Fretted strings

Fretted string instruments

Adding fingerings to a score

Fingering instructions can be entered using a simple syntax.

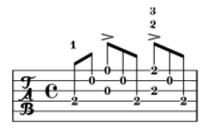
```
\relative c'' {
   c4-1 d-2 f-4 e-3
}
```



Adding fingerings to tablatures

To add fingerings to tablatures, use a combination of \markup and \finger.

```
one = \markup { \finger 1 }
two = \markup { \finger 2 }
threeTwo = \markup {
  \override #'(baseline-skip . 2)
  \column {
     \finger 3
     \finger 2
threeFour = \markup {
  \override #'(baseline-skip . 2)
  \column {
     \finger 3
     \finger 4
}
\score {
    \new TabStaff {
    \tabFullNotation
     \stemUp
    e8\4^{one} b\2 < g\3 e'\1>^>[b\2 e\4]
     <a\3 fis'\1>^>^\threeTwo[ b\2 e\4]
}
```



Allowing fingerings to be printed inside the staff

By default, vertically oriented fingerings are positioned outside the staff. However, this behavior can be canceled. Note: you must use a chord construct <>, even if it is only a single note.

```
\relative c' {
     <c-1 e-2 g-3 b-5>2
     \override Fingering #'staff-padding = #'()
     <c-1 e-2 g-3 b-5>4 <g'-0>
}
```



Bar chords notation for Guitar (with Text Spanner)

Here is how to print bar chords, or half-bar chords (just uncomment the appropriate line for to select either one).

```
The syntax is \bbarre #"fret number" { notes } .
```

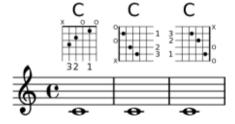
```
%% %%%%%% Cut here ---- Start 'bbarred.ly'
%% C with slash -----
cWithSlash = \markup {
 \combine \roman C \translate #'(0.6 . -0.4) \draw-line #'(0 . 2.0)
%% Span ------
%% Syntax: \bbarre #"text" { notes } - text = any number of box
bbarre =
#(define-music-function (barre location str music) (string? ly:music?)
  (let ((elts (extract-named-music music '(NoteEvent EventChord))))
    (if (pair? elts)
        (let ((first-element (first elts))
             (last-element (last elts)))
          (set! (ly:music-property first-element 'articulations)
               (cons (make-music 'TextSpanEvent 'span-direction -1)
                    (ly:music-property first-element 'articulations)))
          (ly:music-property last-element 'articulations))))))
  #{
      \once \override TextSpanner #'font-size = #-2
      \once \override TextSpanner #'font-shape = #'upright
      \once \override TextSpanner #'staff-padding = #3
      \once \override TextSpanner #'style = #'line
      \once \override TextSpanner #'to-barline = ##f
      \once \override TextSpanner #'bound-details =
          #`((left
              (text . ,#{ \markup { \draw-line #'( 0 . -.5) } #})
              (Y . 0)
              (padding . 0.25)
              (attach-dir . -2))
             (right
              (text . ,#{ \markup { \cWithSlash #str } #})
              (Y . 0)
              (padding . 0.25)
              (attach-dir . 2)))
%% uncomment this line for make full barred
```



Changing fret orientations

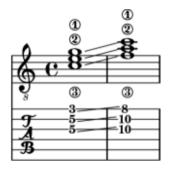
Fret diagrams can be oriented in three ways. By default the top string or fret in the different orientations will be aligned.

```
\include "predefined-guitar-fretboards.ly"
  \chords {
    c1
    c1
  \new FretBoards {
    \chordmode {
      c1
      \override FretBoard #'(fret-diagram-details orientation) =
        #'landscape
      \override FretBoard #'(fret-diagram-details orientation) =
        #'opposing-landscape
      с1
    }
  \new Voice {
    c'1
    c'1
    c'
```



Chord glissando in tablature

Slides for chords can be indicated in both Staff and TabStaff. String numbers are necessary for TabStaff because automatic string calculations are different for chords and for single notes.



ChordChanges for FretBoards

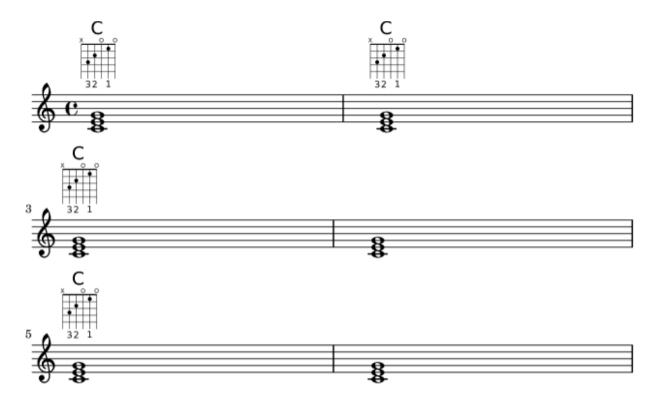
FretBoards can be set to display only when the chord changes or at the beginning of a new line.

```
\include "predefined-guitar-fretboards.ly"

myChords = \chordmode {
   c1 c1 \break
   \set chordChanges = ##t
   c1 c1 \break
   c1 c1 |
}

<</pre>

\new ChordNames { \myChords }
   \new FretBoards { \myChords }
   \new Staff { \myChords }
```



Controlling the placement of chord fingerings

The placement of fingering numbers can be controlled precisely. For fingering orientation to apply, you must use a chord construct \Leftrightarrow even if it is a single note.

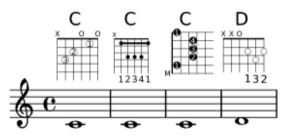
```
\relative c' {
  \set fingeringOrientations = #'(left)
  <c-1 e-3 a-5>4
  \set fingeringOrientations = #'(down)
  <c-1 e-3 a-5>4
  \set fingeringOrientations = #'(down right up)
  <c-1 e-3 a-5>4
  \set fingeringOrientations = #'(up)
  <c-1 e-3 a-5>4
  \set fingeringOrientations = #'(left)
  <c-1>2
  \set fingeringOrientations = #'(down)
  <e-3>2
}
```



