmuflOn #'percent

    \repeat percent 2 { c2 }
    \repeat percent 4 { c4 }
    \repeat percent 4 { c8 d }
    \repeat percent 4 { c16 d e f }
    \repeat percent 5 { c32 d e f }
    \repeat percent 4 { c64 d e f }
    \repeat percent 4 { c128 d e f }
    \break

    \repeat percent 2 { c4 d e d }
    \repeat percent 2 { c2 e }
    \break

    \repeat percent 2 { g,16 b c8~ c4 }
    \repeat percent 2 { c4 d e d | c2 e }
}
```

5

6

10

## Tremolo marks

---

```
\ekmSmuflOn #'tremolo
```

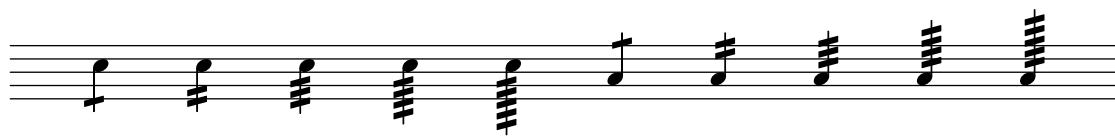
Draw SMuFL tremolo marks on stems.

The style (shape) can be set with

```
\override StemTremolo.shape = #STYLE
```

### Styles

|            |      |        |          |
|------------|------|--------|----------|
| '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 **EXTTEXT** on the stems of the tremolo notes in **MUSIC**, independent of the subdivision **:N**, and independent of the **tremolo** switch. A list of code points or a markup is centered horizontally, while a single code point is assumed being a centered stem decoration. Some strings are defined as names of symbols.

### Names

|               |        |                         |
|---------------|--------|-------------------------|
| "buzzroll"    | U+E22A | buzzRoll                |
| "penderecki"  | U+E22B | pendereckiTremolo       |
| "stockhausen" | U+E232 | stockhausenTremolo      |
| "unmeasured"  | U+E22C | unmeasuredTremolo       |
| "unmeasuredS" | U+E22D | unmeasuredTremoloSimple |



## Symbols on stem (Stem decorations)

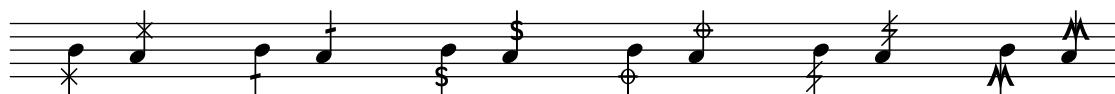
---

\ekmStem EXTEXT MUSIC

Draw a symbol from EXTEXT vertically centered on the stems in MUSIC. A list of code points or a markup is centered horizontally, while a single code point is assumed being a centered stem decoration. Some strings are defined as names of symbols.

### Names

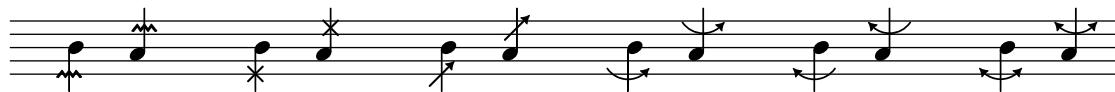
|                |        |                           |
|----------------|--------|---------------------------|
| "sprechgesang" | U+E645 | vocalSprechgesang         |
| "halbGesungen" | U+E64B | vocalHalbGesungen         |
| "sussurando"   | U+E646 | vocalsSussurando          |
| "damp"         | U+E63B | pluckedDampOnStem         |
| "stringNoise"  | U+E694 | harpStringNoiseStem       |
| "multiphonics" | U+E607 | windMultiphonicsBlackStem |



|                   |        |                        |
|-------------------|--------|------------------------|
| "bowBehindBridge" | U+E618 | stringsBowBehindBridge |
| "bowOnBridge"     | U+E619 | stringsBowOnBridge     |
| "bowOnTailpiece"  | U+E61A | stringsBowOnTailpiece  |
| "fouette"         | U+E622 | stringsFouette         |
| "vibrato"         | U+E623 | stringsVibratoPulse    |
| "rimShot"         | U+E7FD | pictRimShotOnStem      |



|                 |        |                       |
|-----------------|--------|-----------------------|
| "crush"         | U+E80C | pictCrushStem         |
| "deadNote"      | U+E80D | pictDeadNoteStem      |
| "swish"         | U+E808 | pictSwishStem         |
| "turnRight"     | U+E809 | pictTurnRightStem     |
| "turnLeft"      | U+E80A | pictTurnLeftStem      |
| "turnRightLeft" | U+E80B | pictTurnRightLeftStem |



```
\relative c' {
  \ekmTremolo ##xE233
  { b4:8 a: }

  % uses a list to center horizontally
  \ekmTremolo #'( #xE56C)
  { b4:8 a: }

  \ekmStem sussurando
  { b4 a }

  \ekmStem "S"
  { b a }

  \ekmStem \markup { \fontsize #-6 \sans "pizz" }
  { b a }
}
```



## Arpeggios

---

\ekmSmuflOn #'arpeggio

Draw SMuFL arpeggios.

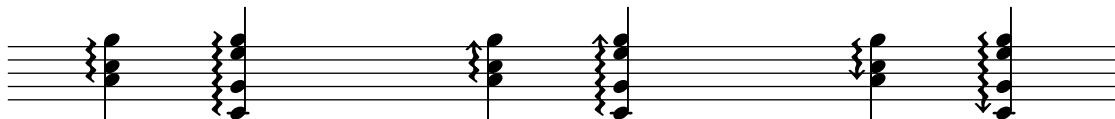
The style can be set with

```
\override Arpeggio.style = #STYLE
```

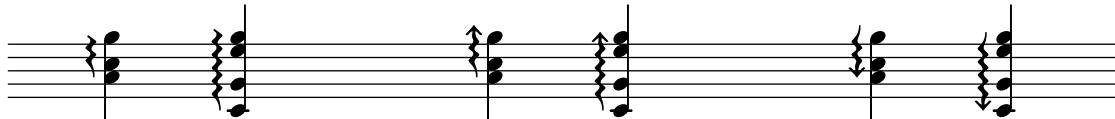
Use \ekmArpeggioNormal , \ekmArpeggioArrowUp , and \ekmArpeggioArrowDown instead of \arpeggioNormal , etc. which turn off the SMuFL support (they revert the stencil).

### Styles

|          |        |                           |
|----------|--------|---------------------------|
| 'default | U+EAA9 | wiggleArpeggiatoUp        |
|          | U+EAAA | wiggleArpeggiatoDown      |
|          | U+EAAD | wiggleArpeggiatoUpArrow   |
|          | U+EAAE | wiggleArpeggiatoDownArrow |



|        |   |                                  |
|--------|---|----------------------------------|
| 'swash | : |                                  |
|        |   | U+EAAB wiggleArpeggiatoUpSwash   |
|        |   | U+EAAC wiggleArpeggiatoDownSwash |



```

\new PianoStaff \with {
    \ekmSmuflOn #'arpeggio
}
<<
\set PianoStaff.connectArpeggios = ##t

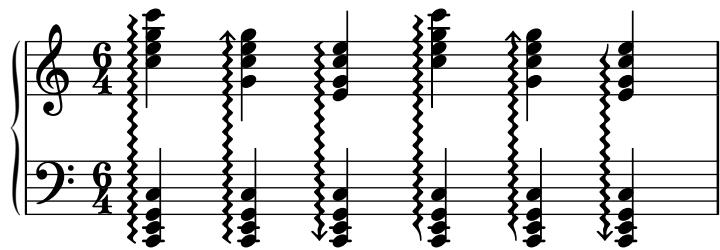
\new Staff \relative c'' {
    \time 6/4
    <c e g c>4 \arpeggio
    \once \override PianoStaff.Arpeggio.arpeggio-direction = #UP
    <g c e g> \arpeggio
    \once \override PianoStaff.Arpeggio.arpeggio-direction = #DOWN
    <e g c e> \arpeggio

