

# LilyPond

---

The music typesetter

## Snippets

### The LilyPond development team

This document shows a selected set of LilyPond snippets from the [LilyPond Snippet Repository](#) (LSR). It is in the public domain.

We would like to address many thanks to Sebastiano Vigna for maintaining LSR web site and database, and the University of Milano for hosting LSR.

Please note that this document is not an exact subset of LSR: some snippets come from ‘`input/new`’ LilyPond sources directory, and snippets from LSR are converted through `convert-ly`, as LSR is based on a stable LilyPond version, and this document is for version 2.16.1.

Snippets are grouped by tags; tags listed in the table of contents match a section of LilyPond notation manual. Snippets may have several tags, and not all LSR tags may appear in this document.

In the HTML version of this document, you can click on the file name or figure for each example to see the corresponding input file.

For more information about how this manual fits with the other documentation, or to read this manual in other formats, see [Section “Manuals” in \*General Information\*](#).

If you are missing any manuals, the complete documentation can be found at <http://www.lilypond.org/>.

This document has been placed in the public domain.

For LilyPond version 2.16.1

---

# Table of Contents

<b>Pitches</b>	<b>1</b>
Adding ambitus per voice	1
Altering the length of beamed stems	1
Ambitus with multiple voices	2
Ambitus	2
Applying note head styles depending on the step of the scale	3
Changing the ambitus gap	4
Changing the interval of lines on the stave	5
Clefs can be transposed by arbitrary amounts	5
Coloring notes depending on their pitch	6
Creating a sequence of notes on various pitches	7
Forcing a clef symbol to be displayed	7
Generating random notes	7
Hiding accidentals on tied notes at the start of a new system	8
Keep change clefs full sized	8
Makam example	9
Non-traditional key signatures	9
Numbers as easy note heads	10
Orchestra choir and piano template	11
Ottava text	14
Preventing extra naturals from being automatically added	15
Preventing natural signs from being printed when the key signature changes	15
Quoting another voice with transposition	15
Separating key cancellations from key signature changes	16
Transposing pitches with minimum accidentals ("Smart" transpose)	17
Tweaking clef properties	18
Using autochange with more than one voice	19
<b>Rhythms</b>	<b>21</b>
Adding beams slurs ties etc. when using triplet and non-triplet rhythms	21
Adding drum parts	21
Adjusting grace note spacing	22
Aligning bar numbers	22
Alternative breve note	23
Automatic beam subdivisions	23
Automatically change durations	24
Avoiding collisions with chord fingerings	25
Beam endings in Score context	25
Beam grouping in 7/8 time	26
Beams across line breaks	26
Changing beam knee gap	27
Changing form of multi-measure rests	27
Changing the number of augmentation dots per note	27
Changing the tempo without a metronome mark	28
Changing the triplet number	28
Changing time signatures inside a polymetric section using \scaleDurations	28
Chant or psalms notation	29
Compound time signatures	30

Conducting signs measure grouping signs .....	30
Consistently left aligned bar numbers .....	31
Controlling tuplet bracket visibility .....	32
Creating metronome marks in markup mode .....	33
Engraving ties manually .....	33
Engraving tremolos with floating beams .....	34
Entering several tuplets using only one \times command .....	34
Flat flags and beam nibs .....	35
Forcing rehearsal marks to start from a given letter or number .....	36
Generating custom flags .....	36
Guitar strum rhythms .....	38
Heavily customized polymetric time signatures .....	39
Making an object invisible with the 'transparent property .....	40
Making slurs with complex dash structure .....	40
Manually controlling beam positions .....	41
Merging multi-measure rests in a polyphonic part .....	41
Modifying tuplet bracket length .....	42
Moving dotted notes in polyphony .....	42
Multi-measure rest markup .....	43
Non-default tuplet numbers .....	43
Partcombine and autoBeamOff .....	44
Permitting line breaks within beamed tuplets .....	45
Positioning grace note beams at the height of normal note beams .....	45
Positioning grace notes with floating space .....	46
Positioning multi-measure rests .....	46
Preventing final mark from removing final tuplet .....	47
Printing bar numbers at regular intervals .....	48
Printing bar numbers inside boxes or circles .....	49
Printing metronome and rehearsal marks below the staff .....	49
Printing music with different time signatures .....	50
Printing the bar number for the first measure .....	53
Redefining grace note global defaults .....	53
Removing bar numbers from a score .....	54
Removing connecting bar lines on StaffGroup PianoStaff or GrandStaff .....	54
Rest styles .....	55
Reverting default beam endings .....	56
Rhythmic slashes .....	56
Skips in lyric mode (2) .....	57
Skips in lyric mode .....	57
Stemlets .....	58
Strict beat beaming .....	58
Subdividing beams .....	58
Three-sided box .....	59
Time signature printing only the numerator as a number (instead of the fraction) .....	60
Tweaking grace layout within music .....	60
Using alternative flag styles .....	61
Using grace note slashes with normal heads .....	62
Using ties with arpeggios .....	62

<b>Expressive marks</b>	<b>63</b>
Adding beams slurs ties etc. when using tuplet and non-tuplet rhythms	63
Adding parentheses around an expressive mark or chordal note	63
Adjusting the shape of falls and doits	63
Alternative breve note	64
Asymmetric slurs	64
Breathing signs	64
Broken Crescendo Hairpin	65
Caesura ("railtracks") with fermata	66
Center text below hairpin dynamics	66
Changing \flageolet mark size	67
Changing text and spanner styles for text dynamics	68
Changing the appearance of a slur from solid to dotted or dashed	68
Changing the breath mark symbol	68
Changing the number of augmentation dots per note	69
Combining dynamics with markup texts	69
Contemporary glissando	69
Controlling spanner visibility after a line break	70
Controlling the vertical ordering of scripts	70
Creating a delayed turn	71
Creating arpeggios across notes in different voices	71
Creating cross-staff arpeggios in a piano staff	72
Creating cross-staff arpeggios in other contexts	72
Creating double-digit fingerings	73
Creating "real" parenthesized dynamics	74
Creating simultaneous rehearsal marks	74
Creating slurs across voices	75
Creating text spanners	75
Double glissando	76
Dynamics custom text spanner postfix	77
Dynamics text spanner postfix	77
Glissandi can skip grobs	78
Hairpins with different line styles	78
Hiding the extender line for text dynamics	79
Horizontally aligning custom dynamics (e.g. "sempre pp" "piu f" "subito p")	79
How to print two rehearsal marks above and below the same barline (method 1)	82
How to print two rehearsal marks above and below the same barline (method 2)	83
Inserting a caesura	84
Laissez vibrer ties	84
Line arrows	85
Making slurs with complex dash structure	85
Modifying default values for articulation shorthand notation	86
Moving slur positions vertically	86
Positioning arpeggios	87
Positioning text markups inside slurs	87
Printing hairpins using al niente notation	88
Printing metronome and rehearsal marks below the staff	88
Setting hairpin behavior at bar lines	88
Setting the minimum length of hairpins	89
Showing the same articulation above and below a note or chord	89
Snap-pizzicato or Bartok pizzicato	90
Using arpeggioBracket to make divisi more visible	90
Using double slurs for legato chords	91
Using the whiteout property	91



Vertical line as a baroque articulation mark .....	91
Vertically aligning dynamics across multiple notes .....	92
<b>Repeats .....</b>	<b>93</b>
Adding volta brackets to additional staves .....	93
Cross-staff tremolos .....	93
Engraving tremolos with floating beams .....	94
Isolated percent repeats .....	94
Measure counter .....	95
Percent repeat count visibility .....	95
Percent repeat counter .....	96
Positioning segno and coda (with line break) .....	96
Printing a repeat sign at the beginning of a piece .....	98
Setting the double repeat default for volte .....	99
Shortening volta brackets .....	99
Volta below chords .....	100
Volta multi staff .....	100
Volta text markup using repeatCommands .....	101
<b>Simultaneous notes .....</b>	<b>102</b>
Additional voices to avoid collisions .....	102
Changing a single note's size in a chord .....	103
Changing partcombine texts .....	103
Clusters .....	103
Combining two parts on the same staff .....	104
Displaying complex chords .....	105
Double glissando .....	105
Forcing horizontal shift of notes .....	106
Making an object invisible with the 'transparent' property .....	106
Moving dotted notes in polyphony .....	107
Suppressing warnings for clashing note columns .....	107
<b>Staff notation .....</b>	<b>109</b>
Adding ambitus per voice .....	109
Adding an extra staff at a line break .....	109
Adding an extra staff .....	110
Adding indicators to staves which get split after a break .....	111
Adding orchestral cues to a vocal score .....	113
Alternative bar numbering .....	114
Changing the number of lines in a staff .....	116
Changing the staff size .....	116
Creating blank staves .....	117
Creating double-digit fingerings .....	118
Cross staff stems .....	119
Display bracket with only one staff in a system .....	119
Forcing measure width to adapt to MetronomeMark's width .....	120
Glissandi can skip grobs .....	121
How to print two rehearsal marks above and below the same barline (method 1) .....	121
How to print two rehearsal marks above and below the same barline (method 2) .....	122
Incipit .....	123
Inserting score fragments above a staff as markups .....	128
Letter tablature formatting .....	129
Making some staff lines thicker than the others .....	130