Customizing fretboard fret diagrams

Fret diagram properties can be set through 'fret-diagram-details. For FretBoard fret diagrams, overrides are applied to the FretBoards.FretBoard object. Like Voice, FretBoards is a bottom level context, therefore can be omitted in property overrides.

```
\include "predefined-guitar-fretboards.ly"
\storePredefinedDiagram #default-fret-table \chordmode { c' }
                        #quitar-tuning
                        \#"x;1-1-(;3-2;3-3;3-4;1-1-);"
  \new ChordNames {
    \chordmode { c1 | c | c | d }
  \new FretBoards {
    % Set global properties of fret diagram
    \override FretBoards.FretBoard #'size = #'1.2
    \override FretBoard
      #'(fret-diagram-details finger-code) = #'in-dot
    \override FretBoard
      #'(fret-diagram-details dot-color) = #'white
    \chordmode {
      \once \override FretBoard #'size = #'1.0
      \once \override FretBoard
        #'(fret-diagram-details barre-type) = #'straight
      \once \override FretBoard
        #'(fret-diagram-details dot-color) = #'black
      \once \override FretBoard
       #'(fret-diagram-details finger-code) = #'below-string
      \once \override FretBoard
        #'(fret-diagram-details barre-type) = #'none
      \once \override FretBoard
        #'(fret-diagram-details number-type) = #'arabic
      \once \override FretBoard
        #'(fret-diagram-details orientation) = #'landscape
      \once \override FretBoard
        #'(fret-diagram-details mute-string) = #"M"
      \once \override FretBoard
        #'(fret-diagram-details label-dir) = #LEFT
      \once \override FretBoard
       #'(fret-diagram-details dot-color) = #'black
      \once \override FretBoard
        #'(fret-diagram-details finger-code) = #'below-string
      \once \override FretBoard
        #'(fret-diagram-details dot-radius) = #0.35
      \once \override FretBoard
        #'(fret-diagram-details dot-position) = #0.5
      \once \override FretBoard
        #'(fret-diagram-details fret-count) = #3
   }
  }
\new Voice {
    '' c' | c' | d'
```

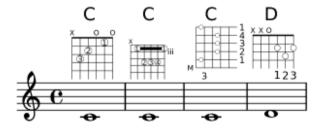


Customizing markup fret diagrams

Fret diagram properties can be set through 'fret-diagram-details. For markup fret diagrams, overrides can be

applied to the Voice. TextScript object or directly to the markup.

```
<<
  \chords { c1 | c | c | d }
  \new Voice = "mel" {
    \textLengthOn
    % Set global properties of fret diagram
    \override TextScript #'size = #'1.2
    \override TextScript
      #'(fret-diagram-details finger-code) = #'in-dot
    \override TextScript
      #'(fret-diagram-details dot-color) = #'white
    %% C major for quitar, no barre, using defaults
       % terse style
    c'1^\markup { \ fret-diagram-terse #"x;3-3;2-2;0;1-1;0;" }
    %% C major for guitar, barred on third fret
       % verbose style
       % size 1.0
       % roman fret label, finger labels below string, straight barre
    c'1^\markup {
  % standard size
      \override #'(size . 1.0) {
        \override #'(fret-diagram-details . (
                       (number-type . roman-lower)
                       (finger-code . in-dot)
(barre-type . straight))) {
           \fret-diagram-verbose #'((mute 6)
                                      (place-fret 5 3 1)
                                      (place-fret 4 5 2)
                                      (place-fret 3 5 3)
                                      (place-fret 2 5 4)
                                      (place-fret 1 3 1)
                                      (barre 5 1 3))
        }
      }
    %% C major for quitar, barred on third fret
       % verbose style
       % landscape orientation, arabic numbers, M for mute string
       % no barre, fret label down or left, small mute label font
    c'1^\markup {
      \override #'(fret-diagram-details . (
                     (finger-code . below-string)
                     (number-type . arabic)
                     (label-dir . -1)
(mute-string . "M")
(orientation . landscape)
                     (barre-type . none)
                     (xo-font-magnification . 0.4)
        (xo-padding . 0.3))) {
\fret-diagram-verbose #'((mute 6))
                                    (place-fret 5 3 1)
                                    (place-fret 4 5 2)
                                    (place-fret 3 5 3)
                                    (place-fret 2 5 4)
                                    (place-fret 1 3 1)
                                    (barre 5 1 3))
      }
    %% simple D chord
       % terse style
       % larger dots, centered dots, fewer frets
       % label below string
    d'1^\markup {
      \override #'(fret-diagram-details . (
```



Defining predefined fretboards for other instruments

Predefined fret diagrams can be added for new instruments in addition to the standards used for guitar. This file shows how this is done by defining a new string-tuning and a few predefined fretboards for the Venezuelan cuatro.

This file also shows how fingerings can be included in the chords used as reference points for the chord lookup, and displayed in the fret diagram and the TabStaff, but not the music.

These fretboards are not transposable because they contain string information. This is planned to be corrected in the future.

```
add FretBoards for the Cuatro
    Note: This section could be put into a separate file
       predefined-cuatro-fretboards.ly
       and \included into each of your compositions
cuatroTuning = #`(,(ly:make-pitch 0 6 0)
                    ,(ly:make-pitch 1 3 SHARP)
                    ,(ly:make-pitch 1 1 0)
                    ,(ly:make-pitch 0 5 0))
dSix = { <a \mid 4 b \mid 1 d \mid 3 fis \mid 2> }
dMajor = { <a \ 4 \ d \ 1 \ d \ 5 \ 5 }
aMajSeven = { <a\4 cis\1 e\3 g\2>}
dMajSeven = { <a\4 c\1 d\3 fis\2> }
gMajor = { < b \setminus 4 b \setminus 1 d \setminus 3 g \setminus 2 > }
\storePredefinedDiagram #default-fret-table \dSix
                          #cuatroTuning
                          #"0;0;0;0;"
\storePredefinedDiagram #default-fret-table \dMajor
                          #cuatroTuning
                          #"o;o;o;3-3;"
\storePredefinedDiagram #default-fret-table \aMajSeven
                          #cuatroTuning
                          #"o;2-2;1-1;2-3;"
\storePredefinedDiagram #default-fret-table \dMajSeven
                          #cuatroTuning
                          #"o;o;o;1-1;"
\storePredefinedDiagram #default-fret-table \gMajor
                          #cuatroTuning
                          #"2-2;0;1-1;0;"
% end of potential include file /predefined-cuatro-fretboards.ly
```

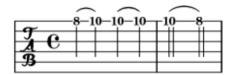
```
#(set-global-staff-size 16)
primerosNames = \chordmode {
  d:6 d a:maj7 d:maj7
  g
primeros = {
  \dSix \dMajor \aMajSeven \dMajSeven
  \gMajor
}
\score {
  <<
    \new ChordNames {
      \set chordChanges = ##t
      \primerosNames
    }
    \new Staff {
      \new Voice \with {
        \remove "New fingering engraver"
      \relative c'' {
        \primeros
    }
    \new FretBoards {
      \set Staff.stringTunings = #cuatroTuning
       \override FretBoard
         #'(fret-diagram-details string-count) = #'4
      \override FretBoard
        #'(fret-diagram-details finger-code) = #'in-dot
    }
    \new TabStaff \relative c'' {
      \set TabStaff.stringTunings = #cuatroTuning
      \primeros
    }
  >>
  \layout {
    \context {
      \Score
      \override SpacingSpanner
        #'base-shortest-duration = #(ly:make-moment 1 16)
    }
  \midi { }
```