    \override PianoStaff.Arpeggio.style = #'swash
    <c' e g c> \arpeggio
    \once \override PianoStaff.Arpeggio.arpeggio-direction = #UP
    <g c e g> \arpeggio
    \once \override PianoStaff.Arpeggio.arpeggio-direction = #DOWN
    <e g c e> \arpeggio
}

\new Staff \relative c, {
    \clef bass
    <c e g c>4 \arpeggio
    <c e g c> \arpeggio
    <c e g c> \arpeggio

    <c e g c> \arpeggio
    <c e g c> \arpeggio
    <c e g c> \arpeggio
}
>>

```



## Ottavation

---

The ottavation style (markups) can be set with

```
\set Staff.ottavationMarkups = #(ekm-ottavation STYLE)
```

### Styles

|          |         |        |              |
|----------|---------|--------|--------------|
| 'numbers | $\pm 1$ | U+E510 | ottava       |
|          | $\pm 2$ | U+E514 | quindicesima |
|          | $\pm 3$ | U+E517 | ventiduesima |

A musical staff with four measures of quarter notes. Above the staff, the numbers 8, 15, and 22 are placed at the beginning of each measure respectively. Below the staff, the numbers 8, 15, and 22 are placed at the end of each measure respectively.

|           |    |        |                   |
|-----------|----|--------|-------------------|
| '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 |

A musical staff with four measures of quarter notes. Above the staff, the numbers 8va, 15ma, and 22ma are placed at the beginning of each measure respectively. Below the staff, the numbers 8va, 15ma, and 22ma are placed at the end of each measure respectively.

|                  |    |        |                     |
|------------------|----|--------|---------------------|
| '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 |

A musical staff with four measures of quarter notes. Below the staff, the numbers 8vb, 15mb, and 22mb are placed at the beginning of each measure respectively. Above the staff, the numbers 8va, 15ma, and 22ma are placed at the end of each measure respectively.

|             |    |        |                     |
|-------------|----|--------|---------------------|
| '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 |

A musical staff with four measures of quarter notes. Below the staff, the numbers 8vb, 15mb, and 22mb are placed at the beginning of each measure respectively. Above the staff, the numbers 8va, 15ma, and 22ma are placed at the end of each measure respectively.

|                 |    |        |                   |
|-----------------|----|--------|-------------------|
| 'ordinals-bassa | 1  | U+E511 | ottavaAlta        |
|                 | -1 | U+E512 | ottavaBassa       |
|                 |    | U+E51F | octaveBassa       |
|                 | 2  | U+E515 | quindicesimaAlta  |
|                 | -2 | U+E516 | quindicesimaBassa |
|                 |    | U+E51F | octaveBassa       |
|                 | 3  | U+E518 | ventiduesimaAlta  |
|                 | -3 | U+E519 | ventiduesimaBassa |
|                 |    | U+E51F | octaveBassa       |

8va-----  
8va bassa  
15ma-----  
15ma bassa  
22ma-----  
22ma bassa

|             |    |        |                 |
|-------------|----|--------|-----------------|
| 'numbers-ba | 1  | U+E510 | ottava          |
|             | -1 | U+E513 | ottavaBassaBa   |
|             | 2  | U+E514 | quindicesima    |
|             | -2 | U+E514 | quindicesima    |
|             |    | U+EC93 | octaveBaselineB |
|             |    | U+EC91 | octaveBaselineA |
|             | 3  | U+E517 | ventiduesima    |
|             | -3 | U+E517 | ventiduesima    |
|             |    | U+EC93 | octaveBaselineB |
|             |    | U+EC91 | octaveBaselineA |

8-----  
8ba  
15-----  
15ba  
22-----  
22ba

|              |    |        |                  |
|--------------|----|--------|------------------|
| '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  |

8va-----  
8ba  
15ma-----  
15ba  
22ma-----  
22ba

### Note:

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

## Ekmelos

'numbers

**8** ... **29**

**8** ... **29**

'ordinals

**8va** ... **29ma**

**8va** ... **29ma**

'simple-ordinals

**8va** ... **29ma**

**8vb** ... **29mb**

'ordinals-b

**8va** ... **29ma**

**8vb** ... **29mb**

'ordinals-bassa

**8va** ... **29ma**

**8va bassa** ... **29ma bassa**

'numbers-ba

**8** ... **29**

**8ba** ... **29ba**

'ordinals-ba

**8va** ... **29ma**

**8ba** ... **29ba**

\ekm-ottavation DEFINITION

Draw an ottavation text according to DEFINITION as markup.

|       |              |        |                     |
|-------|--------------|--------|---------------------|
| 8     | <b>8</b>     | U+E510 | ottava              |
| 8^va  | <b>8va</b>   | U+E511 | ottavaAlta          |
| 8va   | <b>8va</b>   | U+E512 | ottavaBassa         |
| 8ba   | <b>8ba</b>   | U+E513 | ottavaBassaBa       |
| 8vb   | <b>8vb</b>   | U+E51C | ottavaBassaVb       |
| 15    | <b>15</b>    | U+E514 | quindicesima        |
| 15^ma | <b>15ma</b>  | U+E515 | quindicesimaAlta    |
| 15ma  | <b>15ma</b>  | U+E516 | quindicesimaBassa   |
| 15mb  | <b>15mb</b>  | U+E51D | quindicesimaBassaMb |
| 22    | <b>22</b>    | U+E517 | ventiduesima        |
| 22^ma | <b>22ma</b>  | U+E518 | ventiduesimaAlta    |
| 22ma  | <b>22ma</b>  | U+E519 | ventiduesimaBassa   |
| 22mb  | <b>22mb</b>  | U+E51E | ventiduesimaBassaMb |
| (     | (            | U+E51A | octaveParensLeft    |
| )     | )            | U+E51B | octaveParensRight   |
| bassa | <i>bassa</i> | U+E51F | octaveBassa         |
| loco  | <i>loco</i>  | U+EC90 | octaveLoco          |
| ^a    | <i>a</i>     | U+EC92 | octaveSuperscriptA  |
| ^b    | <i>b</i>     | U+EC94 | octaveSuperscriptB  |
| ^m    | <i>m</i>     | U+EC96 | octaveSuperscriptM  |
| ^v    | <i>v</i>     | U+EC98 | octaveSuperscriptV  |
| a     | <i>a</i>     | U+EC91 | octaveBaselineA     |
| b     | <i>b</i>     | U+EC93 | octaveBaselineB     |
| m     | <i>m</i>     | U+EC95 | octaveBaselineM     |
| v     | <i>v</i>     | U+EC97 | octaveBaselineV     |

## Ekmelos

|       |             |        |                         |
|-------|-------------|--------|-------------------------|
| 8^vb  | <b>8vb</b>  | U+F652 | ottavaBassaSupVb        |
| 15^mb | <b>15mb</b> | U+F653 | quindicesimaBassaSupMb  |
| 22^mb | <b>22mb</b> | U+F654 | ventiduesimaBassaSupMb  |
| 29    | <b>29</b>   | U+F6F8 | ventinovesima           |
| 29^ma | <b>29ma</b> | U+F6F9 | ventinovesimaAlta       |
| 29ma  | <b>29ma</b> | U+F6FA | ventinovesimaBassa      |
| 29^mb | <b>29mb</b> | U+F655 | ventinovesimaBassaSupMb |
| 29mb  | <b>29mb</b> | U+F6FB | ventinovesimaBassaMb    |

## Tuplet numbers

---