Measure counter .....	130
Mensurstriche layout (bar lines between the staves) .....	131
Nesting staves .....	131
Non-traditional key signatures .....	132
Orchestra choir and piano template .....	132
Putting lyrics inside the staff .....	136
Quoting another voice with transposition .....	137
Quoting another voice .....	137
Removing the first empty line .....	138
Setting system separators .....	139
Tick bar lines .....	142
Time signature in parentheses - method 3 .....	142
Time signature in parentheses .....	142
Tweaking clef properties .....	142
Use square bracket at the start of a staff group .....	144
Using autochange with more than one voice .....	144
Volta below chords .....	145
Volta multi staff .....	146
<b>Editorial annotations .....</b>	<b>147</b>
Adding fingerings to a score .....	147
Allowing fingerings to be printed inside the staff .....	147
Alternative bar numbering .....	147
Analysis brackets above the staff .....	148
Applying note head styles depending on the step of the scale .....	149
Avoiding collisions with chord fingerings .....	149
Blanking staff lines using the \whiteout command .....	150
Changing a single note's size in a chord .....	150
Changing the appearance of a slur from solid to dotted or dashed .....	151
Coloring notes depending on their pitch .....	151
Controlling the placement of chord fingerings .....	152
Creating a delayed turn .....	152
Creating blank staves .....	153
Creating double-digit fingerings .....	154
Default direction of stems on the center line of the staff .....	155
Drawing boxes around grobs .....	155
Drawing circles around note heads .....	156
Drawing circles around various objects .....	156
Embedding native PostScript in a \markup block .....	157
Grid lines: changing their appearance .....	157
Grid lines: emphasizing rhythms and notes synchronization .....	158
How to print two rehearsal marks above and below the same barline (method 1) .....	159
How to print two rehearsal marks above and below the same barline (method 2) .....	160
Making some staff lines thicker than the others .....	161
Marking notes of spoken parts with a cross on the stem .....	161
Measure counter .....	162
Positioning fingering indications precisely .....	162
Positioning text markups inside slurs .....	163
Printing text from right to left .....	163
String number extender lines .....	164
Using PostScript to generate special note head shapes .....	164
Using the whiteout property .....	165

<b>Text</b>	<b>166</b>
Adding the current date to a score	166
Adjusting lyrics vertical spacing	166
Aligning and centering instrument names	167
Aligning marks with various notation objects	168
Aligning objects created with the \mark command	170
Aligning syllables with melisma	170
Blanking staff lines using the \whiteout command	171
Center text below hairpin dynamics	171
Centering markup on note heads automatically	172
Changing the default text font family	173
Combining dynamics with markup texts	174
Combining two parts on the same staff	174
Creating "real" parenthesized dynamics	175
Creating simultaneous rehearsal marks	175
Creating text spanners	176
Demonstrating all headers	177
Embedding native PostScript in a \markup block	178
Formatting lyrics syllables	179
How to put ties between syllables in lyrics	179
Lyrics alignment	179
Markup lines	180
Multi-measure rest markup	182
Ottava text	182
Outputting the version number	182
Piano template with centered lyrics	183
Printing marks at the end of a line	184
Printing marks on every staff	184
Printing text from right to left	185
Putting lyrics inside the staff	185
Stand-alone two-column markup	185
String number extender lines	186
Three-sided box	187
UTF-8	187
Vocal ensemble template with lyrics aligned below and above the staves	189
Volta text markup using repeatCommands	190
<b>Vocal music</b>	<b>192</b>
Adding ambitus per voice	192
Adding indicators to staves which get split after a break	192
Adding orchestral cues to a vocal score	194
Adjusting lyrics vertical spacing	196
Aligning syllables with melisma	196
Ambitus with multiple voices	197
Ambitus	197
Ancient notation template – modern transcription of gregorian music	198
Anglican psalm template	199
Changing stanza fonts	202
Chant or psalms notation	202
Forcing hyphens to be shown	203
Formatting lyrics syllables	203
How to put ties between syllables in lyrics	204
Hymn template	204

Lyrics alignment .....	206
Marking notes of spoken parts with a cross on the stem .....	207
Obtaining 2.12 lyrics spacing in newer versions .....	207
Orchestra choir and piano template .....	210
Piano template with melody and lyrics .....	213
Putting lyrics inside the staff .....	214
SATB Choir template - four staves .....	215
Single staff template with notes lyrics and chords .....	216
Single staff template with notes lyrics chords and frets .....	217
Single staff template with notes and lyrics .....	218
Skips in lyric mode (2) .....	219
Skips in lyric mode .....	219
Using arpeggioBracket to make divisi more visible .....	219
Vertically aligning ossias and lyrics .....	220
Vertically centered common lyrics .....	221
Vocal ensemble template with automatic piano reduction .....	222
Vocal ensemble template with lyrics aligned below and above the staves .....	224
Vocal ensemble template with verse and refrain .....	225
Vocal ensemble template .....	227
<b>Chords .....</b>	<b>230</b>
Adding a figured bass above or below the notes .....	230
Adding bar lines to ChordNames context .....	230
Avoiding collisions with chord fingerings .....	231
Bar chords notation for Guitar (with Text Spanner) .....	231
Changing chord separator .....	232
Changing the chord names to German or semi-German notation .....	233
Changing the positions of figured bass alterations .....	233
Chord name exceptions .....	234
chord name major7 .....	234
Clusters .....	235
Controlling the placement of chord fingerings .....	235
Cross-staff chords - beaming problems workaround .....	236
Displaying complex chords .....	236
Manually break figured bass extenders for only some numbers .....	237
Showing chords at changes .....	237
Simple lead sheet .....	238
Single staff template with notes lyrics and chords .....	238
Single staff template with notes lyrics chords and frets .....	239
Single staff template with notes and chords .....	240
Vertically centering paired figured bass extenders .....	240
Volta below chords .....	241
<b>Keyboards .....</b>	<b>243</b>
Accordion-discant symbols .....	243
Changing the text for sustain markings .....	246
Clusters .....	247
Controlling the placement of chord fingerings .....	247
Creating slurs across voices .....	247
Cross-staff chords - beaming problems workaround .....	248
Cross-staff tremolos .....	249
Fine-tuning pedal brackets .....	250
Indicating cross-staff chords with arpeggio bracket .....	250

Jazz combo template .....	251
Laissez vibrer ties .....	257
Piano template (simple) .....	258
Piano template with centered lyrics .....	258
Piano template with melody and lyrics .....	259
Using autochange with more than one voice .....	260
Vocal ensemble template with automatic piano reduction .....	261
<b>Percussion .....</b>	<b>264</b>
Adding drum parts .....	264
Heavily customized polymetric time signatures .....	264
Jazz combo template .....	266
Percussion beaters .....	271
Printing music with different time signatures .....	274
<b>Fretted strings .....</b>	<b>279</b>
Adding fingerings to a score .....	279
Adding fingerings to tablatures .....	279
Allowing fingerings to be printed inside the staff .....	280
Bar chords notation for Guitar (with Text Spanner) .....	280
Changing fret orientations .....	281
Chord glissando in tablature .....	282
ChordChanges for FretBoards .....	282
Controlling the placement of chord fingerings .....	283
Customizing fretboard fret diagrams .....	284
Customizing markup fret diagrams .....	285
Defining predefined fretboards for other instruments .....	287
Faking a hammer in tablatures .....	289
Fingerings string indications and right-hand fingerings .....	289
Flamenco notation .....	289
Fret diagrams explained and developed .....	294
Fretboards alternate tables .....	301
Fretted-string harmonics in tablature .....	302
Guitar slides .....	304
Guitar strum rhythms .....	305
How to change fret diagram position .....	306
Jazz combo template .....	307
Laissez vibrer ties .....	313
Letter tablature formatting .....	314
Open string harmonics in tablature .....	314
Placement of right-hand fingerings .....	316
Polyphony in tablature .....	316
Slides in tablature .....	317
Stem and beam behavior in tablature .....	318
String number extender lines .....	318
<b>Unfretted strings .....</b>	<b>320</b>
Changing \flageolet mark size .....	320
Creating slurs across voices .....	320
Dotted harmonics .....	321
Snap-pizzicato or Bartok pizzicato .....	321
String quartet template (simple) .....	321
String quartet template with separate parts .....	323

<b>Winds</b>	<b>326</b>
Changing the size of woodwind diagrams	326
Fingering symbols for wind instruments	326
Flute slap notation	327
Graphical and text woodwind diagrams	328
Recorder fingering chart	328
Woodwind diagrams key lists	329
Woodwind diagrams listing	330
<b>Ancient notation</b>	<b>333</b>
Adding a figured bass above or below the notes	333
Ancient fonts	333
Ancient notation template – modern transcription of gregorian music	338
Ancient notation template – modern transcription of mensural music	339
Ancient time signatures	344
Chant or psalms notation	344
Custodes	345
Incipit	346
Mensurstriche layout (bar lines between the staves)	352
Rest styles	352
Transcription of Ancient music with incipit	353
Vertical line as a baroque articulation mark	359
<b>World music</b>	<b>360</b>
Arabic improvisation	360
Makam example	360
Printing text from right to left	360
<b>Contexts and engravers</b>	<b>362</b>
Adding a figured bass above or below the notes	362
Adding an extra staff at a line break	362
Adding an extra staff	363
Centering markup on note heads automatically	364
Changing MIDI output to one channel per voice	365
Changing time signatures inside a polymetric section using <code>\scaleDurations</code>	366
Chant or psalms notation	367
Creating blank staves	367
Cross staff stems	369
Defining an engraver in Scheme: <code>ambitus engraver</code>	369
Engravers one-by-one	376
Mensurstriche layout (bar lines between the staves)	381
Nesting staves	382
Removing bar numbers from a score	382
Use square bracket at the start of a staff group	383
Vocal ensemble template with lyrics aligned below and above the staves	383
Vocal ensemble template with verse and refrain	385

<b>Tweaks and overrides</b>	<b>388</b>
Adjusting grace note spacing	388
Altering the length of beamed stems	388
Alternative bar numbering	389
Analysis brackets above the staff	390
Asymmetric slurs	390
Avoiding collisions with chord fingerings	390
Caesura ("railtracks") with fermata	391
Centering markup on note heads automatically	391
Changing a single note's size in a chord	392
Changing form of multi-measure rests	393
Changing properties for individual grobs	393
Changing text and spanner styles for text dynamics	394
Changing the default text font family	394
Changing the staff size	395
Changing the tempo without a metronome mark	395
Changing the text for sustain markings	396
Controlling spanner visibility after a line break	396
Controlling the vertical ordering of scripts	397
Controlling tuplet bracket visibility	397
Creating a delayed turn	398
Creating double-digit fingerings	399
Creating simultaneous rehearsal marks	399
Creating text spanners	400
Cross-staff chords - beaming problems workaround	401
Cross staff stems	402
Custodes	402
Customizing fretboard fret diagrams	403
Customizing markup fret diagrams	405
Display bracket with only one staff in a system	406
Displaying grob ancestry	407
Dotted harmonics	409
Drawing boxes around grobs	409
Drawing circles around various objects	409
Dynamics custom text spanner postfix	410
Dynamics text spanner postfix	411
Fine-tuning pedal brackets	411
Forcing horizontal shift of notes	411
Fret diagrams explained and developed	412
Generating custom flags	419
Glissandi can skip grobs	420
Hairpins with different line styles	420
Horizontally aligning custom dynamics (e.g. "sempre pp" "piu f" "subito p")	421
How to change fret diagram position	424
How to print two rehearsal marks above and below the same barline (method 1)	425
How to print two rehearsal marks above and below the same barline (method 2)	426
Inserting a caesura	427
Keep change clefs full sized	427
Line arrows	428
Making an object invisible with the 'transparent property	428
Manually controlling beam positions	429
Mensurstriche layout (bar lines between the staves)	429
Moving dotted notes in polyphony	430
Moving slur positions vertically	430