Faking a hammer in tablatures

A hammer in tablature can be faked with slurs.

```
\score {
  \new TabStaff {
    \relative c'' {
     \tabFullNotation
     c4( d) d( d)
     d2( c)
    }
}
```



Fingerings string indications and right-hand fingerings

This example combines left-hand fingering, string indications, and right-hand fingering.

```
#(define RH rightHandFinger)
\relative c {
  \clef "treble_8"
  <c-3\5-\RH #1 >4
  <e-2\4-\RH #2 >4
  <g-0\3-\RH #3 >4
  <c-1\2-\RH #4 >4
}
```



Flamenco notation

For flamenco guitar, special notation is used:

* a golpe symbol to indicate a slap on the guitar body with the nail of the ring finger * an arrow to indicate (the direction of) strokes * different letters for fingering ("p": thumb, "i": index finger, "m": middle finger, "a": ring finger and "x": little finger) * 3- and 4-finger rasgueados; stroke upwards with all fingers, ending with an up- and down using the index finger * abanicos: strokes (in tuples) with thumb (down), little and index finger (both up). There's also an abanico 2 where middle and ring finger are used instead of the little finger. * alza pua: fast playing with the thumb

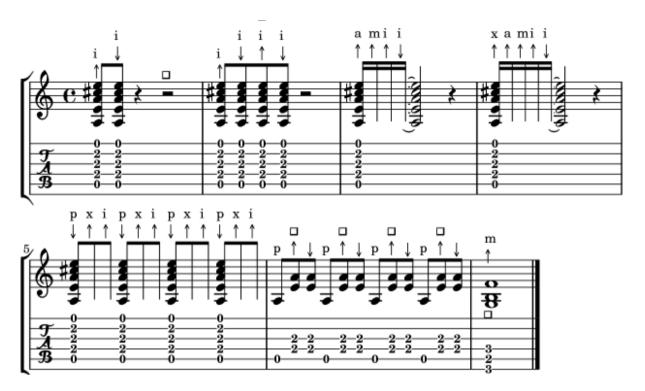
Most figures use arrows in combination with fingering; with abanicos and rasgueados, noteheads are printed only for the first chord.

This snippet contains some header-like code that can be copied as 'flamenco.ly' and included in source files.

```
alzapua = \markup { \italic Alzapua }
% Finger stroke symbols
strokeUp = \markup { \postscript #"
   0.1
              setlinewidth
   0.5 0
             moveto
   0.5 2
              lineto
   0.2 1.4 lineto
   0.5 2 moveto
   0.8 1.4 lineto
   stroke
strokeDown = \markup { \postscript #"
             setlinewidth
   0.5 2
              moveto
   0.5 0
              lineto
   0.2 0.6 lineto
   0.5 0 moveto
   0.8 0.6 lineto
   stroke
% Golpe symbol
golpe = \markup { \postscript #"
   0.2 setlinewidth
   0 0 moveto
   1 0 lineto
   1 1 lineto
   stroke
   "\postscript #"
   0.1
           setlinewidth
   -0.6 -0.1 moveto
   -0.6 1.0 lineto
   0.5 1.0 lineto
   stroke
strokeUpGolpe = \markup { \column { \golpe \line { \strokeUp } } }
iUpGolpe = \markup { \column { \golpe \line { \small i } \line { \strokeUp } } }
% Strokes for all fingers
pUp = \markup { \column { \small p \line { \strokeUp } } }
pDown = \markup { \column { \small p \line { \strokeDown } } }
        = \markup { \column { \small i \line { \strokeUp } } }
iUp = \markup { \column { \small i \line { \strokeUp } } }
iDown = \markup { \column { \small i \line { \strokeDown } } }
mUp = \markup { \column { \small m \line { \strokeUp } } }
mDown = \markup { \column { \small m \line { \strokeDown } } }
aUp = \markup { \column { \small a \line { \strokeUp } } }
aDown = \markup { \column { \small a \line { \strokeDown } } }
xUp = \markup { \column { \small x \line { \strokeUp } } }
xDown = \markup { \column { \small x \line { \strokeUp } } }
}
% Just handy :)
tupletOff = {
   \once \override TupletNumber #'stencil = ##f
   \once \override TupletBracket #'stencil = ##f
tupletsOff = {
   \override TupletNumber #'stencil = ##f
   \override TupletBracket #'bracket-visibility = #'if-no-beam
tupletsOn = {
   \override TupletBracket #'bracket-visibility = #'default
   \revert TupletNumber #'stencil
}
headsOff = {
   \override TabNoteHead #'transparent = ##t
```

```
\override NoteHead #'transparent = ##t
  \override NoteHead #'no-ledgers = ##t
}
headsOn = {
  \override TabNoteHead #'transparent = ##f
  \override NoteHead #'transparent = ##f
  \override NoteHead #'no-ledgers = ##f
}
%%%%%% Cut here ---- End 'flamenco.ly'
part = \relative c' {
  <a, e' a cis e>8^\iUp
  <a e' a cis e>8^\iDown
  r4
  r2^\golpe
  <a e' a cis e>8^\iUp
<a e' a cis e>8^\iDown
  <a e' a cis e>8^\iUpGolpe
  <a e' a cis e>8^\iDown
  r2
  <a e' a cis e>16^\aUp
  \heads0ff
  <a e' a cis e>^\mUp
  <a e' a cis e>^\iUp
  <a e' a cis e>^\iDown~
  \heads0n
  <a e' a cis e>2
  r4
  \tupletOff
  \times 4/5 {
    <a e' a cis e>16^\xUp
    \headsOff
    <a e' a cis e>^\aUp
    <a e' a cis e>^\mUp
    <a e' a cis e>^\iUp
<a e' a cis e>^\iDown~
    \heads0n
  <a e' a cis e>2
  r4
  \tupletsOff
  \times 2/3 {
    <a e' a cis e>8^\pDown
    \headsOff
    <a e' a cis e>^\xUp
<a e' a cis e>^\iUp
    \heads0n
  \times 2/3 {
  <a e' a cis e>8^\pDown
    \heads0ff
    <a e' a cis e>^\xUp
    <a e' a cis e>^\iUp
    \heads0n
  }
  \times 2/3 {
    <a e' a cis e>8^\pDown
    \heads0ff
    <a e' a cis e>^\xUp
<a e' a cis e>^\iUp
    \heads0n
  \times 2/3 {
```

```
<a e' a cis e>8^\pDown
    \headsOff
    <a e' a cis e>^\xUp
<a e' a cis e>^\iUp
    \heads0n
  }
  \tupletsOff
  \override Beam #'positions = #'(2 . 2)
  \times 2/3 {
    a8^\markup{ \small p }
    <e' a>^\strokeUpGolpe
    <e a>^\strokeDown
  }
\times 2/3 {
    a,8^\markup{ \small p }
    <e' a>^\strokeUpGolpe
    <e a>^\strokeDown
  \times 2/3 {
    a,8^\markup{ \small p }
    <e' a>^\strokeUpGolpe
    <e a>^\strokeDown
  \times 2/3 {
    a,8^\markup{ \small p }
    <e' a>^\strokeUpGolpe
    <e a>^\strokeDown
  }
\tupletsOn
  \once \override TextScript #'extra-offset = #'(0 . -1)
  <g, b f'>1_\golpe^\mUp
  \bar "|."
}
\score {
  \new StaffGroup <<</pre>
    \context Staff = "part" <<</pre>
      \clef G
      \transpose c c'
      {
        \part
      }
    >>
    \context TabStaff {
      \part
  \layout {
    ragged-right = ##t
}
```



Fret diagrams explained and developed

This snippet shows many possibilities for obtaining and tweaking fret diagrams.