```
\ekmSmuflOn #'tuplet
```

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

|   |                 |        |         |             |
|---|-----------------|--------|---------|-------------|
| 0 | <b><i>o</i></b> | U+E880 | tuplet0 |             |
| : |                 |        |         |             |
| 9 | <b><i>9</i></b> | 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)
```

```

\relative c' {
  \cadenzaOn

  c4
  \override TupletNumber.text =
    #ekm-tuplet-number::calc-denominator-text
  \tuplet 5/4 {
    f8 e f
    \tuplet 3/2 { e[ f g] }
  }
  \bar "|"

  \override TupletNumber.text =
    #ekm-tuplet-number::calc-fraction-text
  \tuplet 12/7 { c,,8[ d e f g a b c d e f g] }
  \tuplet 2/3 { e4 d }
  \bar "|"
  \break

  \once \override TupletNumber.text =
    #(ekm-tuplet-number::append-note-wrapper
      ekm-tuplet-number::calc-fraction-text
      (ly:make-duration 2 0))
  \tuplet 5/4 { c8[ d c d c d c d c d] }
  \bar "|"

  \once \override TupletNumber.text =
    #(ekm-tuplet-number::fraction-with-notes
      (ly:make-duration 2 1)
      (ly:make-duration 3 0))
  \tuplet 3/2 { c4. b a g }
  \bar "|"

  \once \override TupletNumber.text =
    #(ekm-tuplet-number::non-default-fraction-with-notes
      12 (ly:make-duration 3 0)
      4 (ly:make-duration 2 0))
  \tuplet 3/2 { c4. b a g }
  \bar "|"
}

```

The musical score consists of two staves. The top staff begins with a common time signature (C). It contains a measure with a 5/4 time signature, indicated by a bracket under the first five notes. This is followed by a measure with a 12/7 time signature, indicated by a bracket above the notes and the text "12:7" above the staff. The bottom staff begins with a 5:4 time signature, indicated by a bracket under the first five notes. This is followed by a measure with a 3:2 time signature, indicated by a bracket above the staff and the text "3:2" below it. Finally, there is a measure with a 12:4 time signature, indicated by a bracket above the staff and the text "12:4" below it.

## 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`.

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

```
\ekm-finger DEFINITION
```

Draw a fingering instruction according to **DEFINITION** as markup. If the first character is `*` the `italic` style symbols are drawn, else the `default` symbols.

|          |        |                       |                                  |
|----------|--------|-----------------------|----------------------------------|
| 'default |        |                       |                                  |
| 0        | 0      | U+ED10                | fingering0                       |
|          | :      |                       |                                  |
| 5        | 5      | U+ED15                | fingering5                       |
| 6        | 6      | U+ED24                | fingering6                       |
|          | :      |                       |                                  |
| 9        | 9      | U+ED27                | fingering9                       |
| (        | (      | U+ED28                | fingeringLeftParenthesis         |
| )        | )      | U+ED29                | fingeringRightParenthesis        |
| [        | [      | U+ED2A                | fingeringLeftBracket             |
| ]        | U+ED2B | fingeringRightBracket |                                  |
| .        | •      | U+ED2C                | fingeringSeparatorMiddleDot      |
| ,        | ◦      | U+ED2D                | fingeringSeparatorMiddleDotWhite |
| /        | /      | U+ED2E                | fingeringSeparatorSlash          |
| ~~       | ~      | U+ED20                | fingeringSubstitutionAbove       |
| ~        | ~      | U+ED21                | fingeringSubstitutionBelow       |
| -        | -      | U+ED22                | fingeringSubstitutionDash        |
| M        | ⌚      | U+ED23                | fingeringMultipleNotes           |
| th       | ϙ      | U+E624                | stringsThumbPosition             |
| ht       | ϙ      | U+E625                | stringsThumbPositionTurned       |
| T        | Ҭ      | U+ED16                | fingeringTUpper                  |
| t        | ҭ      | U+ED18                | fingeringTLower                  |
| p        | ყ      | U+ED17                | fingeringPLower                  |
| i        | ҭ      | U+ED19                | fingeringILower                  |
| m        | ӎ      | U+ED1A                | fingeringMLower                  |
| a        | ԥ      | U+ED1B                | fingeringALower                  |
| c        | ԥ      | U+ED1C                | fingeringCLower                  |
| x        | ԥ      | U+ED1D                | fingeringXLower                  |
| e        | ԥ      | U+ED1E                | fingeringELower                  |
| o        | ԥ      | U+ED1F                | fingeringOLower                  |
| q        | ԥ      | U+ED8E                | fingeringQLower                  |
| s        | ԥ      | U+ED8F                | fingeringSLower                  |

'italic

|    |          |                             |                                  |
|----|----------|-----------------------------|----------------------------------|
| 0  | <i>o</i> | U+ED80                      | fingering0Italic                 |
|    | :        |                             |                                  |
| 9  | <i>9</i> | U+ED89                      | fingering9Italic                 |
| (  | (        | U+ED8A                      | fingeringLeftPunctuationItalic   |
| )  | )        | U+ED8B                      | fingeringRightPunctuationItalic  |
| [  | [        | U+ED8C                      | fingeringLeftBracketItalic       |
| ]  | U+ED8D   | fingeringRightBracketItalic |                                  |
| .  | •        | U+ED2C                      | fingeringSeparatorMiddleDot      |
| ,  | ◦        | U+ED2D                      | fingeringSeparatorMiddleDotWhite |
| /  | /        | U+ED2E                      | fingeringSeparatorSlash          |
| ~~ | ~        | U+ED20                      | fingeringSubstitutionAbove       |
| ~  | ~        | U+ED21                      | fingeringSubstitutionBelow       |
| -  | -        | U+ED22                      | fingeringSubstitutionDash        |

\ekmPlayWith HAND START MUSIC

Draw the symbol for the token R, RE, L, or LE (see above) alongside the notes in MUSIC. HAND is RIGHT or LEFT. START is  $\#t$  for the start symbol placed to the left, or  $\#f$  for the end symbol placed to the right.

```
\relative c' {
    \ekmSmuflOn #'fingering

    c4 - 2
    c - \finger "4~3"
    c - \finger "*4~~3"
    c - \finger "[c]"
    a _ \finger "th"
    b _ \finger "ht"
    < a - \finger "t"
    a' - \finger "(m_/_i)" >2
}
```

Musical score for 'The Star-Spangled Banner' showing measures 2 through 6. The key signature is C major (one sharp). Measure 2 starts with a half note followed by a quarter note. Measure 3 starts with a half note followed by a quarter note. Measure 4 starts with a half note followed by a quarter note. Measure 5 starts with a half note followed by a quarter note. Measure 6 starts with a half note followed by a quarter note.

```
\relative c' {
  \ekmSmuflOn #'fingering

  c \rightHandFinger #1
  e \rightHandFinger #2
  g \rightHandFinger #3
  c \rightHandFinger #4
  < c, \rightHandFinger #1
    e \rightHandFinger #2
    g \rightHandFinger #3
    c \rightHandFinger #4 >1
}
```



```
\relative c'' {
  \ekmSmuflOn #'fingering

  \ekmPlayWith #RIGHT ##t c
  \ekmPlayWith #RIGHT ##f g

  \ekmPlayWith #LEFT ##t c
  \ekmPlayWith #LEFT ##f g
}
```



## 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, either the defined symbol is drawn or the number with the normal text font and a circle around. Any other string, e.g. a Roman numeral, is drawn in italic style.