Nesting staves .....	431
Percent repeat count visibility .....	432
Positioning arpeggios .....	432
Positioning multi-measure rests .....	432
Positioning text markups inside slurs .....	433
Printing a repeat sign at the beginning of a piece .....	434
Printing bar numbers inside boxes or circles .....	434
Printing metronome and rehearsal marks below the staff .....	435
Printing note names with and without an octave marker .....	435
Proportional strict notespacing .....	436
Removing connecting bar lines on StaffGroup PianoStaff or GrandStaff .....	436
Removing the first empty line .....	437
Rest styles .....	438
Rhythmic slashes .....	439
Separating key cancellations from key signature changes .....	440
Setting hairpin behavior at bar lines .....	440
Setting system separators .....	441
Showing the same articulation above and below a note or chord .....	443
String number extender lines .....	443
Suppressing warnings for clashing note columns .....	444
Time signature in parentheses - method 3 .....	444
Time signature in parentheses .....	445
Time signature printing only the numerator as a number (instead of the fraction) .....	445
Transcription of Ancient music with incipit .....	445
Tweaking clef properties .....	451
Tweaking grace layout within music .....	453
Using alternative flag styles .....	453
Using ly:grob-object to access grobs with \tweak .....	454
Using PostScript to generate special note head shapes .....	455
Using the \tweak command to tweak individual grobs .....	455
Vertically aligned dynamics and textscripts .....	456
Vertically aligning ossias and lyrics .....	456
Vertically centering paired figured bass extenders .....	457
<b>Paper and layout .....</b>	<b>459</b>
Aligning and centering instrument names .....	459
Book parts .....	460
Changing the staff size .....	464
Clip systems .....	465
Creating blank staves .....	468
Demonstrating all headers .....	469
Setting system separators .....	470
Table of contents .....	472
<b>Titles .....</b>	<b>474</b>
Adding the current date to a score .....	474
Aligning and centering instrument names .....	474
Demonstrating all headers .....	476
Outputting the version number .....	477



<b>Spacing</b> .....	<b>478</b>
Adjusting lyrics vertical spacing .....	478
Allowing fingerings to be printed inside the staff .....	478
Page label .....	479
Proportional strict notespacing .....	481
Vertically aligned dynamics and textscripts .....	482
Vertically aligning ossias and lyrics .....	482
<b>MIDI</b> .....	<b>484</b>
Changing MIDI output to one channel per voice .....	484
Changing the tempo without a metronome mark .....	485
Demo MidiInstruments .....	485
<b>Templates</b> .....	<b>489</b>
Ancient notation template – modern transcription of gregorian music .....	489
Ancient notation template – modern transcription of mensural music .....	490
Anglican psalm template .....	495
Hymn template .....	498
Jazz combo template .....	500
Orchestra choir and piano template .....	506
Piano template (simple) .....	509
Piano template with centered lyrics .....	510
Piano template with melody and lyrics .....	511
SATB Choir template - four staves .....	512
Score for diatonic accordion .....	514
Single staff template with notes lyrics and chords .....	518
Single staff template with notes lyrics chords and frets .....	519
Single staff template with notes and chords .....	520
Single staff template with notes and lyrics .....	521
Single staff template with only notes .....	521
String quartet template (simple) .....	522
String quartet template with separate parts .....	523
Vocal ensemble template with automatic piano reduction .....	525
Vocal ensemble template with lyrics aligned below and above the staves .....	528
Vocal ensemble template with verse and refrain .....	529
Vocal ensemble template .....	531

# Pitches

Section “Pitches” in *Notation Reference*

## Adding ambitus per voice

Ambitus can be added per voice. In this case, the ambitus must be moved manually to prevent collisions.

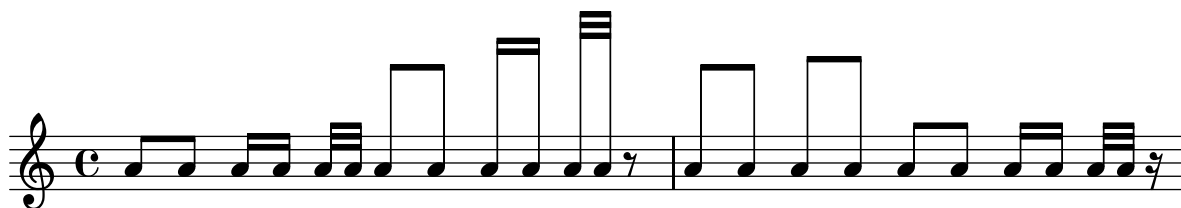
```
\new Staff <<
  \new Voice \with {
    \consists "Ambitus_engraver"
  } \relative c'' {
    \override Ambitus #'X-offset = #2.0
    \voiceOne
    c4 a d e
    f1
  }
  \new Voice \with {
    \consists "Ambitus_engraver"
  } \relative c' {
    \voiceTwo
    es4 f g as
    b1
  }
}>>
```



## Altering the length of beamed stems

Stem lengths on beamed notes can be varied by overriding the `beamed-lengths` property of the `details` of the `Stem`. If a single value is used as an argument, the length applies to all stems. When multiple arguments are used, the first applies to eighth notes, the second to sixteenth notes and so on. The final argument also applies to all notes shorter than the note length of the final argument. Non-integer arguments may also be used.

```
\relative c'' {
  \override Stem #'(details beamed-lengths) = #'(2)
  a8[ a] a16[ a] a32[ a]
  \override Stem #'(details beamed-lengths) = #'(8 10 12)
  a8[ a] a16[ a] a32[ a] r8
  \override Stem #'(details beamed-lengths) = #'(8)
  a8[ a]
  \override Stem #'(details beamed-lengths) = #'(8.5)
  a8[ a]
  \revert Stem #'details
  a8[ a] a16[ a] a32[ a] r16
}
```



## Ambitus with multiple voices

Adding the `Ambitus_engraver` to the `Staff` context creates a single ambitus per staff, even in the case of staves with multiple voices.

```
\new Staff \with {
  \consists "Ambitus_engraver"
}
<<
  \new Voice \relative c'' {
    \voiceOne
    c4 a d e
    f1
  }
  \new Voice \relative c' {
    \voiceTwo
    es4 f g as
    b1
  }
>>
```



## Ambitus

Ambitus indicate pitch ranges for voices.

Accidentals only show up if they are not part of the key signature. `AmbitusNoteHead` grobs also have ledger lines.

```
\layout {
  \context {
    \Voice
    \consists "Ambitus_engraver"
  }
}

<<
  \new Staff {
    \relative c' {
      \time 2/4
      c4 f'
    }
  }
  \new Staff {
    \relative c' {
      \time 2/4
      \key d \major
    }
  }
>>
```

```

        cis4 as'
    }
}
>>

```



## Applying note head styles depending on the step of the scale

The `shapeNoteStyles` property can be used to define various note head styles for each step of the scale (as set by the key signature or the `tonic` property). This property requires a set of symbols, which can be purely arbitrary (geometrical expressions such as `triangle`, `cross`, and `xcircle` are allowed) or based on old American engraving tradition (some latin note names are also allowed).

That said, to imitate old American song books, there are several predefined note head styles available through shortcut commands such as `\aikenHeads` or `\sacredHarpHeads`.

This example shows different ways to obtain shape note heads, and demonstrates the ability to transpose a melody without losing the correspondence between harmonic functions and note head styles.

```

fragment = {
  \key c \major
  c2 d
  e2 f
  g2 a
  b2 c
}

\new Staff {
  \transpose c d
  \relative c' {
    \set shapeNoteStyles = #'#(do re mi fa
                                #f la ti)

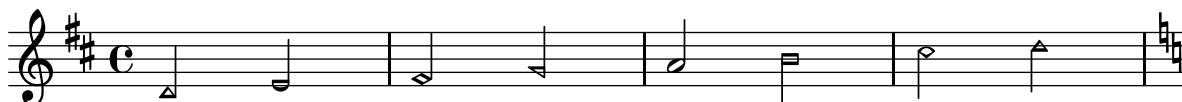
    \fragment
  }

  \break

  \relative c' {
    \set shapeNoteStyles = #'#(cross triangle fa #f
                                mensural xcircle diamond)

    \fragment
  }
}

```





## Changing the ambitus gap

It is possible to change the default gap setting for ambitus.

```
\layout {
  \context {
    \Voice
    \consists "Ambitus_engraver"
  }
}

\new Staff {
  \time 2/4
  % Default setting
  c'4 g''
}

\new Staff {
  \time 2/4
  \override AmbitusLine #'gap = #0
  c'4 g''
}

\new Staff {
  \time 2/4
  \override AmbitusLine #'gap = #1
  c'4 g''
}

\new Staff {
  \time 2/4
  \override AmbitusLine #'gap = #1.5
  c'4 g''
}
```



## Changing the interval of lines on the staff

`staffLineLayoutFunction` is used to change the position of notes. This snippet shows setting its value to `ly:pitch-semitones` in order to produce a chromatic scale with the distance between each space and line of the staff equal to one semitone.

```
scale = \relative c' {
  a4 ais b c
  cis4 d dis e
  f4 fis g gis
  a1
}

\new Staff \with {
  \remove "Accidental_engraver"
  staffLineLayoutFunction = #ly:pitch-semitones
}
{
  <<
    \scale
    \context NoteNames {
      \set printOctaveNames = ##f
    }
    \scale
  }
  >>
}
```



## Clefs can be transposed by arbitrary amounts

Clefs can be transposed by arbitrary amounts, not just by octaves.

```
\relative c' {
  \clef treble
  c4 c c c
  \clef "treble_8"
  c4 c c c
  \clef "treble_5"
  c4 c c c
  \clef "treble^3"
  c4 c c c
}
```