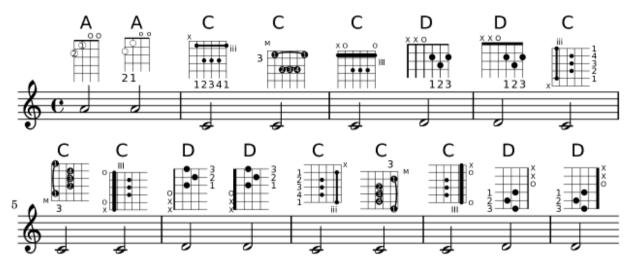
```
\chords {
 a2 a
  \repeat unfold 3 {
    cccdd
\new Voice = "mel" {
  \textLengthOn
  % Set global properties of fret diagram
  \override TextScript #'size = #1.2
  \override TextScript
   #'fret-diagram-details #'finger-code = #'below-string
  \override TextScript #'fret-diagram-details #'dot-color = #'black
 %% A chord for ukulele
 a'2^\markup {
    \override \dot{\#}'(fret-diagram-details . (
                 (string-count . 4)
                 (dot-color . white)
                 (finger-code . in-dot))) {
      \fret-diagram #"4-2-2;3-1-1;2-0;1-0;"
   }
 }
 %% A chord for ukulele, with formatting defined in definition string
  % 1.2 * size, 4 strings, 4 frets, fingerings below string
    dot radius .35 of fret spacing, dot position 0.55 of fret spacing
 a'2^\markup
    \override #'(fret-diagram-details . (
                 (dot-color . white)
                 (open-string . "o"))) {
      \fret-diagram #"s:1.2;w:4;h:3;f:2;d:0.35;p:0.55;4-2-2;3-1-1;2-0;1-0;"
   }
 }
```

```
%% These chords will be in normal orientation
%% C major for guitar, barred on third fret
  verbose style
  roman fret label, finger labels below string, straight barre
c'2^\markup {
  % 110% of default size
  \override #'(size . 1.1) {
    \override #'(fret-diagram-details . (
                  (number-type . roman-lower)
(finger-code . below-string)
                  (barre-type . straight))) {
      \fret-diagram-verbose #'((mute 6)
                                 (place-fret 5 3 1)
                                 (place-fret 4 5 2)
                                 (place-fret 3 5 3)
                                 (place-fret 2 5 4)
                                 (place-fret 1 3 1)
                                 (barre 5 1 3))
    }
 }
%% C major for quitar, barred on third fret
%% Double barre used to test barre function
  verbose style
c'2^\markup {
  % 110% of default size
  \override #'(size . 1.1) {
    \override #'(fret-diagram-details . (
                  (number-type . arabic)
                  (dot-label-font-mag . 0.9)
                  (finger-code . in-dot)
                  (fret-label-font-mag . 0.6)
                  (fret-label-vertical-offset . 0)
                  (label-dir . -1)
                  (mute-string . "M")
                  (xo-font-magnification . 0.4)
      (xo-padding . 0.3))) {
\fret-diagram-verbose #'((mute 6)
                                 (place-fret 5 3 1)
                                 (place-fret 4 5 2)
                                 (place-fret 3 5 3)
                                 (place-fret 2 5 4)
                                 (place-fret 1 3 1)
                                 (barre 4 2 5)
                                 (barre 5 1 3))
  }
%% C major for quitar, with capo on third fret
  verbose style
c'2^\markup {
  % 110% of default size
  \override #'(size . 1.1) {
    \override #'(fret-diagram-details . (
                  (number-type . roman-upper)
                  (dot-label-font-mag . 0.9)
                  (finger-code . none)
                  (fret-label-vertical-offset . 0.5)
                  (xo-font-magnification . 0.4)
      (xo-padding . 0.3))) {
\fret-diagram-verbose #'((mute 6)
                                 (capo 3)
                                 (open 5)
                                 (place-fret 4 5 1)
                                 (place-fret 3 5 2)
                                 (place-fret 2 5 3)
                                 (open 1))
    }
```

```
}
%% simple D chord
d'2^\markup {
  \override #'(fret-diagram-details . (
               (finger-code . below-string)
               (dot-radius . 0.35)
               (string-thickness-factor . 0.3)
               (dot-position . 0.5)
                (fret-count . 3))) {
    \fret-diagram-terse #"x;x;o;2-1;3-2;2-3;"
  }
}
%% simple D chord, large top fret thickness
d'2^\markup
  \override # (fret-diagram-details . (
               (finger-code . below-string)
                (dot-radius . 0.35)
                (dot-position . 0.5)
                (top-fret-thickness . 7)
               (fret-count . 3))) {
    \fret-diagram-terse #"x;x;o;2-1;3-2;2-3;"
 }
}
  % These chords will be in landscape orientation
\override TextScript
   #'fret-diagram-details #'orientation = #'landscape
%% C major for quitar, barred on third fret
% verbose style
  roman fret label, finger labels below string, straight barre
c'2^\markup {
  % 110% of default size
  \override #'(size . 1.1) {
    \override #'(fret-diagram-details . (
                 (number-type . roman-lower)
                 (finger-code . below-string)
                 (barre-type . straight))) {
      \fret-diagram-verbose #'((mute 6)
                                (place-fret 5 3 1)
                                (place-fret 4 5 2)
                                (place-fret 3 5 3)
                                (place-fret 2 5 4)
                                (place-fret 1 3 1)
                                (barre 5 1 3))
  }
%% C major for guitar, barred on third fret
%% Double barre used to test barre function
% verbose style
c'2^\markup {
  % 110% of default size
  \override #'(size . 1.1) {
    \override #'(fret-diagram-details . (
                 (number-type . arabic)
                 (dot-label-font-mag . 0.9)
                 (finger-code . in-dot)
                 (fret-label-font-mag . 0.6)
                 (fret-label-vertical-offset . 0)
                 (label-dir . -1)
(mute-string . "M")
                 (xo-font-magnification . 0.4)
                 (xo-padding . 0.3))) {
      \fret-diagram-verbose #'((mute 6)
                                (place-fret 5 3 1)
                                (place-fret 4 5 2)
                                (place-fret 3 5 3)
                                (place-fret 2 5 4)
```

```
(place-fret 1 3 1)
                                 (barre 4 2 5)
                                 (barre 5 1 3))
    }
  }
}
%% C major for guitar, with capo on third fret
  verbose style
c'2^\markup {
% 110% of default size
  \override #'(size . 1.1) {
    \override #'(fret-diagram-details . (
                  (number-type . roman-upper)
                  (dot-label-font-mag . 0.9)
                  (finger-code . none)
                  (fret-label-vertical-offset . 0.5)
                  (xo-font-magnification . 0.4)
      (xo-padding . 0.3))) {
fret-diagram-verbose #'((mute 6))
                                 (capo 3)
                                 (open 5)
                                 (place-fret 4 5 1)
                                 (place-fret 3 5 2)
                                 (place-fret 2 5 3)
                                 (open 1))
    }
  }
%% simple D chord
d'2^{\mathrm{narkup}} {
  \override #'(fret-diagram-details . (
                (finger-code . below-string)
                (dot-radius . 0.35)
                (dot-position . 0.5)
                (fret-count . 3))) {
    \fret-diagram-terse #"x;x;o;2-1;3-2;2-3;"
  }
%% simple D chord, large top fret thickness
d'2^\markup {
  \override #'(fret-diagram-details . (
                (finger-code . below-string)
                (dot-radius . 0.35)
                (dot-position . 0.5)
                (top-fret-thickness . 7)
                (fret-count . 3))) {
    \fret-diagram-terse #"x;x;o;2-1;3-2;2-3;"
  }
}
  % These chords will be in opposing-landscape orientation
\override TextScript #'fret-diagram-details
                        #'orientation = #'opposing-landscape
%% C major for guitar, barred on third fret
% verbose style
  roman fret label, finger labels below string, straight barre
c'2^\markup {
  % 110% of default size
  \override #'(size . 1.1) {
    \override #'(fret-diagram-details . (
                  (number-type . roman-lower)
                  (finger-code . below-string)
                  (barre-type . straight))) {
      \fret-diagram-verbose #'((mute 6)
                                 (place-fret 5 3 1)
                                 (place-fret 4 5 2)
                                 (place-fret 3 5 3)
                                 (place-fret 2 5 4)
```

```
(place-fret 1 3 1)
                                 (barre 5 1 3))
  }
%% C major for quitar, barred on third fret
%% Double barre used to test barre function
  verbose style
c'2^\markup {
% 110% of default size
  \override #'(size . 1.1) {
    \override #'(fret-diagram-details . (
                  (number-type . arabic)
                  (dot-label-font-mag . 0.9)
                  (finger-code . in-dot)
                  (fret-label-font-mag . 0.6)
                  (fret-label-vertical-offset . 0)
                  (label-dir . -1)
                  (mute-string . "M")
                  (xo-font-magnification . 0.4)
      (xo-padding . 0.3))) {
\fret-diagram-verbose #'((mute 6))
                                 (place-fret 5 3 1)
                                 (place-fret 4 5 2)
                                 (place-fret 3 5 3)
                                 (place-fret 2 5 4)
                                 (place-fret 1 3 1)
                                 (barre 4 2 5)
                                 (barre 5 1 3))
    }
  }
%% C major for guitar, with capo on third fret
  verbose style
c'2^\markup {
  % 110% of default size
  \override #'(size . 1.1) {
    \override #'(fret-diagram-details . (
                  (number-type . roman-upper)
                  (dot-label-font-mag . 0.9)
                  (finger-code . none)
                  (fret-label-vertical-offset . 0.5)
                  (xo-font-magnification . 0.4)
      (xo-padding . 0.3))) {
\fret-diagram-verbose #'((mute 6)
                                 (capo 3)
                                 (open 5)
                                 (place-fret 4 5 1)
                                 (place-fret 3 5 2)
                                 (place-fret 2 5 3)
                                 (open 1))
  }
%% simple D chord
d'2^\markup {
  \override #'(fret-diagram-details . (
                (finger-code . below-string)
                (dot-radius . 0.35)
                (dot-position . 0.5)
                (fret-count . 3))) {
    \fret-diagram-terse #"x;x;o;2-1;3-2;2-3;"
  }
}
%% simple D chord, large top fret thickness
d'2^\markup {
  \override #'(fret-diagram-details . (
                (finger-code . below-string)
```