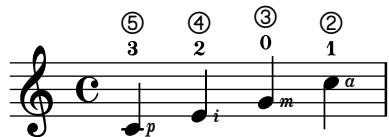
|    |   |        |                |
|----|---|--------|----------------|
| 0  | ① | U+E833 | guitarString0  |
|    | : |        |                |
| 9  | ⑨ | U+E83C | guitarString9  |
| 10 | ⑩ | U+E84A | guitarString10 |
|    | : |        |                |
| 13 | ⑬ | U+E84D | guitarString13 |

```
\relative c' {
    \ekmSmuflOn #'stringnumber

    c \2
    a \3
    d \13
    e \14
    < c, \5 e\4 g\3 >1
}
```

```
\relative c' {
  \ekmSmuflOn #'(fingering stringnumber)

  < 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 according to DEFINITION as markup.

|       |   |        |                              |
|-------|---|--------|------------------------------|
| Ped.  |   | U+E650 | keyboardPedalPed             |
| P     |   | U+E651 | keyboardPedalP               |
| e     |   | U+E652 | keyboardPedalE               |
| d     |   | U+E653 | keyboardPedalD               |
| Sost. |   | U+E659 | keyboardPedalSost            |
| S     |   | U+E65A | keyboardPedalS               |
| .     | . | 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         |
| l     |   | U+E65E | KeyboardLeftPedalPictogram   |
| m     |   | U+E65F | KeyboardMiddlePedalPictogram |
| r     |   | U+E660 | KeyboardRightPedalPictogram  |
| (     | ( | U+E676 | KeyboardPedalParensLeft      |
| )     | ) | U+E677 | KeyboardPedalParensRight     |

## Ekmelos

|          |                  |        |                               |
|----------|------------------|--------|-------------------------------|
| Ped      |                  | U+F434 | keyboardPedalPedNoDot         |
| Sost     |                  | U+F435 | KeyboardPedalSostNoDot        |
| Sos.     |                  | U+F6D1 | KeyboardPedalSos2             |
| sos.     |                  | U+F6D0 | KeyboardPedalSos              |
| 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               |
| 1/2Ped   |                  | U+F6B0 | KeyboardPedalHalf4            |
| 1/4      |                  | U+F6BA | KeyboardPedalPosQuarter       |
| 1/2      |                  | U+F6BB | KeyboardPedalPosHalf          |
| 3/4      |                  | U+F6BC | KeyboardPedalPosThreeQuarters |
| 1        |                  | U+F6BD | KeyboardPedalPosFull          |

```
\new Staff \with {
    \ekmSmuflOn #'pedal
}
\relative c' {
    \set Staff.pedalsSustainStrings = #'("Ped." "H" "*")
    c4 \sustainOn d c b c \sustainOff \sustainOn d c b c1 \sustainOff
    \break

    \set Staff.pedalSostenutoStyle = #'text
    \set Staff.pedalSostenutoStrings = #'("S-P" "()" "S. *")
    c4 \sostenutoOn d c b c \sostenutoOff \sostenutoOn d c b c1 \sostenutoOff
    \break

    % draws Ekmelos glyphs "unacorda" and "t.c."
    \set Staff.pedalUnaCordaStyle = #'text
    \set Staff.pedalUnaCordaStrings = #'("unacorda" "^\_t.c." "o")
    c4 \unaCorda d c b c \treCorde \unaCorda d c b c1 \treCorde
}
```

4

7

## Harp pedals

---

```
\ekm-harp-pedal DEFINITION
```

Draw a harp pedal diagram according to **DEFINITION** as markup. Space between tokens is ignored.

```
\ekm-harp-change EXTEXT Y
```

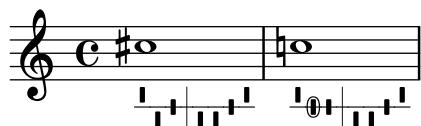
Draw EXTEXT as markup with an ellipse translated vertically by Y. Used by the following change tokens.

|    |  |        |                   |
|----|--|--------|-------------------|
| ^  |  | U+E680 | harpPedalRaised   |
| o^ |  | U+E681 | harpPedalCentered |
| -  |  | U+E682 | harpPedalLowered  |
| o- |  | U+E683 | harpPedalDivider  |
| v  |  |        |                   |
| ov |  |        |                   |
|    |  |        |                   |

### Ekmelos

|    |  |        |                         |
|----|--|--------|-------------------------|
| o^ |  | U+F648 | harpPedalRaisedChange   |
| o- |  | U+F649 | harpPedalCenteredChange |
| ov |  | U+F64A | harpPedalLoweredChange  |

```
\relative c' {
  \textLengthOn
  cis1 _ \markup \ekm-harp-pedal #"\^v-|vv-^"
  c! _ \markup \ekm-harp-pedal #"\^o--|vv-^"
}
```



## Fret diagrams

---

\ekm-fret-diagram-terse DEFINITION

Draw a fret diagram according to **DEFINITION** as markup. Fingering is always placed below.

Used properties:

- `fret-diagram-details top-fret-thickness (3): > 1` draws the ...Nut glyph.
- `fret-diagram-details finger-code (#t): 'none` draws no fingering.
- `fret-diagram-details finger-style ('sans)`

|           |   |        |                       |
|-----------|---|--------|-----------------------|
| 3 strings |   | U+E850 | fretboard3String      |
|           |   | U+E851 | fretboard3StringNut   |
| 4 strings |   | U+E852 | fretboard4String      |
|           |   | U+E853 | fretboard4StringNut   |
| 5 strings |   | U+E854 | fretboard5String      |
|           |   | U+E855 | fretboard5StringNut   |
| 6 strings |   | U+E856 | fretboard6String      |
|           |   | U+E857 | fretboard6StringNut   |
| .         | • | U+E858 | fretboardFilledCircle |
| x         | x | U+E859 | fretboardX            |
| o         | o | U+E85A | fretboardO            |

```
\relative c' {
  \textLengthOn

  c ^ \markup \ekm-fret-diagram-terse #"x;3-3;2-2;o;1-1;o;"

  cis ^ \markup \ekm-fret-diagram-terse #"x;x;3-3;1-1-(;2-2;1-1-);"

  e ^ \markup {
    \override #'(fret-diagram-details . (
      (top-fret-thickness . 1)
      (finger-code . none)))
    \ekm-fret-diagram-terse #"o;2-2;2-3;1-1;o;o;"

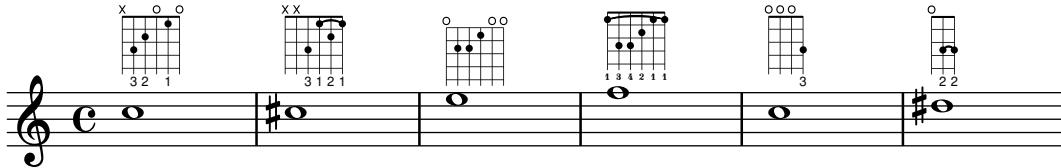
  }

  f ^ \markup {
    \override #'(fret-diagram-details . (
      (finger-style . fingering)))
    \ekm-fret-diagram-terse #"1-1-(;3-3;3-4;2-2;1-1;1-1-);"

  }

  c ^ \markup \ekm-fret-diagram-terse #"o;o;o;3-3;"