## Coloring notes depending on their pitch

It is possible to color note heads depending on their pitch and/or their names: the function used in this example even makes it possible to distinguish enharmonics.

```
%Association list of pitches to colors.
#(define color-mapping
  (list
    (cons (ly:make-pitch 0 0 NATURAL) (x11-color 'red))
    (cons (ly:make-pitch 0 0 SHARP) (x11-color 'green))
    (cons (ly:make-pitch 0 1 FLAT) (x11-color 'green))
    (cons (ly:make-pitch 0 2 NATURAL) (x11-color 'red))
    (cons (ly:make-pitch 0 2 SHARP) (x11-color 'green))
    (cons (ly:make-pitch 0 3 FLAT) (x11-color 'red))
    (cons (ly:make-pitch 0 3 NATURAL) (x11-color 'green))
    (cons (ly:make-pitch 0 4 SHARP) (x11-color 'red))
    (cons (ly:make-pitch 0 5 NATURAL) (x11-color 'green))
    (cons (ly:make-pitch 0 5 FLAT) (x11-color 'red))
    (cons (ly:make-pitch 0 6 SHARP) (x11-color 'red))
    (cons (ly:make-pitch 0 1 NATURAL) (x11-color 'blue))
    (cons (ly:make-pitch 0 3 SHARP) (x11-color 'blue))
    (cons (ly:make-pitch 0 4 FLAT) (x11-color 'blue))
    (cons (ly:make-pitch 0 5 SHARP) (x11-color 'blue))
    (cons (ly:make-pitch 0 6 FLAT) (x11-color 'blue))))

%Compare pitch and alteration (not octave).
#(define (pitch-equals? p1 p2)
  (and
    (= (ly:pitch-alteration p1) (ly:pitch-alteration p2))
    (= (ly:pitch-notename p1) (ly:pitch-notename p2))))

#(define (pitch-to-color pitch)
  (let ((color (assoc pitch color-mapping pitch-equals?)))
    (if color
      (cdr color))))

#(define (color-notehead grob)
  (pitch-to-color
    (ly:event-property (event-cause grob) 'pitch)))

\score {
  \new Staff \relative c' {
    \override NoteHead #'color = #color-notehead
    c8 b d dis ees f g aes
  }
}
```







```

      (make-event-chord
      (list
      (make-music 'NoteEvent
      'duration (ly:make-duration 2 0 1 1)
      'pitch (ly:make-pitch
      (quotient idx 7)
      (remainder idx 7)
      0))))))
      (make-list 24))))
    }
  }

```



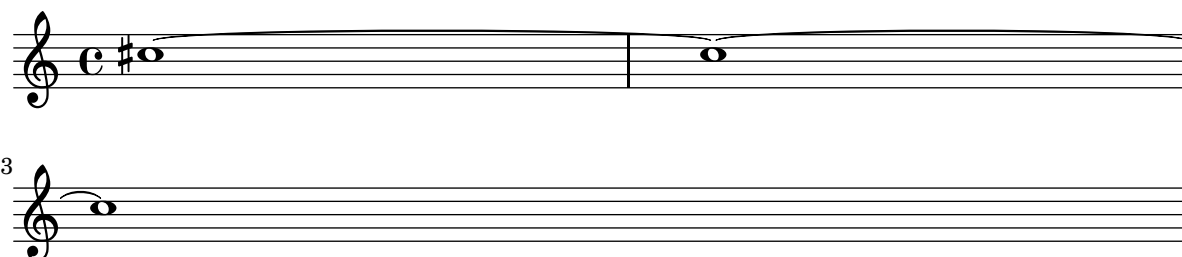
## Hiding accidentals on tied notes at the start of a new system

This shows how to hide accidentals on tied notes at the start of a new system.

```

\relative c' {
  \override Accidental #'hide-tied-accidental-after-break = ##t
  cis1~ cis~
  \break
  cis
}

```



## Keep change clefs full sized

When a clef is changed, the clef sign displayed is smaller than the initial clef. This can be overridden with `full-size-change`.

```

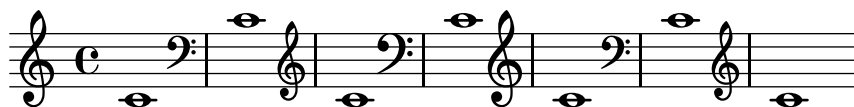
\relative c' {
  \clef "treble"
  c1
  \clef "bass"
  c1
  \clef "treble"
  c1
  \override Staff.Clef #'full-size-change = ##t
  \clef "bass"
  c1
  \clef "treble"
  c1
  \revert Staff.Clef #'full-size-change
  \clef "bass"
}

```

```

c1
\clef "treble"
c1
}

```



## Makam example

Makam is a type of melody from Turkey using 1/9th-tone microtonal alterations. Consult the initialization file ‘ly/makam.ly’ for details of pitch names and alterations.

```

% Initialize makam settings
\include "makam.ly"

\relative c' {
  \set Staff.keySignature = #`((6 . ,(- KOMA)) (3 . ,BAKIYE))
  c4 cc db fk
  gbm4 gfc gfb efk
  fk4 db cc c
}

```



## Non-traditional key signatures

The commonly used `\key` command sets the `keySignature` property, in the `Staff` context.

To create non-standard key signatures, set this property directly. The format of this command is a list:

```

\set Staff.keySignature = #`(((octave . step) . alter) ((octave . step) . alter)
...) where, for each element in the list, octave specifies the octave (0 being the octave
from middle C to the B above), step specifies the note within the octave (0 means C and 6
means B), and alter is ,SHARP ,FLAT ,DOUBLE-SHARP etc. (Note the leading comma.) The
accidentals in the key signature will appear in the reverse order to that in which they are
specified.

```

Alternatively, for each item in the list, using the more concise format `(step . alter)` specifies that the same alteration should hold in all octaves.

For microtonal scales where a “sharp” is not 100 cents, `alter` refers to the alteration as a proportion of a 200-cent whole tone.

Here is an example of a possible key signature for generating a whole-tone scale:

```

\relative c' {
  \set Staff.keySignature = #`(((0 . 6) . ,FLAT)
                                ((0 . 5) . ,FLAT)
                                ((0 . 3) . ,SHARP))

  c4 d e fis
  aes4 bes c2
}

```



## Numbers as easy note heads

Easy notation note heads use the `note-names` property of the `NoteHead` object to determine what appears inside the note head. By overriding this property, it is possible to print numbers representing the scale-degree.

A simple engraver can be created to do this for every note head object it sees.

```
#(define Ez_numbers_engraver
  (make-engraver
    (acknowledgers
      ((note-head-interface engraver grob source-engraver)
        (let* ((context (ly:translator-context engraver))
              (tonic-pitch (ly:context-property context 'tonic))
              (tonic-name (ly:pitch-notename tonic-pitch))
              (grob-pitch
                (ly:event-property (event-cause grob) 'pitch))
              (grob-name (ly:pitch-notename grob-pitch))
              (delta (modulo (- grob-name tonic-name) 7))
              (note-names
                (make-vector 7 (number->string (1+ delta))))))
          (ly:grob-set-property! grob 'note-names note-names))))))

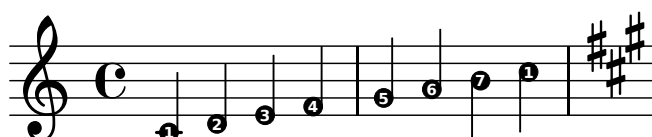
#(set-global-staff-size 26)

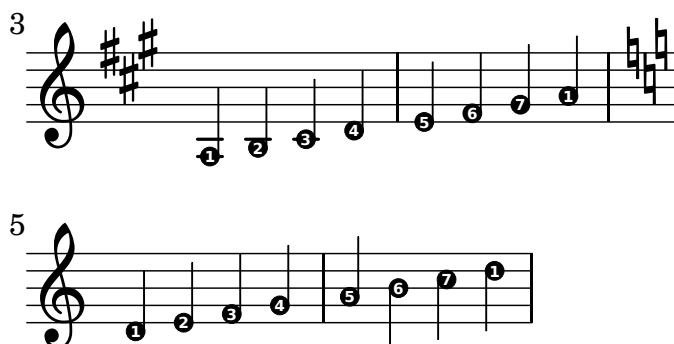
\layout {
  ragged-right = ##t
  \context {
    \Voice
    \consists \Ez_numbers_engraver
  }
}

\relative c' {
  \easyHeadsOn
  c4 d e f
  g4 a b c \break

  \key a \major
  a,4 b cis d
  e4 fis gis a \break

  \key d \dorian
  d,4 e f g
  a4 b c d
}
```





## Orchestra choir and piano template

This template demonstrates the use of nested `StaffGroup` and `GrandStaff` contexts to sub-group instruments of the same type together, and a way to use `\transpose` so that variables hold music for transposing instruments at concert pitch.

```

#(set-global-staff-size 17)
\paper {
  indent = 3.0\cm % space for instrumentName
  short-indent = 1.5\cm % space for shortInstrumentName
}

fluteMusic = \relative c' { \key g \major g'1 b }
% Pitches as written on a manuscript for Clarinet in A
% are transposed to concert pitch.
clarinetMusic = \transpose c' a
  \relative c' { \key bes \major bes1 d }
trumpetMusic = \relative c { \key g \major g''1 b }
% Key signature is often omitted for horns
hornMusic = \transpose c' f
  \relative c { d'1 fis }
percussionMusic = \relative c { \key g \major g1 b }
sopranoMusic = \relative c' { \key g \major g'1 b }
sopranoLyrics = \lyricmode { Lyr -- ics }
altoIMusic = \relative c' { \key g \major g'1 b }
altoIIMusic = \relative c' { \key g \major g'1 b }
altoILyrics = \sopranoLyrics
altoIIILyrics = \lyricmode { Ah -- ah }
tenorMusic = \relative c' { \clef "treble_8" \key g \major g1 b }
tenorLyrics = \sopranoLyrics
pianoRHMus = \relative c { \key g \major g''1 b }
pianoLHMus = \relative c { \clef bass \key g \major g1 b }
violinIMusic = \relative c' { \key g \major g'1 b }
violinIIMusic = \relative c' { \key g \major g'1 b }
violaMusic = \relative c { \clef alto \key g \major g'1 b }
celloMusic = \relative c { \clef bass \key g \major g1 b }
bassMusic = \relative c { \clef "bass_8" \key g \major g,1 b }

\score {
  <<
  \new StaffGroup = "StaffGroup_woodwinds" <<
    \new Staff = "Staff_flute" {
      \set Staff.instrumentName = #"Flute"
      % shortInstrumentName, midiInstrument, etc.
      % may be set here as well