Fretboards alternate tables

Alternate fretboard tables can be created. These would be used in order to have alternate fretboards for a given chord.

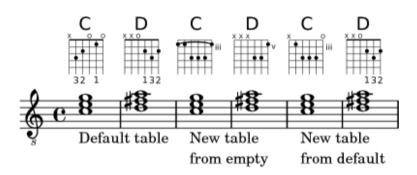
In order to use an alternate fretboard table, the table must first be created. Fretboards are then added to the table.

The created fretboard table can be blank, or it can be copied from an existing table.

The table to be used in displaying predefined fretboards is selected by the property \predefinedDiagramTable.

```
\include "predefined-guitar-fretboards.ly"
% Make a blank new fretboard table
#(define custom-fretboard-table-one (make-fretboard-table))
% Make a new fretboard table as a copy of default-fret-table
#(define custom-fretboard-table-two (make-fretboard-table default-fret-table))
% Add a chord to custom-fretboard-table-one
\storePredefinedDiagram #custom-fretboard-table-one
                         \chordmode{c}
                        #guitar-tuning
                        "3-(;3;5;5;5;3-);"
% Add a chord to custom-fretboard-table-two
\storePredefinedDiagram #custom-fretboard-table-two
                         \chordmode{c}
                        #quitar-tuning
                        "x;3;5;5;5;o;"
  \chords {
         d1
   c1
    с1
         d1
    c1
         d1
```

```
\new FretBoards {
     \chordmode {
        \set predefinedDiagramTable = #default-fret-table
        \set predefinedDiagramTable = #custom-fretboard-table-one
        c1 | d1
        \set predefinedDiagramTable = #custom-fretboard-table-two
        c1 | d1 |
     }
   \new Staff {
     \clef "treble 8"
        \chordmode {
          c1
                 d1
          c1
                 d1
          c1
                 d1
        {
          s1_\markup "Default table" | s1 |
s1_\markup \column {"New table" "from empty"} | s1 |
s1_\markup \column {"New table" "from default"} | s1 |
     >>
  }
>>
```