  dis ^ \markup \ekm-fret-diagram-terse #"o;3-2-(;3-2-);"
}
```



## Accordion registers

---

\ekm-accordion NAME

Draw an accordion register symbol as markup. NAME has a prefix for the register style separated by a space. "d" (discant) is the default and can be omitted.

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

Note: The module (scm accreg) is not required.

\ekmAccordion NAME

Set an accordion register symbol as a standalone music event. This is equivalent to

<> ^ \markup \ekm-accordion NAME

### Names

| "d ..."  | Discant   |        |                                    |
|----------|---|--------|------------------------------------|
| "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           |
| <br>                 |                          |        |                                    |
| "sb ..."             | Standard bass            |        |                                    |
| "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              |
| <br>                 |                          |        |                                    |
| "sb4 ..."            | Standard bass, four reed |        |                                    |
| "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 ..."            | Standard bass, five reed |        |                        |  |
| "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 ..."          | Standard bass, six reed |        |                        |  |
| "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 ..."       | Free bass |        |                                |  |
| "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 ..." | Square |
|----------|--------|
| "sq 1"   |        |
| "sq 100" |        |
| "sq 2"   |        |
| "sq 101" |        |
| "sq 102" |        |

## Accordion ricochet

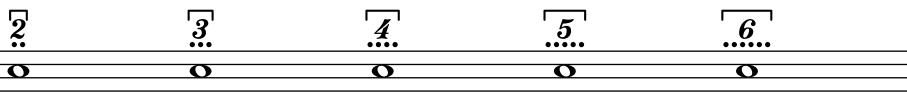
---

\ekmRicochet NUMBER

Draw a ricochet symbol as an expressive mark (script). [ Ly ]

### Numbers

|   |        |                |
|---|--------|----------------|
| 2 | U+E8CD | accdnRicochet2 |
| 3 | U+E8CE | accdnRicochet3 |
| 4 | U+E8CF | accdnRicochet4 |
| 5 | U+E8D0 | accdnRicochet5 |
| 6 | U+E8D1 | accdnRicochet6 |



\ekmStemRicochet NUMBER MUSIC

Draw a ricochet symbol vertically centered on the stems in MUSIC.

### Numbers

|   |        |                    |
|---|--------|--------------------|
| 2 | U+E8D2 | accdnRicochetStem2 |
| 3 | U+E8D3 | accdnRicochetStem3 |
| 4 | U+E8D4 | accdnRicochetStem4 |
| 5 | U+E8D5 | accdnRicochetStem5 |
| 6 | U+E8D6 | accdnRicochetStem6 |



## Falls and doits

---

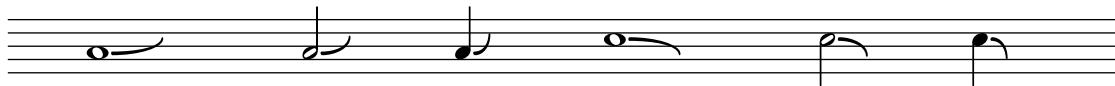
\ekmBendAfter STYLE DIRECTION

Draw a fall or doit (lift) symbol after a note.

### Styles

#### 'bend

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



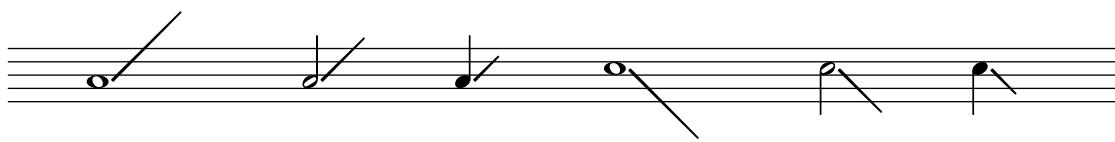
#### 'rough

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



#### 'smooth

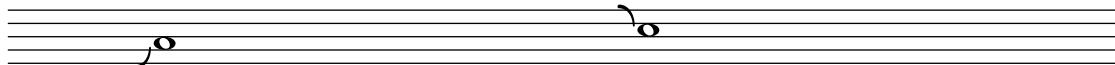
|      |        |                       |
|------|--------|-----------------------|
| UP   | U+E5EE | brassLiftSmoothLong   |
|      | U+E5ED | brassLiftSmoothMedium |
|      | U+E5EC | brassLiftSmoothShort  |
| DOWN | U+E5DC | brassFallSmoothLong   |
|      | U+E5DB | brassFallSmoothMedium |
|     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



\ekmScoop DIRECTION MUSIC

Draw a scoop or plop symbol to the left of each note in MUSIC.

|      |        |            |
|------|--------|------------|
| UP   | U+E5D0 | brassScoop |
| DOWN | U+E5E0 | brassPlop  |



## Figured bass

---

```
\ekmSmuflOn #'fbass
```

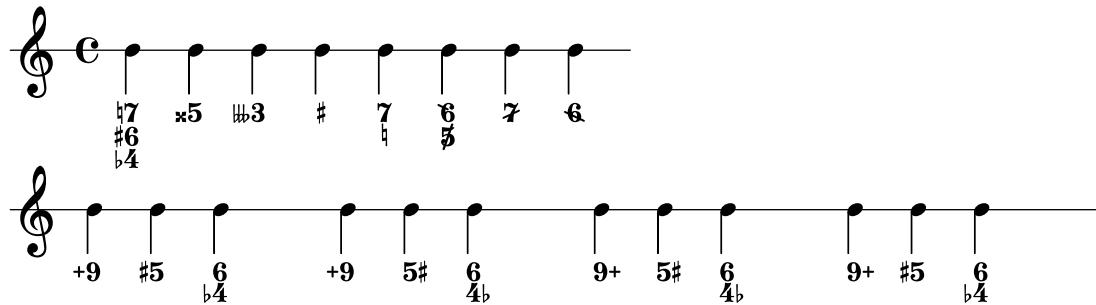
Draw SMuFL bass figures with `\figuremode`. Some raised / diminished figures use precomposed glyphs which ignore the property `figuredBassPlusDirection`.

|     |          |        |                          |
|-----|----------|--------|--------------------------|
| 0   | <b>0</b> | U+EA50 | figbass0                 |
| 1   | <b>1</b> | U+EA51 | figbass1                 |
| 2   | <b>2</b> | U+EA52 | figbass2                 |
| 3   | <b>3</b> | U+EA54 | figbass3                 |
| 4   | <b>4</b> | U+EA55 | figbass4                 |
| 5   | <b>5</b> | U+EA57 | figbass5                 |
| 6   | <b>6</b> | U+EA5B | figbass6                 |
| 7   | <b>7</b> | U+EA5D | figbass7                 |
| 8   | <b>8</b> | U+EA60 | figbass8                 |
| 9   | <b>9</b> | 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\+ | <b>2</b> | U+EA53 | figbass2Raised           |
| 4\+ | <b>4</b> | U+EA56 | figbass4Raised           |
| 5\+ | <b>5</b> | U+EA58 | figbass5Raised1          |
| 5\\ | <b>5</b> | U+EA59 | figbass5Raised2          |
| 5/  | <b>5</b> | U+EA5A | figbass5Raised3          |
| 6\\ | <b>6</b> | U+EA5C | figbass6Raised           |
| 6\+ | <b>6</b> | U+EA6F | figbass6Raised2          |
| 7\+ | <b>7</b> | U+EA5E | figbass7Raised1          |
| 7\\ | <b>7</b> | U+EA5F | figbass7Raised2          |
| 7/  | <b>7</b> | U+ECC0 | figbass7Diminished       |
| 9\\ | <b>9</b> | U+EA62 | figbass9Raised           |

```
\new Staff
<<
  \relative c' {
    \cadenzaOn

    b b b b b b b b
    \break

    b b b s
    b b b s
    b b b s
    b b b s
  }
  \figures {
    <7! 6+ 4-> <5++> <3---> <_+> <7 _!> <6\+ 5/> <7/> <6\\>
    <9\+> <5+> <6 4-> r
    \set figuredBassAlterationDirection = #RIGHT
    <9\+> <5+> <6 4-> r
    \set figuredBassPlusDirection = #RIGHT
    <9\+> <5+> <6 4-> r
    \set figuredBassAlterationDirection = #LEFT
    <9\+> <5+> <6 4-> r
  }
}
>>
\layout {
  \context {
    \Score
    \ekmSmuflOn #'fbass
    \override StaffSymbol.line-count = #1
  }
}
```



## Lyrics

---

```
\ekmSmuflOn #'lyric
```

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

Note: The characters `_` and `%` must be quoted in order to be passed on to this command.

```
\ekm-tied-lyric STRING
```

Draw `STRING` as markup, replacing tokens with the corresponding glyphs. The space between the adjoining words depends on the width of the respective glyph, while the property `word-space` is ignored.

In the token `~?~` (for narrow elision), `?` can be any Unicode character, not only ASCII.

|                  |                 |                     |                                   |
|------------------|-----------------|---------------------|-----------------------------------|
| <code>~</code>   | <code>˘</code>  | <code>U+E551</code> | <code>lyricsElision</code>        |
| <code>~?~</code> | <code>˘</code>  | <code>U+E550</code> | <code>lyricsElisionNarrow</code>  |
| <code>~~</code>  | <code>˘˘</code> | <code>U+E552</code> | <code>lyricsElisionWide</code>    |
| <code>-</code>   | <code>–</code>  | <code>U+E553</code> | <code>lyricsHyphenBaseline</code> |
| <code>%</code>   | <code>‰</code>  | <code>U+E555</code> | <code>lyricsTextRepeat</code>     |