```

```

        \fluteMusic
    }
    \new Staff = "Staff_clarinet" {
        \set Staff.instrumentName =
        \markup { \concat { "Clarinet in B" \flat } }
        % Declare that written Middle C in the music
        % to follow sounds a concert B flat, for
        % output using sounded pitches such as MIDI.
        \transposition bes
        % Print music for a B-flat clarinet
        \transpose bes c' \clarinetMusic
    }
>>
\new StaffGroup = "StaffGroup_brass" <<
    \new Staff = "Staff_hornI" {
        \set Staff.instrumentName = #"Horn in F"
        \transposition f
        \transpose f c' \hornMusic
    }
    \new Staff = "Staff_trumpet" {
        \set Staff.instrumentName = #"Trumpet in C"
        \trumpetMusic
    }
>>
\new RhythmicStaff = "RhythmicStaff_percussion" <<
    \set RhythmicStaff.instrumentName = #"Percussion"
    \percussionMusic
>>
\new PianoStaff <<
    \set PianoStaff.instrumentName = #"Piano"
    \new Staff { \pianoRHMusical }
    \new Staff { \pianoLHMusical }
>>
\new ChoirStaff = "ChoirStaff_choir" <<
    \new Staff = "Staff_soprano" {
        \set Staff.instrumentName = #"Soprano"
        \new Voice = "soprano"
        \sopranoMusic
    }
    \new Lyrics \lyricsto "soprano" { \sopranoLyrics }
    \new GrandStaff = "GrandStaff_alto"
    \with { \accepts Lyrics } <<
        \new Staff = "Staff_altoI" {
            \set Staff.instrumentName = #"Alto I"
            \new Voice = "altoI"
            \altoIMusical
        }
        \new Lyrics \lyricsto "altoI" { \altoILyrics }
        \new Staff = "Staff_altoII" {
            \set Staff.instrumentName = #"Alto II"
            \new Voice = "altoII"
            \altoIIMusical
        }
    >>

```

```

    }
    \new Lyrics \lyricsto "altoII" { \altoIIlyrics }
  >>
  \new Staff = "Staff_tenor" {
    \set Staff.instrumentName = #"Tenor"
    \new Voice = "tenor"
    \tenorMusic
  }
  \new Lyrics \lyricsto "tenor" { \tenorLyrics }
  >>
  \new StaffGroup = "StaffGroup_strings" <<
    \new GrandStaff = "GrandStaff_violins" <<
      \new Staff = "Staff_violinI" {
        \set Staff.instrumentName = #"Violin I"
        \violinIMusic
      }
      \new Staff = "Staff_violinII" {
        \set Staff.instrumentName = #"Violin II"
        \violinIIMusic
      }
    >>
    \new Staff = "Staff_viola" {
      \set Staff.instrumentName = #"Viola"
      \violaMusic
    }
    \new Staff = "Staff_cello" {
      \set Staff.instrumentName = #"Cello"
      \celloMusic
    }
    \new Staff = "Staff_bass" {
      \set Staff.instrumentName = #"Double Bass"
      \bassMusic
    }
  >>
  >>
  \layout { }
}

```

Flute

Clarinet in B $\flat$

Horn in F

Trumpet in C

Percussion

Piano

Soprano

Alto I

Alto II

Tenor

Violin I

Violin II

Viola

Cello

Double Bass

Lyr - ics

Lyr - ics

Ah - ah

Lyr - ics

8

## Ottava text

Internally, `\ottava` sets the properties `ottavation` (for example, to `8va` or `8vb`) and `middleCPosition`. To override the text of the bracket, set `ottavation` after invoking `\ottava`.

```
{
  \ottava #1
  \set Staff.ottavation = #"8"
  c'1
  \ottava #0
  c'1
  \ottava #1
  \set Staff.ottavation = #"Text"
  c'1
}
```

8-

Text-

## Preventing extra naturals from being automatically added

In accordance with standard typesetting rules, a natural sign is printed before a sharp or flat if a previous accidental on the same note needs to be canceled. To change this behavior, set the `extraNatural` property to `f` in the `Staff` context.

```
\relative c'' {
  aeses4 aes ais a
  \set Staff.extraNatural = ##f
  aeses4 aes ais a
}
```



## Preventing natural signs from being printed when the key signature changes

When the key signature changes, natural signs are automatically printed to cancel any accidentals from previous key signatures. This may be prevented by setting to `f` the `printKeyCancellation` property in the `Staff` context.

```
\relative c' {
  \key d \major
  a4 b cis d
  \key g \minor
  a4 bes c d
  \set Staff.printKeyCancellation = ##f
  \key d \major
  a4 b cis d
  \key g \minor
  a4 bes c d
}
```



## Quoting another voice with transposition

Quotations take into account the transposition of both source and target. In this example, all instruments play sounding middle C; the target is an instrument in F. The target part may be transposed using `\transpose`. In this case, all the pitches (including the quoted ones) are transposed.

```
\addQuote clarinet {
  \transposition bes
  \repeat unfold 8 { d'16 d' d'8 }
}
```

```
\addQuote sax {
  \transposition es'
  \repeat unfold 16 { a8 }
}
```

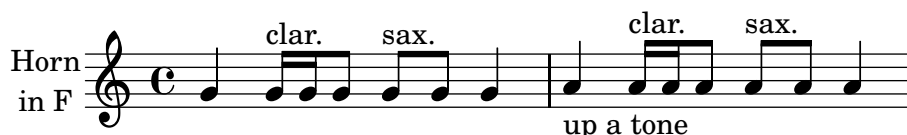


```

quoteTest = {
  % french horn
  \transposition f
  g'4
  << \quoteDuring #"clarinet" { \skip 4 } s4^"clar." >>
  << \quoteDuring #"sax" { \skip 4 } s4^"sax." >>
  g'4
}

{
  \set Staff.instrumentName =
    \markup {
      \center-column { Horn \line { in F } }
    }
  \quoteTest
  \transpose c' d' << \quoteTest s4_"up a tone" >>
}

```



## Separating key cancellations from key signature changes

By default, the accidentals used for key cancellations are placed adjacent to those for key signature changes. This behavior can be changed by overriding the 'break-align-orders property of the BreakAlignment grob.

The value of 'break-align-orders is a vector of length 3, with quoted lists of breakable items as elements. This example only modifies the second list, moving **key-cancellation** before **staff-bar**; by modifying the second list, break alignment behavior only changes in the middle of a system, not at the beginning or the end.

```

\new Staff {
  \override Score.BreakAlignment #'break-align-orders =
    #'#((left-edge ambitus breathing-sign clef staff-bar
        key-cancellation key-signature time-signature custos)

        (left-edge ambitus breathing-sign clef key-cancellation
          staff-bar key-signature time-signature custos)

        (left-edge ambitus breathing-sign clef key-cancellation
          key-signature staff-bar time-signature custos))

  \key des \major
  c'1
  \bar "||"
  \key bes \major
  c'1
}

```



## Transposing pitches with minimum accidentals ("Smart" transpose)

This example uses some Scheme code to enforce enharmonic modifications for notes in order to have the minimum number of accidentals. In this case, the following rules apply:

Double accidentals should be removed

B sharp -> C

E sharp -> F

C flat -> B

F flat -> E

In this manner, the most natural enharmonic notes are chosen.

```
#(define (naturalize-pitch p)
  (let ((o (ly:pitch-octave p))
        (a (* 4 (ly:pitch-alteration p))))
    ;; alteration, a, in quarter tone steps,
    ;; for historical reasons
    (n (ly:pitch-notename p)))
  (cond
    ((and (> a 1) (or (eq? n 6) (eq? n 2))))
    (set! a (- a 2))
    (set! n (+ n 1)))
    ((and (< a -1) (or (eq? n 0) (eq? n 3))))
    (set! a (+ a 2))
    (set! n (- n 1))))
  (cond
    ((> a 2) (set! a (- a 4)) (set! n (+ n 1)))
    ((< a -2) (set! a (+ a 4)) (set! n (- n 1))))
    (if (< n 0) (begin (set! o (- o 1)) (set! n (+ n 7))))
    (if (> n 6) (begin (set! o (+ o 1)) (set! n (- n 7))))
    (ly:make-pitch o n (/ a 4))))

#(define (naturalize music)
  (let ((es (ly:music-property music 'elements))
        (e (ly:music-property music 'element))
        (p (ly:music-property music 'pitch)))
    (if (pair? es)
        (ly:music-set-property!
         music 'elements
         (map (lambda (x) (naturalize x)) es)))
        (if (ly:music? e)
            (ly:music-set-property!
             music 'element
             (naturalize e)))
            (if (ly:pitch? p)
                (begin
                 (set! p (naturalize-pitch p))
                 (ly:music-set-property! music 'pitch p)))
                music)))
```

```

naturalizeMusic =
#(define-music-function (parser location m)
  (ly:music?)
  (naturalize m))

music = \relative c' { c4 d e g }

\score {
  \new Staff {
    \transpose c ais { \music }
    \naturalizeMusic \transpose c ais { \music }
    \transpose c deses { \music }
    \naturalizeMusic \transpose c deses { \music }
  }
  \layout { }
}

```



## Tweaking clef properties

The command `\clef "treble_8"` is equivalent to setting `clefGlyph`, `clefPosition` (which controls the vertical position of the clef), `middleCPosition` and `clefOctavation`. A clef is printed when any of the properties except `middleCPosition` are changed.

Note that changing the glyph, the position of the clef, or the octavation does not in itself change the position of subsequent notes on the staff: the position of middle C must also be specified to do this. The positional parameters are relative to the staff center line, positive numbers displacing upwards, counting one for each line and space. The `clefOctavation` value would normally be set to 7, -7, 15 or -15, but other values are valid.