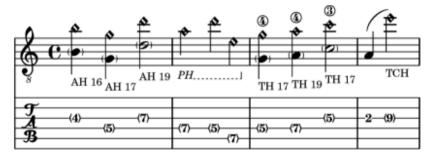


Fretted-string harmonics in tablature

Demonstrates fretted-string harmonics in tablature

```
pinchedHarmonics = {
   \textSpannerDown
   \override TextSpanner #'bound-details #'left #'text =
       \markup {\halign #-0.5 \teeny "PH" }
      \override TextSpanner #'style =
          #'dashed-line
   \override TextSpanner #'dash-period = #0.6
   \override TextSpanner #'bound-details #'right #'attach-dir = #1
   \override TextSpanner #'bound-details #'right #'text =
      \markup { \draw-line #'(0 . 1) }
   \override TextSpanner #'bound-details #'right #'padding = #-0.5
}
harmonics = {
  %artificial harmonics (AH)
  \textLengthOn
  <\parenthesize b b'\harmonic>4_\markup{ \teeny "AH 16" }
<\parenthesize g g'\harmonic>4_\markup{ \teeny "AH 17" }
  <\parenthesize d' d''\harmonic>2 \markup{ \teeny "AH 19" }
  %pinched harmonics (PH)
  \pinchedHarmonics
  <a'\harmonic>2\startTextSpan
  <d''\harmonic>4
  <e'\harmonic>4\stopTextSpan
```

```
%tapped harmonics (TH)
  <\parenthesize g\4 g'\harmonic>4_\markup{ \teeny "TH 17" }
  <\parenthesize a\4 a'\harmonic>4_\markup{ \teeny "TH 19" }
  <\parenthesize c'\3 c''\harmonic>2 \markup{ \teeny "TH 17" }
  %touch harmonics (TCH)
  a4( <e''\harmonic>2. ) \markup{ \teeny "TCH" }
frettedStrings = {
  %artificial harmonics (AH)
  \harmonicByFret #4 g4\3
  \harmonicByFret #5 d4\4
  \harmonicByFret #7 q2\3
  %pinched harmonics (PH)
  \harmonicByFret #7 d2\4
  \harmonicByFret #5 d4\4
  \harmonicByFret #7 a4\5
  %tapped harmonics (TH)
  \harmonicByFret #5 d4\4
  \harmonicByFret #7 d4\4
  \harmonicByFret #5 g2\3
  %touch harmonics (TCH)
  a4 \harmonicByFret #9 q2.\3
\score {
    \new Staff {
      \new Voice {
        \clef "treble 8"
        \harmonics
    \new TabStaff {
      \new TabVoice {
        \frettedStrings
   }
 >>
```



Guitar slides

Unlike glissandos, slides may go from an imprecise point of the fretboard to a specific fret. A good way to do that is to add a grace hidden note before the note which is actually played, as demonstrated in the following example.

```
%% Hide fret number: useful to draw slide into/from a casual point of
%% the fretboard.
hideFretNumber = {
  \once \override TabNoteHead #'transparent = ##t
  \once \override NoteHead #'transparent = ##t
  \once \override Stem #'transparent = ##t
  \once \override Flag #'transparent = ##t
  \once \override NoteHead #'no-ledgers = ##t
  \once \override Glissando #'(bound-details left padding) = #0.3
```

```
music= \relative c' {
    \grace { \hideFretNumber d8\2 \glissando s2 } g2\2
    \grace { \hideFretNumber g8\2 \glissando s2 } d2 |

    \grace { \hideFretNumber c,8 \glissando s } f4\5^\markup \tiny { Slide into }
    \grace { \hideFretNumber f8 \glissando s } a4\4
    \grace { \hideFretNumber e'8\3 \glissando s } b4\3^\markup \tiny { Slide from }
    \grace { \hideFretNumber b'8 \glissando s2 } g4 |
}

\score {
    \new Staff {
      \clef "G_8"
      \music
    }
    \new TabStaff {
      \music
    }
    \music
    }
}
```

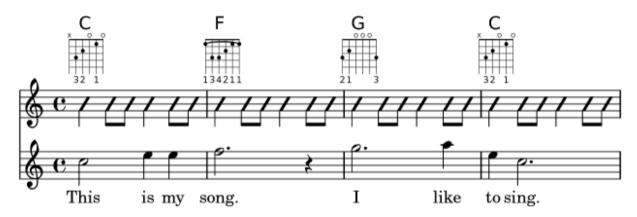


Guitar strum rhythms

For guitar music, it is possible to show strum rhythms, along with melody notes, chord names and fret diagrams.

```
\include "predefined-guitar-fretboards.ly"
  \new ChordNames {
    \chordmode {
      c1 | f | g | c
    }
  \new FretBoards {
    \chordmode {
      c1 | f | g | c
  \new Voice \with {
    \consists "Pitch squash engraver"
    relative c'' {
      \improvisationOn
      c4 c8 c c4 c8 c
      f4 f8 f f4 f8 f
      g4 g8 g g4 g8 g
      c4 c8 c c4 c8 c
  \new Voice = "melody" {
    \relative c'' {
      c2 e4 e4
      f2. r4
```

```
g2. a4
   e4 c2.
}
}
\new Lyrics {
   \lyricsto "melody" {
    This is my song.
    I like to sing.
   }
}
>>
```



How to change fret diagram position

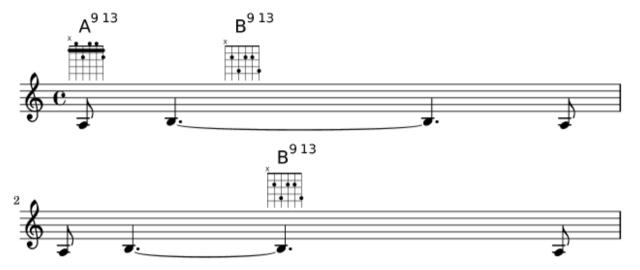
If you want to move the position of a fret diagram, for example, to avoid collision, or to place it between two notes, you have various possibilities:

- 1) modify #'padding or #'extra-offset values (as shown in the first snippet)
- 2) you can add an invisible voice and attach the fret diagrams to the invisible notes in that voice (as shown in the second example).

If you need to move the fret according with a rythmic position inside the bar (in the example, the third beat of the measure) the second example is better, because the fret is aligned with the third beat itself.

```
harmonies = \chordmode
  a8:13
  THE FOLLOWING IS THE COMMAND TO MOVE THE CHORD NAME
  \once \override ChordNames.ChordName #'extra-offset = #'(10 . 0)
  b8:13 s2.
  THIS LINE IS THE SECOND METHOD
    s4 s4 b4:13
}
\score
    \context ChordNames \harmonies
    \context Staff
    {a8^\markup { \fret-diagram #"6-x;5-0;4-2;3-0;2-0;1-2;" }
 THE FOLLOWING IS THE COMMAND TO MOVE THE FRET DIAGRAM
     \once \override TextScript #'extra-offset = #'(10 . 0)
     b4.~^\markup { \fret-diagram #"6-x;5-2;4-4;3-2;2-2;1-4;"
% HERE IS THE SECOND METHOD
     <<
        a8 b4.~ b4. a8}
        s4 s4 s4^\markup { \fret-diagram #"6-x;5-2;4-4;3-2;2-2;1-4;"
     >>
```

```
}
>>
}
```