```
\relative {
  \cadenzaOn
  b'~ b c fis, fis c' b e,
}
\addlyrics {
  Che~~in ques -- ta~ē~in quel -- l'al -- "tr_on" -- "da %"
}
\layout {
  \context {
    \Score
    \ekmSmuflOn #'lyric
  }
}
```

A musical score in common time (C) with a treble clef. The lyrics are placed below the staff, aligned with the notes. The lyrics are: 'Che\_in ques-ta\_ē\_in quel - l'al - tr\_on-da %'. The first two words have underscores under the first letter of each word. The third word has an underscore under the second letter. The fourth word has a hyphen before it. The fifth word has a hyphen before it. The sixth word ends with a percent sign.

## Chord names

---

```
\ekmSmuflOn #'chord
```

Draw SMuFL chord name symbols.

|       |   |        |                    |
|-------|---|--------|--------------------|
| dim   | O | U+E870 | csymDiminished     |
| m7.5- | Ø | U+E871 | csymHalfDiminished |
| maj7  | △ | U+E873 | csymMajorSeventh   |
| aug   | + | U+E872 | csymAugmented      |
| -     | - | U+E874 | csymMinor          |

```
someChords = \chordmode {
    c1:aug
    c1:dim
    c1:maj7
    c1:m7.5-
    % use Ekmelily (cosmufl.ily) to draw SMuFL accidentals
    cis1
    ces1
}

<<
\new ChordNames { \someChords }
\someChords
>>
\layout {
    \context {
        \Score
        \ekmSmuflOn #'chord
    }
}
```

A musical staff with a treble clef, a common time signature, and a key signature of one sharp. It contains six measures, each consisting of a single eighth note followed by a chord symbol. The chords are: C+ (two sharps), C⁰ (no sharps or flats), C^ (one sharp), C∅ (one flat), C# (two sharps), and C♭ (two flats).

## Analytics symbols

---

\ekm-analytics DEFINITION

Draw analytics symbols according to DEFINITION as markup.

|      |           |        |                                   |
|------|-----------|--------|-----------------------------------|
| H    | <b>H</b>  | U+E860 | analyticsHauptstimme              |
| CH   | <b>CH</b> | U+E86A | analyticsChoralmelodie            |
| RH   | <b>RH</b> | U+E86B | analyticsHauptrhythmus            |
| N    | <b>N</b>  | U+E861 | analyticsNebenstimme              |
| [    | <b>Γ</b>  | U+E862 | analyticsStartStimme              |
| ]    | <b>Γ</b>  | U+E863 | analyticsEndStimme                |
| Th   | <b>Th</b> | U+E864 | analyticsTheme                    |
| hT   | <b>hT</b> | U+E865 | analyticsThemeRetrograde          |
| i hT | <b>ψL</b> | U+E866 | analyticsThemeRetrogradeInversion |
| i Th | <b>ΨP</b> | U+E867 | analyticsThemeInversion           |
| T    | <b>T</b>  | U+E868 | analyticsTheme1                   |
| i T  | <b>L</b>  | U+E869 | analyticsInversion1               |

## Function theory symbols

---

\ekm-func DEFINITION

Draw a function theory symbol according to **DEFINITION** as markup. The definition string consists of several parts which are all optional:

Paren Function , Bass , Soprano ^ Extra ... Paren

The bass symbol is placed below the function symbol.

The soprano symbol is placed above the function symbol.

The extra symbols are stacked vertically and raised to the right of the function symbol.

A leading/trailing parenthesis, bracket, or brace 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_spacer_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 <sub>g</sub> |        |                |
| Tp | T <sub>p</sub> |        |                |
| t  | t              | U+EA8C | functionTLower |
| D  | D              | U+EA7F | functionDUpper |
| /D | D̄             |        |                |
| Dp | D <sub>p</sub> |        |                |

|     |   |        |                   |
|-----|---|--------|-------------------|
| DD  |    | U+EA81 | functionDD        |
| /DD |    | U+EA82 | functionSlashedDD |
| d   |    | U+EA80 | functionDLower    |
| S   |    | U+EA89 | functionSUpper    |
| Sg  |    |        |                   |
| Sp  |    |        |                   |
| SS  |    | U+EA7D | functionSSUpper   |
| s   |    | U+EA8A | functionSLower    |
| ss  |    | U+EA7E | functionSSLower   |
| F   |    | U+EA99 | functionFUpper    |
| G   |    | U+EA83 | functionGUpper    |
| g   |    | U+EA84 | functionGLower    |
| I   |   | U+EA9A | functionIUpper    |
| i   |  | U+EA9B | functionILower    |
| K   |  | U+EA9C | functionKUpper    |
| k   |  | U+EA9D | functionKLower    |
| L   |  | U+EA9E | functionLUpper    |
| l   |  | U+EA9F | functionLLower    |
| M   |  | U+ED00 | functionMUpper    |
| m   |  | U+ED01 | functionMLower    |
| N   |  | U+EA85 | functionNUpper    |
| n   |  | U+EA86 | functionNLower    |
| P   |  | U+EA87 | functionPUpper    |
| p   |  | U+EA88 | functionPLower    |
| r   |  | U+ED03 | functionRLower    |
| V   |  | U+EA8D | functionVUpper    |
| v   |  | U+EA8E | functionVLower    |
| 0   |  | U+EA70 | functionZero      |
| :   |   |        |                   |
| 9   |  | U+EA79 | functionNine      |

|   |   |                      |                           |
|---|---|----------------------|---------------------------|
| <   |    | U+EA7A               | functionLessThan          |
| >   |    | U+EA7C               | functionGreaterThan       |
| -   |    | U+EA7B               | functionMinus             |
| +   |    | U+EA98               | functionPlus              |
| 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   |  | U+ED60               | csymAccidentalFlat        |
| #   |  | U+ED62               | csymAccidentalSharp       |
| bb  |  | U+ED64               | csymAccidentalDoubleFlat  |
| x   |  | U+ED63               | csymAccidentalDoubleSharp |
| =   |  | U+ED61               | csymAccidentalNatural     |

~

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

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

## Ekmelos

/D  U+F644 functionSlashedD

The following example uses \ekm-func in text scripts to attach function theory symbols to chords and spacer rest. It 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"
}
```

A musical staff in C major. The first two measures show a D7 chord (with a 3 below it) followed by a two-note spacer rest (T). The next measure shows a D6-5 chord. The following three measures show a V# chord, an IV7# chord, and a VI chord (with a b below it).

The following example uses \ekmFuncList in a Lyrics context to synchronise function theory symbols to music. The Lyrics context requires the Text\_spacer\_engraver and is aligned to a NullVoice context. It is taken from [lsr.di.unimi.it/LSR/Item?id=967](http://lsr.di.unimi.it/LSR/Item?id=967) 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_spacer_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:  $\overset{3}{T}$   $(\overset{9}{D})_3^7 S_p \overset{9}{D} \overset{8}{P}$   $S \overset{6}{D}_3^5 (D^7) D^2 \overset{4}{D} \overset{3}{D}$   $(D^7 \overset{8}{D} \overset{7}{D}) [T_p] (D) \overset{7}{D} S \overset{3}{D} \overset{2}{D}$   $D \overset{8}{D} \overset{7}{D} D \overset{5}{D} \overset{7}{D} T$

## Arrows and arrow heads

---

\ekm-arrow STYLE ORIENTATION

Draw an arrow or arrow head of STYLE according to ORIENTATION as markup.

Arrows can have glyphs for several orientations. The remaining orientations are achieved by flipping or rotating through 90° or 45°. All following six styles have glyphs for the 8 orientations N ... NW.

### Styles

|             |    |        |                  |
|-------------|----|--------|------------------|
| 'black      | ↑  | U+EB60 | arrowBlackUp     |
| 'white      | ↑  | U+EB68 | arrowWhiteUp     |
| 'open       | ↑  | U+EB70 | arrowOpenUp      |
| 'black-head | ▲  | U+EB78 | arrowheadBlackUp |
| 'white-head | △  | U+EB80 | arrowheadWhiteUp |
| 'open-head  | ^K | U+EB88 | arrowheadOpenUp  |

### Examples for all orientations

| ORIENTATION | #N | #NE | #E | #SE | #S | #SW | #W | #NW | #NS | #NESW | #EW | #SENW |
|-------------|----|-----|----|-----|----|-----|----|-----|-----|-------|-----|-------|
| 'black      | ↑  | ↗   | →  | ↘   | ↓  | ↙   | ←  | ↖   | ↑   | ↗     | →   | ↘     |
| 'open-head  | ^K | ↖   | >  | ↙   | ˅  | ↖   | <  | ↖   | ^K  | ↖     | >   | ↖     |

\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 .

