

New features in 2.20 since 2.18

- A new flexible template suitable for a range of choral music, is now provided. This may be used to create simple choral music, with or without piano accompaniment, in two or four staves. Unlike other templates, this template is ‘built-in’, which means it does not need to be copied and edited: instead it is simply `\include`’d in the input file. For details, see [Section “Built-in templates” in *Learning Manual*](#).
- The positioning of tuplet numbers for kneed beams has been significantly improved. Previously, tuplet numbers were placed according to the position of the tuplet bracket, even if it was not printed. This could lead to stranded tuplet numbers. Now they are now positioned closer to the kneed-beam when an appropriate beam segment exists for its placement and when the the bracket is not drawn.

Collision detection is also added, offsetting horizontally if too close to an adjoining note column but preserving the number’s vertical distance from the kneed beam. If the number itself is too large to fit in the available space the original, bracket-based, positioning system is used instead; and in the event of a collision (e.g. with an accidental) the tuplet number is moved vertically away instead.

```
\time 3/4
\override Beam.auto-knee-gap = 3
\tuplet 3/2 4 {
  g8 c'' e,
  c'8 g,, e''
  g,,8 e''' c,,
}
```



The original kneed-beam tuplet behavior is still available through an `\override` via a new, `knee-to-beam` property.

```
\time 3/4
\override Beam.auto-knee-gap = 3
\override TupletNumber.knee-to-beam = ##f
\tuplet 3/2 4 {
  g8 c'' e,
  c'8 g,, e''
  g,,8 e''' c,,
}
```



- `\lyricsto` and `\addLyrics` have been ‘harmonized’. Both now accept the same kind of delimited argument list that `\lyrics` and `\chords` accept. Backward compatibility has been added so music identifiers (i.e. `\mus`) are permitted as arguments. A `convert-ly` rule has been added that removes redundant uses of `\lyricmode` and rearranges combinations

with context starters such that `\lyricsto` in general is applied last (i.e. like `\lyricmode` would be).

- Scheme functions and identifiers can now be used as output definitions.
- Scheme expressions can now be used as chord constituents.
- Improved visual spacing of small and regular ‘MI’ Funk and Walker noteheads so they are now the same width as other shaped notes in their respective sets. SOL noteheads are also now visually improved when used with both the normal Aiken and Sacred Harp heads, as well as with the thin variants.
- `LeftEdge` now has a definable Y-extent (i.e. vertical). See [Section “LeftEdge” in *Internals Reference*](#).
- Added a new `make-path-stencil` function that supports all `path` commands both relative and absolute:
`lineto`, `rlineto`, `curveto`, `rcurveto`, `moveto`, `rmoveto`, `closepath`. The function also supports ‘single-letter’ syntax used in standard SVG path commands:
`L`, `l`, `C`, `c`, `M`, `m`, `Z` and `z`. The new command is also backward-compatible with the original `make-connected-path-stencil` function. Also see ‘`scm/stencil.scm`’.
- Context properties named in the ‘`alternativeRestores`’ property are restored to their value at the start of the *first* alternative in all subsequent alternatives.

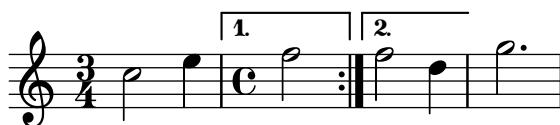
Currently the default set restores ‘current meter’;

```
\time 3/4
\repeat volta 2 { c2 e4 | }
\alternative {
  { \time 4/4 f2 d | }
  { f2 d4 | }
}
g2. |
```



‘measure position’;

```
\time 3/4
\repeat volta 2 { c2 e4 | }
\alternative {
  { \time 4/4
    \set Timing.measurePosition = #(ly:make-moment -1/2)
    f2 | }
  { f2 d4 | }
}
g2. |
```



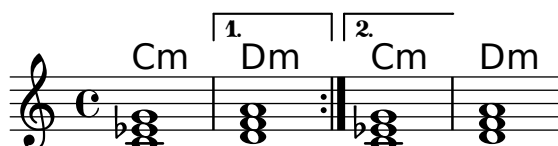
and ‘chord changes’;

<<

```

\new ChordNames {
  \set chordChanges = ##t
  \chordmode { c1:m d:m c:m d:m }
}
\new Staff {
  \repeat volta 2 { \chordmode { c1:m } }
  \alternative {
    { \chordmode { d:m } }
    { \chordmode { c:m } }
  }
  \chordmode { d:m }
}
>>