Jazz combo template

This is quite an advanced template, for a jazz ensemble. Note that all instruments are notated in \key c \major. This refers to the key in concert pitch; the key will be automatically transposed if the music is within a \transpose section.

```
\header {
 title = "Song"
 subtitle = "(tune)"
 composer = "Me"
 meter = "moderato"
 piece = "Swing"
 tagline = \markup {
    \column {
     "LilyPond example file by Amelie Zapf,"
     "Berlin 07/07/2003"
   }
 }
%#(set-global-staff-size 16)
\include "english.ly"
sl = {
  \override NoteHead #'style = #'slash
  \override Stem #'transparent = ##t
  \override Flag #'transparent = ##t
  \revert NoteHead #'style
  \revert Stem #'transparent
  \revert Flag #'transparent
crOn = \override NoteHead #'style = #'cross
crOff = \revert NoteHead #'style
%% insert chord name style stuff here.
jazzChords = { }
```

```
global = { \times 4/4 }
Key = { \key c \major }
% ########## Horns ##########
% ----- Trumpet -----
trpt = \transpose c d \relative c'' {
  ∖Key
  c1 | c | c |
trpHarmony = \transpose c' d {
  \jazzChords
trumpet = {
  \global
  \set Staff.instrumentName = #"Trumpet"
  \clef treble
   \trpt
  >>
}
% ----- Alto Saxophone -----
alto = \transpose c a \relative c' {
  \Key
  c1 | c | c |
altoHarmony = \transpose c' a {
  \jazzChords
altoSax = {
  \global
  \set Staff.instrumentName = #"Alto Sax"
  \clef treble
  <<
    \alto
  >>
% ----- Baritone Saxophone -----
bari = \transpose c a' \relative c {
  \Key
  c1
  c1
  \sl
  d4^"Solo" d d d
  \nsl
bariHarmony = \transpose c' a \chordmode {
  \jazzChords s1 s d2:maj e:m7
bariSax = {
  \set Staff.instrumentName = #"Bari Sax"
  \clef treble
  <<
    \bari
}
% ----- Trombone -----
tbone = \relative c {
  \Key
  c1 | c | c
tboneHarmony = \chordmode {
  \jazzChords
trombone = {
  \global
```

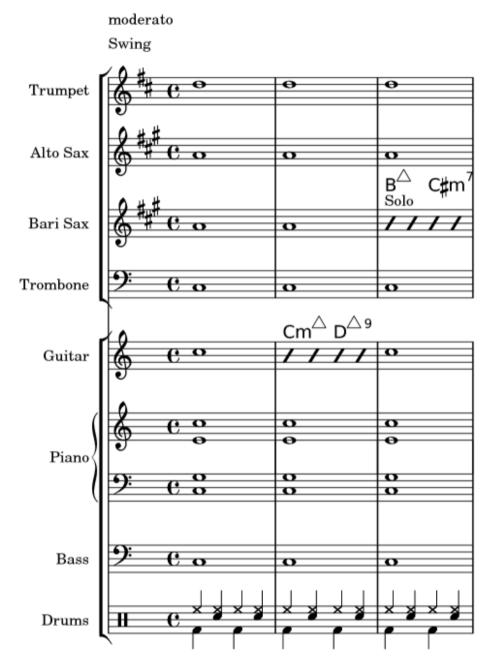
```
\set Staff.instrumentName = #"Trombone"
   \tbone
 >>
}
% ######### Rhythm Section ############
% ----- Guitar -----
gtr = \relative c'' {
  \Key
 c1
  \sl
 b4 b b b
  \nsl
 c1
}
gtrHarmony = \chordmode {
  \jazzChords
  s1 c2:min7+ d2:maj9
quitar = {
  \global
  \set Staff.instrumentName = #"Guitar"
  \clef treble
  <<
    \gtr
 >>
}
%% ----- Piano -----
rhUpper = \relative c'' {
  \voiceOne
  \Key
 c1 | c | c
rhLower = \relative c' {
  \voiceTwo
  \Key
 e1 | e | e
lhUpper = \relative c' {
  \voiceOne
  \Key
 g1 | g | g
lhLower = \relative c {
  \voiceTwo
  \Key
 c1 | c | c
PianoRH = {
  \clef treble
  \qlobal
  \set Staff.midiInstrument = #"acoustic grand"
    \new Voice = "one" \rhUpper
   \new Voice = "two" \rhLower
PianoLH = {
  \clef bass
  \qlobal
  \set Staff.midiInstrument = #"acoustic grand"
    \new Voice = "one" \lhUpper
   \new Voice = "two" \lhLower
}
```

```
piano = {
    \set PianoStaff.instrumentName = #"Piano"
    \new Staff = "upper" \PianoRH
\new Staff = "lower" \PianoLH
}
% ----- Bass Guitar -----
Bass = \relative c {
  \Kev
  c1 | c | c
bass = {
  \global
  \set Staff.instrumentName = #"Bass"
  \clef bass
  <<
   \Bass
  >>
}
% ----- Drums -----
up = \drummode {
  \voiceOne
  hh4 <hh sn> hh <hh sn>
  hh4 <hh sn> hh <hh sn>
  hh4 <hh sn> hh <hh sn>
down = \drummode {
  \voiceTwo
  bd4 s bd s
  bd4 s bd s
  bd4 s bd s
}
drumContents = {
  \qlobal
    \set DrumStaff.instrumentName = #"Drums"
    \new DrumVoice \up
    \new DrumVoice \down
}
\score {
  <<
    \new StaffGroup = "horns" <<</pre>
      \new Staff = "trumpet" \trumpet
\new Staff = "altosax" \altoSax
      \new ChordNames = "barichords" \bariHarmony
      \new Staff = "barisax" \bariSax
      \new Staff = "trombone" \trombone
    \new StaffGroup = "rhythm" <<</pre>
      \new ChordNames = "chords" \qtrHarmony
      \new Staff = "guitar" \guitar
      \new PianoStaff = "piano" \piano
\new Staff = "bass" \bass
      \new DrumStaff \drumContents
  >>
  \layout {
    \context { \Staff \RemoveEmptyStaves }
    \context {
      \Score
      \override BarNumber #'padding = #3
      \override RehearsalMark #'padding = #2
```

```
skipBars = ##t
}
}
\midi { }
```

Song

Me



Laissez vibrer ties

Laissez vibrer ties have a fixed size. Their formatting can be tuned using 'tie-configuration.

```
\relative c' {
    <c e g>4\laissezVibrer r <c f g>\laissezVibrer r
    <c d f g>4\laissezVibrer r <c d f g>4.\laissezVibrer r8
```



Letter tablature formatting

Tablature can be formatted using letters instead of numbers.

```
music = \relative c {
  c4 d e f
  g4 a b c
  d4 e f g
}

<<
  \new Staff {
   \clef "G_8"
   \music
  }
  \new TabStaff \with {
    tablatureFormat = #fret-letter-tablature-format
  }
  {
   \music
  }
</pre>
```