Ekmelos

|                       |                    |        |
|-----------------------|--------------------|--------|
| '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 |
| '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 |

## Percussion symbols

---

\ekm-beater STYLE ORIENTATION

Draw a percussion beater of STYLE according to ORIENTATION as markup.

Percussion beaters can have glyphs for several orientations. The remaining orientations are achieved by flipping or rotating through 90° or 30°. Most of the following styles have glyphs for the orientations N, S, NE, NW or N, S.

### Styles

|                 |  |        |                              |
|-----------------|--|--------|------------------------------|
| '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   |
| 'stick          |  | U+E7E8 | pictDrumStick                |
| 'stick-snare    |  | U+E7D1 | pictBeaterSnareSticksUp      |
| 'stick-jazz     |  | U+E7D3 | pictBeaterJazzSticksUp       |
| 'hammer-wood    |  | U+E7CB | pictBeaterHammerWoodUp       |
| 'hammer-plastic |  | U+E7CD | pictBeaterHammerPlasticUp    |
| 'hammer-metal   |  | U+E7CF | pictBeaterHammerMetalUp      |

|                 |       |        |                          |
|-----------------|-------|--------|--------------------------|
| 'wound-hard     | ○     | U+E7B3 | pictWoundHardUp          |
| 'wound-soft     | ○     | U+E7B7 | pictWoundSoftUp          |
| 'metal          | ⊗     | U+E7C7 | pictBeaterMetalUp        |
| 'brass-mallets  | ✗     | U+E7D9 | pictBeaterBrassMalletsUp |
| 'triangle       | △     | U+E7D5 | pictBeaterTriangleUp     |
| 'triangle-plain | /     | U+E7EF | pictBeaterTrianglePlain  |
| 'wire-brushes   | ⚡     | U+E7D7 | pictBeaterWireBrushesUp  |
| 'superball      | ↑     | U+E7AE | pictBeaterSuperballUp    |
| 'mallet         | ㄒ     | U+E7DF | pictBeaterMallet         |
| 'metal-hammer   | titan | U+E7E0 | pictBeaterMetalHammer    |
| 'hammer         | titan | U+E7E1 | pictBeaterHammer         |
| 'hand           | ✋     | U+E7E3 | pictBeaterHand           |
| 'finger         | 👉     | U+E7E4 | pictBeaterFinger         |
| 'fist           | ✊     | U+E7E5 | pictBeaterFist           |
| 'fingernails    | ☞     | U+E7E6 | pictBeaterFingernails    |

## Examples for all orientations

## Electronic music symbols

---

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

Draw a fader (volume control) and a MIDI controller, respectively, as markup.

LEVEL  $\geq 0$  is a percent value.

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

LEVEL is drawn as a label next to the control according to ORIENTATION . #f draws no label.

For the thumb position, LEVEL is rounded to the nearest integral percent value, limited to 100. If a symbol is defined exactly for this value, this symbol is drawn. Else if an empty control and a thumb symbol are defined, they are combined. Else the symbol for the value nearest to LEVEL is drawn.

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)

\ekm-fader

|     |   |        |                      |
|-----|---|--------|----------------------|
| 0   |   | U+EB2E | elecVolumeLevel0     |
|     | : |        |                      |
| 100 |   | U+EB33 | elecVolumeLevel100   |
|     | : |        |                      |
|     |   | U+EB2C | elecVolumeFader      |
|     |   | U+EB2D | elecVolumeFaderThumb |

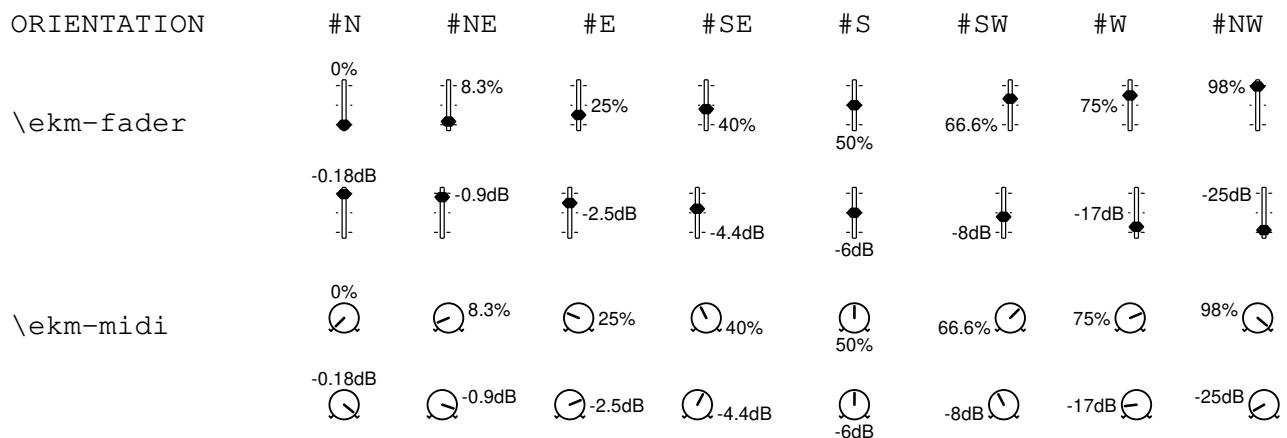
\ekm-midi

|     |   |        |                       |
|-----|---|--------|-----------------------|
| 0   |   | U+EB36 | elecMIDIController0   |
|     | : |        |                       |
| 100 |   | U+EB3B | elecMIDIController100 |

Ekmelos

|           |  |        |                         |
|-----------|--|--------|-------------------------|
| \ekm-midi |  | U+F6D2 | elecMIDIController      |
|           |  | U+F6D3 | elecMIDIControllerThumb |

## Examples for all orientations



## Other symbols

---

\ekm-fermata STYLE

Draw a fermata as markup.

Used property:

- direction

### Styles

|             |  |        |                        |
|-------------|--|--------|------------------------|
| '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   |
| 'henzeshort |  | U+E4CC | fermataShortHenzeAbove |
|             |  | U+E4CD | fermataShortHenzeBelow |
| 'henzelong  |  | U+E4CA | fermataLongHenzeAbove  |
|             |  | U+E4CB | fermataLongHenzeBelow  |

### Ekmelos

|             |  |        |                        |
|-------------|--|--------|------------------------|
| 'extrashort |  | U+F69E | fermataExtraShortAbove |
|             |  | U+F69F | fermataExtraShortBelow |
| 'extralong  |  | U+F6A0 | fermataExtraLongAbove  |
|             |  | U+F6A1 | fermataExtraLongBelow  |

\ekm-eyeglasses DIRECTION

Draw eyeglasses as markup.

U+EC62 miscEyglasses

### Ekmelos

U+F65F miscEyglassesRight

```
\ekm-metronome COUNT
```

Draw COUNT metronome strokes (tickings) as markup.

Used property:

- word-space

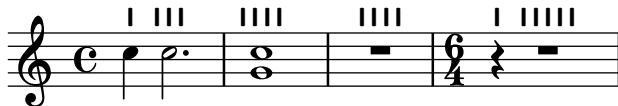
Ekmelos

| U+F614 noteTick

```
\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).