```



- Improved MIDI output for breathe marks. After tied notes, breaths take time *only* from the last note of the tie; e.g. { c4~ c8 \breathe } performs as { c4~ c16 r } instead of { c4 r8 }. This is more consistent with articulations and how humans interpret breaths after ties. It now also makes it easier to align simultaneous breathe marks over multiple parts, all with different note lengths.
- A new note head style for Tabulature has been added; `TabNoteHead.style = #'slash`.
- Four new Clefs have been added. *Double G*, *Tenor G*, *Varpercussion* and *varC*.

```

\override Staff.Clef.full-size-change = ##t

```

```

\clef "GG" c c c c
\clef "tenorG" c c c c
\clef "varC" c c c c
\clef "varpercussion" c c c c

```

```

\break

```

```

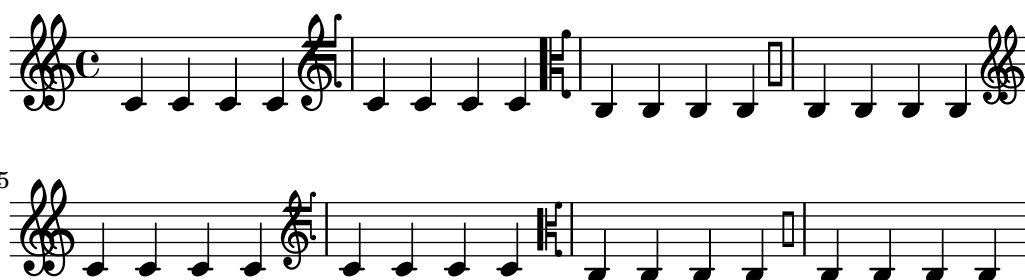
\override Staff.Clef.full-size-change = ##f

```

```

\clef "GG" c c c c
\clef "tenorG" c c c c
\clef "varC" c c c c
\clef "varpercussion" c c c c

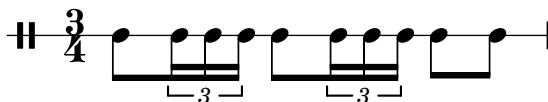
```



- Isolated durations in music sequences now stand for unpitched notes. This may be useful for specifying rhythms to music or scheme functions. When encountered in the final score,

the pitches are provided by the preceding note or chord. Here are two examples where this makes for readable input:

```
\new DrumStaff \with { \override StaffSymbol.line-count = 1 }
\drummode {
  \time 3/4
  tambourine 8 \tuplet 3/2 { 16 16 16 }
              8 \tuplet 3/2 { 16 16 16 } 8 8 |
}
```



```
\new Staff { r16 c'16 ~ 8 ~ 4 ~ 2 | }
```



- Beaming exceptions can now be constructed using the `\beamExceptions` scheme function. One can now write

```
\time #'(2 1) 3/16
\set Timing.beamExceptions =
  \beamExceptions { 32[ 32] 32[ 32] 32[ 32] }
c16 c c |
\repeat unfold 6 { c32 } |
```



with multiple exceptions separated with `|` bar checks (writing the exception pattern without pitches is convenient but not mandatory). Previously, setting the beam exceptions would have required writing

```
\set Timing.beamExceptions =
#'(
  (end . ;start of alist
    (end . ;entry for end of beams
      ( ;start of alist of end points
        ((1 . 32) . (2 2 2)) ;rule for 1/32 beams -- end each 1/16
      )))
```

- The most common articulations are now reflected in MIDI output. Accent and marcato make notes louder; staccato, staccatissimo and portato make them shorter. Breath marks shorten the previous note.

This behavior is customizable through the `midiLength` and `midiExtraVelocity` properties on `ArticulationEvent`. See `'script-init.ly'` for examples.

- The PostScript functionality of stroke adjustment is no longer applied automatically but left to the discretion of the PostScript device (by default, Ghostscript uses it for resolutions up to 150dpi when generating raster images). When it is enabled, a more complex drawing algorithm designed to benefit from stroke adjustment is employed mostly for stems and bar lines.

Stroke adjustment can be forced by specifying the command line option `'-dstrokeadjust'` to LilyPond. When generating PDF files, this will usually result in markedly better looking

PDF previews but significantly larger file size. Print quality at high resolutions will be unaffected.