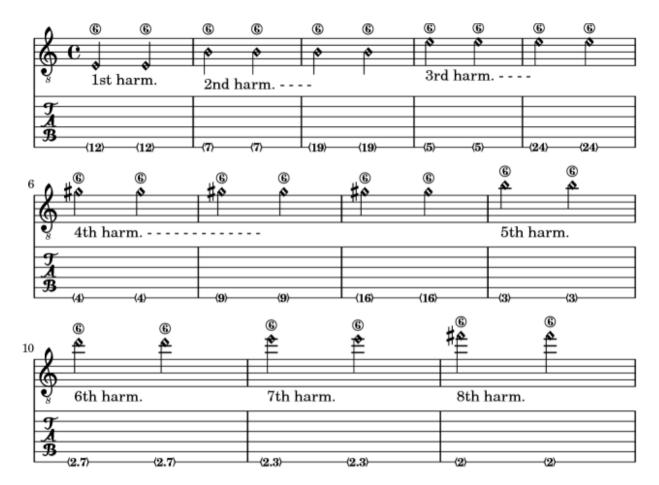
Open string harmonics in tablature

This snippet demonstrates open-string harmonics

```
openStringHarmonics = {
    %first harmonic
    \harmonicByFret #12 e,2\6_\markup{"1st harm."}
    \harmonicByRatio #1/2 e,\6
    %second harmonic
    \harmonicByFret #7 e,\6_\markup{"2nd harm. - - - -"}
    \harmonicByRatio #1/3 e,\6
    \harmonicByFret #19 e,\6
    \harmonicByFret #19 e,\6
    %\harmonicByFret #19 < e,\6 a,\5 d\4 >
    %\harmonicByRatio #2/3 < e,\6 a,\5 d\4 >
```

LilyPond snippets: Fretted strings

```
%third harmonic
  \harmonicByFret #5 e,\6_\markup{"3rd harm. - - - -"}
  \harmonicByRatio #1/4 e,\6
  \harmonicByFret #24 e,\6
  \harmonicByRatio #3/4 e,\6
  \break
  %fourth harmonic
  \harmonicByFret #4 e,\6_\markup{"4th harm. - - - - - - - - - "}
  \harmonicByRatio #1/5 e,\6
  \harmonicByFret #9 e,\6
  \harmonicByRatio #2/5 e,\6
  \harmonicByFret #16 e,\6
  \harmonicByRatio #3/5 e,\6
  %fifth harmonic
  \harmonicByFret #3 e,\6_\markup{"5th harm."}
  \harmonicByRatio #1/6 e,\6
  \break
  %sixth harmonic
  \harmonicByFret #2.7 e,\6_\markup{"6th harm."}
  \harmonicByRatio \#1/7 e,\6
  %seventh harmonic
  \harmonicByFret #2.3 e,\6_\markup{"7th harm."}
  \harmonicByRatio \#1/8 \text{ e}, \sqrt{6}
  %eighth harmonic
  \harmonicByFret #2 e,\6_\markup{"8th harm."}
  \harmonicByRatio #1/9 e,\6
\score {
    \new Staff {
      \new Voice {
        \clef "treble 8"
        \openStringHarmonics
    \new TabStaff {
      \new TabVoice {
        \openStringHarmonics
 >>
```



Placement of right-hand fingerings

It is possible to exercise greater control over the placement of right-hand fingerings by setting a specific property, as demonstrated in the following example. Note: you must use a chord construct

```
#(define RH rightHandFinger)
\relative c {
    \clef "treble_8"

    \set strokeFingerOrientations = #'(up down)
    <c-\RH #1 e-\RH #2 g-\RH #3 c-\RH #4 >4

    \set strokeFingerOrientations = #'(up right down)
    <c-\RH #1 e-\RH #2 g-\RH #3 c-\RH #4 >4

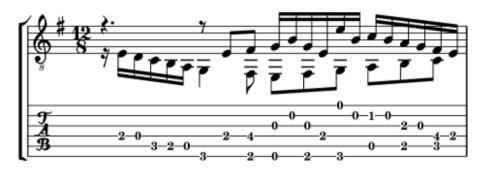
    \set strokeFingerOrientations = #'(left)
    <c-\RH #1 e-\RH #2 g-\RH #3 c-\RH #4 >2
}
```



Polyphony in tablature

Polyphony is created the same way in a TabStaff as in a regular staff.

```
upper = \relative c' {
  \time 12/8
  \key e \minor
  \voiceOne
  r4. r8 e, fis g16 b g e e' b c b a g fis e
lower = \relative c {
  \key e \minor
  \voiceTwo
  r16 e d c b a g4 fis8 e fis g a b c
\score {
    \new StaffGroup = "tab with traditional" <<
    \new Staff = "guitar traditional" <<</pre>
         \clef "treble 8"
         \context Voice = "upper" \upper
         \context Voice = "lower" \lower
      >>
       \new TabStaff = "quitar tab" <<</pre>
         \context TabVoice = "upper" \upper
         \context TabVoice = "lower" \lower
      >>
    >>
  >>
```



Slides in tablature

Slides can be typeset in both Staff and TabStaff contexts:

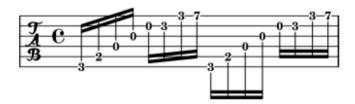
```
slides = {
 c'8\3(\glissando d'8\3)
  c'8\3\glissando d'8\3
  \hideNotes
  \grace { g16\3\glissando }
  \unHideNotes
 c'4\3
  \afterGrace d'4\3\glissando {
  \stemDown \hideNotes
  q16\3 }
  \unHideNotes
}
\score {
    \new Staff { \clef "treble_8" \slides }
    \new TabStaff { \slides }
  \layout {
    \context {
      \Score
```



Stem and beam behavior in tablature

The direction of stems is controlled the same way in tablature as in traditional notation. Beams can be made horizontal, as shown in this example.

```
\new TabStaff {
  \relative c {
    \tabFullNotation
    g16 b d g b d g b
    \stemDown
    \override Beam #'concaveness = #10000
    g,,16 b d g b d g b
}
```



String number extender lines

Make an extender line for string number indications, showing that a series of notes is supposed to be played all on the same string.

```
stringNumberSpanner =
#(define-music-function (parser location StringNumber) (string?)
#{
    \understart (override TextSpanner #'style = #'solid
    \understart (override TextSpanner #'font-size = #-5
    \understart (override TextSpanner #'(bound-details left stencil-align-dir-y) = #CENTER
    \understart (override TextSpanner #'(bound-details left text) = \understart (override \underst
```

```
\stringNumberSpanner "4"
g\startTextSpan a
bes4 a g2\stopTextSpan
}
```



This page is for LilyPond-2.16.0 (stable-branch).

We welcome your aid; please help us by reporting errors to our bug list.