```
\relative c' {
  \ekmMetronome {
    c4
    c2.
    <g c>1
    R1
  }
  \time 6/4
  \ekmMetronome r4
  \ekmMetronome r1*5/4
}
```



## cosmufl.ily commands

---

The include file `cosmufl.ily` defines the following commands.

`\ekm-tuning`

Draw the selected tuning as markup.

`\ekm-combine-accidental ALTERATION-1 ALTERATION-2 ARG`

Combine markup ARG with the accidentals of ALTERATION-1/2 according to the selected notation style.

ALTERATION is a rational number or symbol (see the [Ekmelily command \ekmelic-char](#)). The symbol '`none`' draws no accidental (empty-stencil).

If ALTERATION-2 is '`x`' the accidental of ALTERATION-1 is placed to the right of ARG with `x-padding`. Else the accidentals are placed centered above and below ARG with `y-padding`.

Used properties:

- `x-padding (0.2)`
- `y-padding (0.1)`
- `acc-size (-1)` relative to the font size.

`\ekmScriptAccidental SCRIPT-NAME ALTERATION-1 ALTERATION-2`

Create a script from SCRIPT-NAME combined with the accidentals of ALTERATION-1/2.

Note: This does not work if SCRIPT-NAME is different from the internal name, e.g. `marcato` and `dmarcato`.

See also [Scripts](#).

`\ekmStartTrillSpanAccidental TEMPO ALTERATION`

Start a trill span whose left edge symbol is combined with the accidental of ALTERATION. [ [Ly](#) ]

See also [Trill spans and pitches](#).

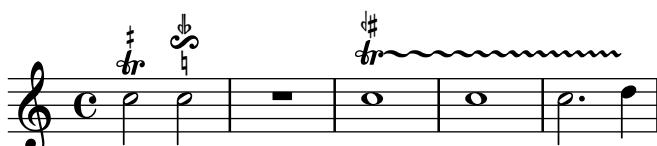
`\ekmStyle stz`

```
\relative c' {
    \ekmSmuflOn #'script

    c2 ^ \ekmScriptAccidental #'trill #1/4 #'none
    c2 ^ \ekmScriptAccidental #'reverseturn #-3/4 #0
    R1

    \ekmSmuflOn #'trill

    c1 \ekmStartTrillSpanAccidental
        #'(-3 . 2)
        #'iseh
    c c2. d4 \stopTrillSpan
}
```



## Basic markup commands

---

They implement the underlying SMuFL output in Esmuflily.

\ekm-char CODEPOINT

Draw the glyph of CODEPOINT, or the point-stencil for zero.

Used property:

- font-size (0)

\ekm-char ##xE048



\ekm-char ##xEB27



\ekm-charf CODEPOINT FEATURES

Draw the glyph of CODEPOINT with font features.

FEATURES is either a list of one or more strings, or the number of a stylistic alternate, or a negative number to draw the path instead of the font glyph.

#1 and #'(1) and #'("salt 1") are equivalent. #0 and #'() do not set font features.

#-1 and #'(-1) draw a filled path. Any other negative number -N draws the outline of the path with thickness N which is scaled to the current font size.

This command is independent of [globally drawing paths](#).

Used property:

- font-size (0)

\ekm-charf ##xE242 #0



\ekm-charf ##xE242 #'("salt 1")



\ekm-charf ##xE242 #'(2)



\ekm-charf ##xE242 #-20



\ekm-str STRING

Draw STRING with the selected font.

This command is independent of [globally drawing paths](#).

\ekm-chars CODEPOINT-LIST

Draw the glyphs of the CODEPOINTs in the list adjoined horizontally without padding, or the point-stencil for an empty list.

Used property:

- font-size (0)

\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 calls \ekm-char, \ekm-charf, or \ekm-chars, or it draws markup or the empty-stencil.

```
\ekm-text #'(#xE242 0)
\ekm-text #'(#xE242 "salt 1")
\ekm-text #'(#xE242 -20)
\ekm-text #'(#xE260 #xE2B4 #xE2B2)
```



## \ekm-concat EXTEXT-LIST

Draw the **EXTEXTs** in the list stacked in a line without padding.

## \ekm-line EXTEXT-LIST

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

Used properties:

- word-space
- text-direction

```
\ekm-line #'(#xE046 "al fine")
\ekm-line #'(#xE6D0 "with" #xE78E)
\ekm-line #'((#xE6D0 1) "with" #xE78E)
```



## \ekm-combine CODEPOINT X Y CODEPOINT2

Combine the glyphs of CODEPOINT and CODEPOINT2, where CODEPOINT2 is translated scaled by X,Y.

```
\ekm-combine ##xECA5 #-0.5 #1.0 ##xE56E
\ekm-combine ##xEA7F #0.3 #0 ##xE87B
```



## \ekm-cchar CENTER CODEPOINT

Draw the glyph of CODEPOINT, centered horizontally if CENTER is cx or cxy , and vertically if CENTER is cy or cxy .

## \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-def MAP DEFINITION
```

Draw a text according to **DEFINITION**.

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

```
#(define my-map `(
  ("." | ":" . #xE040)
  ("tr#~" . (#xE262 #xE566 #xEA6 #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/"
```



```
\ekm-number STYLE NUMBER
```

Draw the integer NUMBER according to STYLE, either as a sequence of decimal digit symbols or as a single number symbol (**string** and **scale**).

### Styles

|                   |            |
|-------------------|------------|
| 'time             | <b>4</b>   |
| 'time-turned      | <b>7</b>   |
| 'time-reversed    | <b>A</b>   |
| 'tuplet           | <b>4</b>   |
| 'fingering        | <b>4</b>   |
| 'fingering-italic | <b>4</b>   |
| 'fbass            | <b>4</b>   |
| 'func             | <b>4</b>   |
| 'string           | <b>(4)</b> |
| 'scale            | <b>^4</b>  |
| 'sans             | <b>4</b>   |
| 'serif            | <b>4</b>   |
| 'typewriter       | <b>4</b>   |

\ekm-label ORIENTATION LABEL ARG

Combine markup ARG with another markup LABEL placed 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" G<sup>③</sup>

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

\ekm-orient TYPE STYLE ORIENTATION

Draw the symbol of TYPE and STYLE according to ORIENTATION as markup.

\ekm-orient #'arrow #'black #NW 

\ekm-orient #'beater #'timpani-medium #NE 

\ekm-script STYLE DIRECTION

Draw the symbol of TYPE and STYLE according to DIRECTION as markup. If STYLE is a string, TYPE is 'script. If STYLE is a symbol, TYPE is 'spanner and the edge symbol of the spanner is drawn.

This command is intended to combine symbols with accidentals.

\ekm-script #"dmarcato" #UP ^

\ekm-script #'trill #UP 

## Extended text

---

Some commands accept an EXTEXT value, or a pair or list of EXTEXT values.

EXTTEXT can be:

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

```
##xE695
```

- A list of a single code point followed by font features, i.e. one or more strings or a number 0 to 31 of a stylistic alternate, or a negative number to draw the path instead of the font glyph. Higher values are treated as code points (see below). Calls \ekm-charf.

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

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

```
#'(#xE626 -1)
```

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

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

- Any markup. Note that the commands \ekmTremolo and \ekmStem interpret some strings as names of symbols.

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

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

- #f. Draws the empty-stencil.

## Definition string

---

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

### Shared tokens

Additional tokens that are always applicable in DEFINITION values.

The shared tokens in the standard table defines space markup:

|         |               |      |
|---------|---------------|------|
| <space> | \hspace #1    | SP   |
| -       | \hspace #0.17 | HSP  |
| —       | \hspace #0.78 | THSP |
| ___     | \hspace #2    | ENSP |
| _____   | \hspace #4    | EMSP |
| '       | #f            | ZWSP |

## Orientation

---

Some commands accept an ORIENTATION value. This is the sum of axis (0, 1, or  $\pm 0.5$  for diagonal) and direction ( $\pm 1$ ). The following symbols are defined for the 12 possible values. The last four values are intended for “bilateral” orientations. 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    |

The commands \ekm-arrow and \ekm-beater support all 12 orientations. Missing symbols are completed by flipping or rotating. Missing bilateral symbols are substituted with the symbols for N, NE, E, SE. Currently, only the arrow style simple in Ekmeles has glyphs for all 12 orientations.