When a clef change takes place at a line break the new clef symbol is printed at both the end of the previous line and the beginning of the new line by default. If the warning clef at the end of the previous line is not required it can be suppressed by setting the `Staff` property `explicitClefVisibility` to the value `end-of-line-invisible`. The default behavior can be recovered with `\unset Staff.explicitClefVisibility`.

The following examples show the possibilities when setting these properties manually. On the first line, the manual changes preserve the standard relative positioning of clefs and notes, whereas on the second line, they do not.

```

\layout { ragged-right = ##t }

{
  % The default treble clef
  c'1
  % The standard bass clef
  \set Staff.clefGlyph = #"clefs.F"
  \set Staff.clefPosition = #2
  \set Staff.middleCPosition = #6
  c'1
  % The baritone clef
  \set Staff.clefGlyph = #"clefs.C"
}

```

```

\set Staff.clefPosition = #4
\set Staff.middleCPosition = #4
c'1
% The standard choral tenor clef
\set Staff.clefGlyph = #"clefs.G"
\set Staff.clefPosition = #-2
\set Staff.clefOctavation = #-7
\set Staff.middleCPosition = #1
c'1
% A non-standard clef
\set Staff.clefPosition = #0
\set Staff.clefOctavation = #0
\set Staff.middleCPosition = #-4
c'1 \break

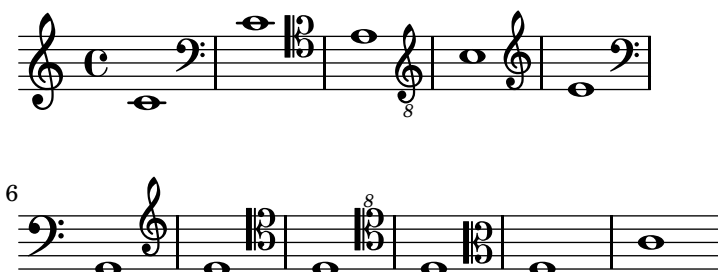
% The following clef changes do not preserve
% the normal relationship between notes and clefs:

\set Staff.clefGlyph = #"clefs.F"
\set Staff.clefPosition = #2
c'1
\set Staff.clefGlyph = #"clefs.G"
c'1
\set Staff.clefGlyph = #"clefs.C"
c'1
\set Staff.clefOctavation = #7
c'1
\set Staff.clefOctavation = #0
\set Staff.clefPosition = #0
c'1

% Return to the normal clef:

\set Staff.middleCPosition = #0
c'1
}

```



## Using autochange with more than one voice

Using `autochange` with more than one voice.

```
\score
{
  \new PianoStaff
```

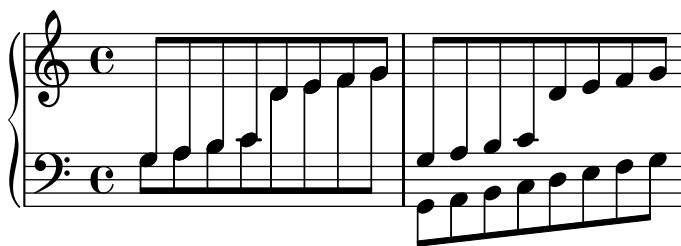
```

<<
\new Staff = "up" {
  <<
    \set Timing.beamExceptions = #'()
    \set Timing.beatStructure = #'(4)
    \new Voice {
      \voiceOne
      \autochange
      \relative c' {
        g8 a b c d e f g
        g,,8 a b c d e f g
      }
    }

    \new Voice {
      \voiceTwo
      \autochange
      \relative c' {
        g8 a b c d e f g
        g,,8 a b c d e f g
      }
    }
  >>
}

\new Staff = "down" {
  \clef bass
}
>>
}

```



## Rhythms

### Section “Rhythms” in *Notation Reference*

### Adding beams slurs ties etc. when using tuplet and non-tuplet rhythms

LilyPond syntax can involve many unusual placements for parentheses, brackets etc., which might sometimes have to be interleaved. For example, when entering a manual beam, the left square bracket has to be placed after the starting note and its duration, not before. Similarly, the right square bracket should directly follow the note which is to be at the end of the requested beaming, even if this note happens to be inside a tuplet section. This snippet demonstrates how to combine manual beaming, manual slurs, ties and phrasing slurs with tuplet sections (enclosed within curly braces).

```
{
  r16[ g16 \times 2/3 { r16 e'8] }
  g16( a \times 2/3 { b d e' } )
  g8[( a \times 2/3 { b d' } e'] ~ }
  \time 2/4
  \times 4/5 { e'32\ ( a b d' e' } a'4.\ )
}
```



### Adding drum parts

Using the powerful pre-configured tools such as the `\drummode` function and the `DrumStaff` context, inputting drum parts is quite easy: drums are placed at their own staff positions (with a special clef symbol) and have note heads according to the drum. Attaching an extra symbol to the drum or restricting the number of lines is possible.

```
drh = \drummode { cymc4.^"crash" hhc16^"h.h." hh hhc8 hho hhc8 hh16 hh hhc4 r4 r2 }
drl = \drummode { bd4 sn8 bd bd4 << bd ss >> bd8 tommh tommh bd tom1 tom1 bd tomfh16 tomfh
timb = \drummode { timh4 ssh timl8 ssh r timh r4 ssh8 timl r4 cb8 cb }
```

```
\score {
  <<
    \new DrumStaff \with {
      drumStyleTable = #timbales-style
      \override StaffSymbol #'line-count = #2
      \override BarLine #'bar-extent = #'(-1 . 1)
    } <<
    \set Staff.instrumentName = #"timbales"
    \timb
  >>
  \new DrumStaff <<
    \set Staff.instrumentName = #"drums"
    \new DrumVoice { \stemUp \drh }
    \new DrumVoice { \stemDown \drl }
  >>
```

```
>>
\layout { }
\midi {
  \tempo 4 = 120
}
}
```

## Adjusting grace note spacing

The space given to grace notes can be adjusted using the `spacing-increment` property of `Score.GraceSpacing`.

```
graceNotes = {
  \grace { c4 c8 c16 c32 }
  c8
}

\relative c' {
  c8
  \graceNotes
  \override Score.GraceSpacing #'spacing-increment = #2.0
  \graceNotes
  \revert Score.GraceSpacing #'spacing-increment
  \graceNotes
}
```

## Aligning bar numbers

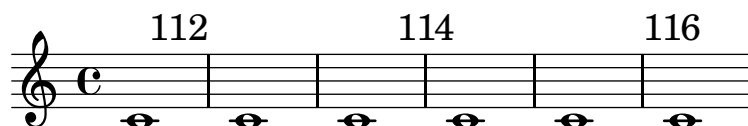
Bar numbers by default are right-aligned to their parent object. This is usually the left edge of a line or, if numbers are printed within a line, the left hand side of a bar line. The numbers may also be positioned directly over the bar line or left-aligned to the bar line.

```
\relative c' {
  \set Score.currentBarNumber = #111
  \override Score.BarNumber #'break-visibility = #all-visible
  % Increase the size of the bar number by 2
  \override Score.BarNumber #'font-size = #2
  % Print a bar number every second measure
  \set Score.barNumberVisibility = #(every-nth-bar-number-visible 2)
  c1 | c1
  % Center-align bar numbers
  \override Score.BarNumber #'self-alignment-X = #CENTER
}
```

```

c1 | c1
% Left-align bar numbers
\override Score.BarNumber #'self-alignment-X = #LEFT
c1 | c1
}

```



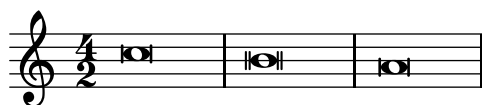
## Alternative breve note

This code demonstrates how to use the alternative breve note with two vertical lines on each side of the notehead instead of one line.

```

\relative c' {
  \time 4/2
  c\breve |
  \override Staff.NoteHead #'style = #'altdefault
  b\breve
  \revert Staff.NoteHead #'style
  a\breve
}

```



## Automatic beam subdivisions

Beams can be subdivided automatically. By setting the property `subdivideBeams`, beams are subdivided at beat positions (as specified in `baseMoment`).

```

\new Staff {
  \relative c' {
    <<
    {
      \voiceOne
      \set subdivideBeams = ##t
      b32[ a g f c' b a g
      b32^"subdivide beams" a g f c' b a g]
    }
    \new Voice {
      \voiceTwo
      b32_"default"[ a g f c' b a g
      b32 a g f c' b a g]
    }
  }
  >>
  \oneVoice
  \set baseMoment = #(ly:make-moment 1 8)
  \set beatStructure = #'(2 2 2 2)
  b32^"baseMoment 1 8"[ a g f c' b a g]
  \set baseMoment = #(ly:make-moment 1 16)
  \set beatStructure = #'(4 4 4 4)
}

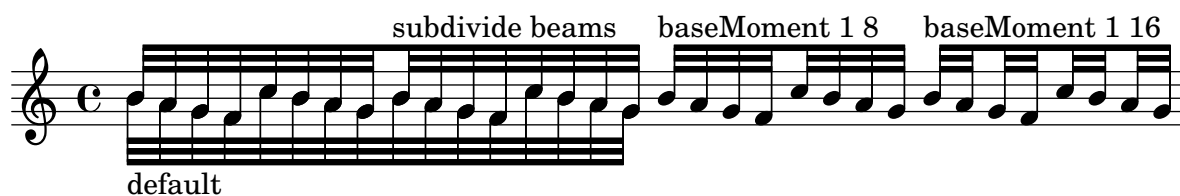
```



```

    b32~"baseMoment 1 16"[ a g f c' b a g]
  }
}

```



## Automatically change durations

`<code>shiftDurations</code>`

 can be used to change the note lengths of a piece of music. It takes two arguments - the scaling factor as a power of two, and the number of dots to be added as a positive integer.

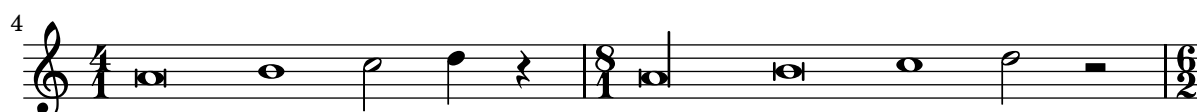
```
\paper { indent = 0 }
```

```
music = \relative c'' { a1 b2 c4 d8 r }
```

```

\score {
  \new Voice {
    \time 4/2
    \music
    \time 4/4
    \shiftDurations #1 #0 { \music }
    \time 2/4
    \shiftDurations #2 #0 { \music }
    \time 4/1
    \shiftDurations #-1 #0 { \music }
    \time 8/1
    \shiftDurations #-2 #0 { \music }
    \time 6/2
    \shiftDurations #0 #1 { \music }
    \time 7/2
    \shiftDurations #0 #2 { \music }
  }
}

```



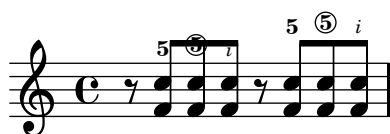
## Avoiding collisions with chord fingerings

Fingerings and string numbers applied to individual notes will automatically avoid beams and stems, but this is not true by default for fingerings and string numbers applied to the individual notes of chords. The following example shows how this default behavior can be overridden.

```
\relative c' {
  \set fingeringOrientations = #'(up)
  \set stringNumberOrientations = #'(up)
  \set strokeFingerOrientations = #'(up)

  % Default behavior
  r8
  <f c'-5>8
  <f c'\5>8
  <f c'-\rightHandFinger #2 >8

  % Corrected to avoid collisions
  r8
  \override Fingering #'add-stem-support = ##t
  <f c'-5>8
  \override StringNumber #'add-stem-support = ##t
  <f c'\5>8
  \override StrokeFinger #'add-stem-support = ##t
  <f c'-\rightHandFinger #2 >8
}
```



## Beam endings in Score context

Beam-ending rules specified in the Score context apply to all staves, but can be modified at both Staff and Voice levels:

```
\relative c'' {
  \time 5/4
  % Set default beaming for all staves
  \set Score.baseMoment = #(ly:make-moment 1 8)
  \set Score.beatStructure = #'(3 4 3)
  <<
    \new Staff {
      c8 c c c c c c c c c
    }
    \new Staff {
      % Modify beaming for just this staff
      \set Staff.beatStructure = #'(6 4)
      c8 c c c c c c c c c c
    }
    \new Staff {
      % Inherit beaming from Score context
      <<
```

```

{
  \voiceOne
  c8 c c c c c c c c c
}
% Modify beaming for this voice only
\new Voice {
  \voiceTwo
  \set Voice.beatStructure = #'(6 4)
  a8 a a a a a a a a
}
>>
}
>>
}

```



## Beam grouping in 7/8 time

There are no default automatic beam groupings specified for 7/8 time, so if automatic beams are required the grouping must be specified using `beatStructure`. For example, to group all beams 2-3-2 in 7/8 time, specify beam endings at 2/8 and 5/8:

```

\relative c'' {
  \time 7/8
  % rhythm 2-3-2
  a8 a a a a a a
  \set Score.beatStructure = #'(2 3 2)
  a8 a a a a a a
}

```



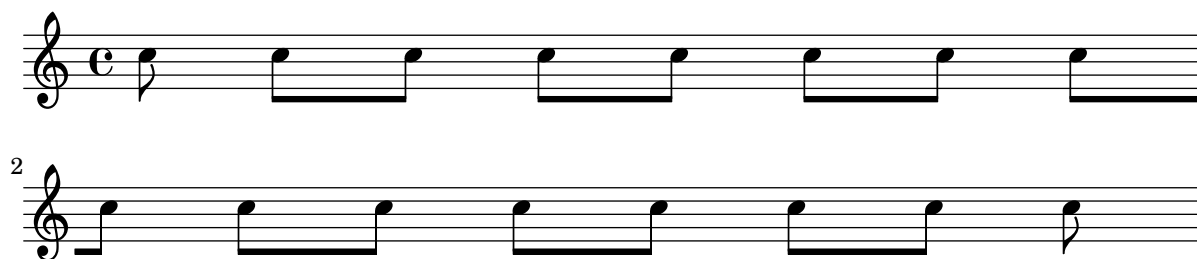
## Beams across line breaks

Line breaks are normally forbidden when beams cross bar lines. This behavior can be changed as shown:

```

\relative c'' {
  \override Beam #'breakable = ##t
  c8 c[ c] c[ c] c[ c] c[ \break
  c8] c[ c] c[ c] c[ c] c
}

```



## Changing beam knee gap

Kneed beams are inserted automatically when a large gap is detected between the note heads. This behavior can be tuned through the `auto-knee-gap` property. A kneed beam is drawn if the gap is larger than the value of `auto-knee-gap` plus the width of the beam object (which depends on the duration of the notes and the slope of the beam). By default `auto-knee-gap` is set to 5.5 staff spaces.

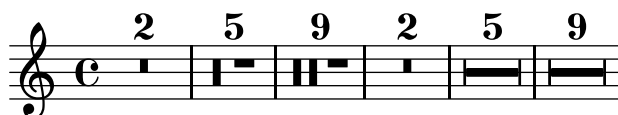
```
{
  f8 f''8 f8 f''8
  \override Beam #'auto-knee-gap = #6
  f8 f''8 f8 f''8
}
```



## Changing form of multi-measure rests

If there are ten or fewer measures of rests, a series of longa and breve rests (called in German “Kirchenpausen” - church rests) is printed within the staff; otherwise a simple line is shown. This default number of ten may be changed by overriding the `expand-limit` property.

```
\relative c' {
  \compressFullBarRests
  R1*2 | R1*5 | R1*9
  \override MultiMeasureRest #'expand-limit = #3
  R1*2 | R1*5 | R1*9
}
```



## Changing the number of augmentation dots per note

This code demonstrates how to change the number of augmentation dots on a single note.

```
\relative c' {
  c4.. a16 r2 |
  \override Dots #'dot-count = #4
  c4.. a16 r2 |
  \override Dots #'dot-count = #0
  c4.. a16 r2 |
  \revert Dots #'dot-count
  c4.. a16 r2 |
}
```



## Changing the tempo without a metronome mark

To change the tempo in MIDI output without printing anything, make the metronome mark invisible.

```
\score {
  \new Staff \relative c' {
    \tempo 4 = 160
    c4 e g b
    c4 b d c
    \set Score.tempoHideNote = ##t
    \tempo 4 = 96
    d,4 fis a cis
    d4 cis e d
  }
  \layout { }
  \midi { }
}
```



## Changing the tuplet number

By default, only the numerator of the tuplet number is printed over the tuplet bracket, i.e., the denominator of the argument to the `\times` command. Alternatively, num:den of the tuplet number may be printed, or the tuplet number may be suppressed altogether.

```
\relative c' {
  \times 2/3 { c8 c c }
  \times 2/3 { c8 c c }
  \override TupletNumber #'text = #tuplet-number::calc-fraction-text
  \times 2/3 { c8 c c }
  \override TupletNumber #'stencil = ##f
  \times 2/3 { c8 c c }
}
```



## Changing time signatures inside a polymeric section using `\scaleDurations`

```
\layout {
  \context {
    \Score
    \remove "Timing_translator"
    \remove "Default_bar_line_engraver"
  }
}
```

```

\context {
  \Staff
  \consists "Timing_translator"
  \consists "Default_bar_line_engraver"
}
}

<<
\new Staff {
  \scaleDurations 8/5 {
    \time 6/8
    \set Timing.measureLength = #(ly:make-moment 6 5)
    b8 b b b b b
    \time 2/4
    \set Timing.measureLength = #(ly:make-moment 4 5)
    b4 b
  }
}
\new Staff {
  \clef bass
  \time 2/4
  c2 d e f
}
>>

```



## Chant or psalms notation

This form of notation is used for the chant of the Psalms, where verses aren't always the same length.

```

stemOn = {
  \revert Staff.Stem #'transparent
  \revert Staff.Flag #'transparent
}

stemOff = {
  \override Staff.Stem #'transparent = ##t
  \override Staff.Flag #'transparent = ##t
}

\score {
  \new Staff \with { \remove "Time_signature_engraver" }
  {
    \key g \minor
    \cadenzaOn
    \stemOff a'\breve bes'4 g'4
  }
}

```

```

\stemOn a'2 \bar "||"
\stemOff a'\breve g'4 a'4
\stemOn f'2 \bar "||"
\stemOff a'\breve~\markup { \italic flexe }
\stemOn g'2 \bar "||"
}
}

```



## Compound time signatures

Odd 20th century time signatures (such as `\5/8\`) can often be played as compound time signatures (e.g. `\3/8 + 2/8\`), which combine two or more inequal metrics. LilyPond can make such music quite easy to read and play, by explicitly printing the compound time signatures and adapting the automatic beaming behavior.

```

#(define ((compound-time one two num) grob)
  (grob-interpret-markup grob
    (markup #:override '(baseline-skip . 0) #:number
      (:line ((#:column (one num))
        #:vcenter "+"
        (:column (two num)))))))

\relative c' {
  \override Staff.TimeSignature #'stencil = #(compound-time "2" "3" "8")
  \time 5/8
  \set Staff.beatStructure = #'(2 3)
  c8 d e fis gis
  c8 fis, gis e d
  c8 d e4 gis8
}

```



## Conducting signs measure grouping signs

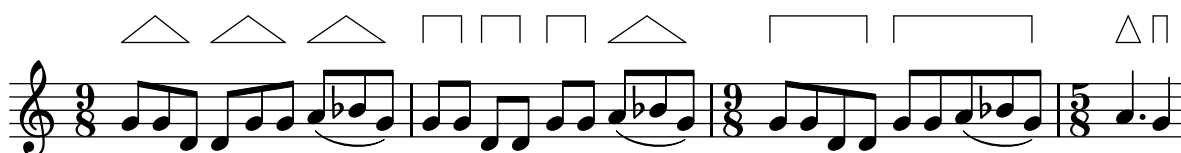
Beat grouping within a measure is controlled by the context property `beatStructure`. Values of `beatStructure` are established for many time signatures in `'scm/time-signature-settings.scm'`. Values of `beatStructure` can be changed or set with `\set`. Alternatively, `\time` can be used to both set the time signature and establish the beat structure. For this, you specify the internal grouping of beats in a measure as a list of numbers (in Scheme syntax) before the time signature.

`\time` applies to the `Timing` context, so it will not reset values of `beatStructure` or `baseMoment` that are set in other lower-level contexts, such as `Voice`.

If the `Measure_grouping_engraver` is included in one of the display contexts, measure grouping signs will be created. Such signs ease reading rhythmically complex modern music. In the example, the 9/8 measure is grouped in two different patterns using the two

different methods, while the 5/8 measure is grouped according to the default setting in 'scm/time-signature-settings.scm':

```
\score {
  \new Voice \relative c'' {
    \time 9/8
    g8 g d d g g a( bes g) |
    \set Timing.beatStructure = #'(2 2 2 3)
    g8 g d d g g a( bes g) |
    \time #'(4 5) 9/8
    g8 g d d g g a( bes g) |
    \time 5/8
    a4. g4 |
  }
  \layout {
    \context {
      \Staff
      \consists "Measure_grouping_engraver"
    }
  }
}
```



## Consistently left aligned bar numbers

When left aligning bar numbers, overlapping problems may occur with Staves brackets. The snippet solves this by keeping right aligned the first bar number following line breaks.

```
consistentlyLeftAlignedBarNumbers = {
  \override Score.BarNumber #'break-visibility = #end-of-line-invisible
  \override Score.BarNumber #'self-alignment-X =
    #(lambda (grob)
      (let ((break-dir (ly:item-break-dir grob)))
        (if (= break-dir RIGHT) RIGHT LEFT)))
}

\new ChoirStaff <<
  \new Staff {
    \relative c' {
      \set Score.barNumberVisibility = #(every-nth-bar-number-visible 3)
      \bar ""
      \consistentlyLeftAlignedBarNumbers

      \set Score.currentBarNumber = #112
      \repeat unfold 8 { R1 }
      \break
      \repeat unfold 9 { R1 }
      \break
      \repeat unfold 7 { R1 }
    }
  }
}
```



```

    }
  }
  \new Staff {
    \relative c' {
      \repeat unfold 24 { R1 }
    }
  }
}
>>

```

```

\layout {
  indent = #0
  ragged-right = ##t
  ragged-last = ##t
}

```

The image displays three systems of musical notation, each consisting of two staves. The first system is labeled with measure numbers 114 and 117. The second system is labeled with 120, 123, and 126. The third system is labeled with 129, 132, and 135. Each staff contains a series of eighth notes beamed together in groups of four, creating a rhythmic pattern of eighth-note groups.

## Controlling tuplet bracket visibility

The default behavior of tuplet-bracket visibility is to print a bracket unless there is a beam of the same length as the tuplet. To control the visibility of tuplet brackets, set the property 'bracket-visibility' to either `#t` (always print a bracket), `#f` (never print a bracket) or `#if-no-beam` (only print a bracket if there is no beam).

```

music = \relative c'' {
  \times 2/3 { c16[ d e ] f8}
  \times 2/3 { c8 d e }
  \times 2/3 { c4 d e }
}

```

```

\new Voice {
  \relative c' {

```

```

<< \music s4~"default" >>
\override TupletBracket #'bracket-visibility = #'if-no-beam
<< \music s4~"'if-no-beam" >>
\override TupletBracket #'bracket-visibility = ##t
<< \music s4~"#t" >>
\override TupletBracket #'bracket-visibility = ##f
<< \music s4~"#f" >>
}
}

```



## Creating metronome marks in markup mode

New metronome marks can be created in markup mode, but they will not change the tempo in MIDI output.

```

\relative c' {
  \tempo \markup {
    \concat {
      (
        \smaller \general-align #Y #DOWN \note #"16." #1
        " = "
        \smaller \general-align #Y #DOWN \note #"8" #1
      )
    }
  }
}
c1
c4 c' c,2
}

```



## Engraving ties manually

Ties may be engraved manually by changing the `tie-configuration` property of the `TieColumn` object. The first number indicates the distance from the center of the staff in half staff-spaces, and the second number indicates the direction (1 = up, -1 = down).

```

\relative c' {
  <c e g>2~ <c e g>
  \override TieColumn #'tie-configuration =
    #'((0.0 . 1) (-2.0 . 1) (-4.0 . 1))
  <c e g>2~ <c e g>
}

```

}



## Engraving tremolos with floating beams

If a tremolo's total duration is less than a quarter-note, or exactly a half-note, or between a half-note and a whole-note, it is normally typeset with all beams touching the stems. Certain engraving styles typeset some of these beams as centered floating beams that do not touch the stems. The number of floating beams in this type of tremolo is controlled with the `'gap-count` property of the `Beam` object, and the size of the gaps between beams and stems is set with the `'gap` property.

```
\relative c'' {
  \repeat tremolo 8 { a32 f }
  \override Beam #'gap-count = #1
  \repeat tremolo 8 { a32 f }
  \override Beam #'gap-count = #2
  \repeat tremolo 8 { a32 f }
  \override Beam #'gap-count = #3
  \repeat tremolo 8 { a32 f }

  \override Beam #'gap-count = #3
  \override Beam #'gap = #1.33
  \repeat tremolo 8 { a32 f }
  \override Beam #'gap = #1
  \repeat tremolo 8 { a32 f }
  \override Beam #'gap = #0.67
  \repeat tremolo 8 { a32 f }
  \override Beam #'gap = #0.33
  \repeat tremolo 8 { a32 f }
}
```



## Entering several tuplets using only one `\times` command

The property `tupletSpannerDuration` sets how long each of the tuplets contained within the brackets after `\times` should last. Many consecutive tuplets can then be placed within a single `\times` expression, thus saving typing.

In the example, two triplets are shown, while `\times` was entered only once.

Read the relevant sections of the Notation Reference for more information about `ly:make-moment`.

```
\relative c' {
  \time 2/4
  \set tupletSpannerDuration = #(ly:make-moment 1 4)
  \times 2/3 { c8 c c c c c }
}
```



## Flat flags and beam nibs

Flat flags on lone notes and beam nibs at the ends of beamed figures are both possible with a combination of `stemLeftBeamCount`, `stemRightBeamCount` and paired `[]` beam indicators.

For right-pointing flat flags on lone notes, use paired `[]` beam indicators and set `stemLeftBeamCount` to zero (see Example 1).

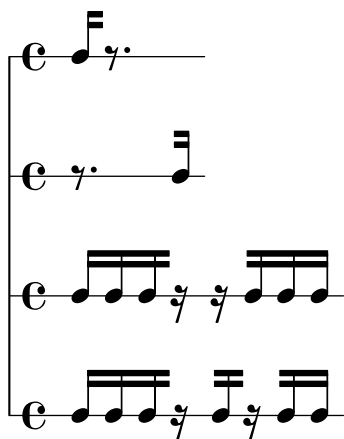
For left-pointing flat flags, set `stemRightBeamCount` instead (Example 2).

For right-pointing nibs at the end of a run of beamed notes, set `stemRightBeamCount` to a positive value. And for left-pointing nibs at the start of a run of beamed notes, set `stemLeftBeamCount` instead (Example 3).

Sometimes it may make sense for a lone note surrounded by rests to carry both a left- and right-pointing flat flag. Do this with paired `[]` beam indicators alone (Example 4).

(Note that `\set stemLeftBeamCount` is always equivalent to `\once \set`. In other words, the beam count settings are not “sticky”, so the pair of flat flags attached to the lone `c'16[]` in the last example have nothing to do with the `\set` two notes prior.)

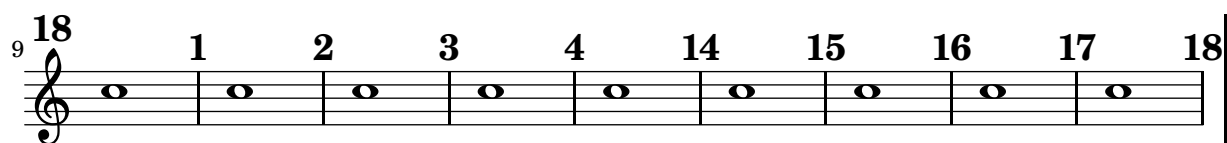
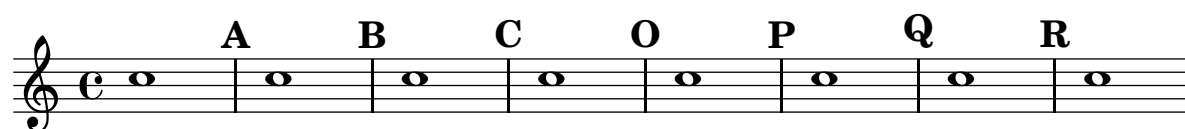
```
\score {
  <<
    % Example 1
    \new RhythmicStaff {
      \set stemLeftBeamCount = #0
      c16[]
      r8.
    }
    % Example 2
    \new RhythmicStaff {
      r8.
      \set stemRightBeamCount = #0
      c16[]
    }
    % Example 3
    \new RhythmicStaff {
      c16 c
      \set stemRightBeamCount = #2
      c16 r r
      \set stemLeftBeamCount = #2
      c16 c c
    }
    % Example 4
    \new RhythmicStaff {
      c16 c
      \set stemRightBeamCount = #2
      c16 r
      c16[]
      r16
      \set stemLeftBeamCount = #2
      c16 c
    }
  >>
}
```



## Forcing rehearsal marks to start from a given letter or number

This snippet demonstrates how to obtain automatic ordered rehearsal marks, but from the letter or number desired.

```
\relative c'' {
  c1 \mark \default
  c1 \mark \default
  c1 \mark \default
  c1 \mark #14
  c1 \mark \default
  c1 \mark \default
  c1 \mark \default
  c1 \mark \default
  \break
  \set Score.markFormatter = #format-mark-numbers
  c1 \mark #1
  c1 \mark \default
  c1 \mark \default
  c1 \mark \default
  c1 \mark #14
  c1 \mark \default
  c1 \mark \default
  c1 \mark \default
  c1 \mark \default
}
```



## Generating custom flags

The `stencil` property of the `Flag` grob can be set to a custom scheme function to generate the glyph for the flag.

```
#{define-public (weight-flag grob)
```

```

(let* ((stem-grob (ly:grob-parent grob X))
      (log (- (ly:grob-property stem-grob 'duration-log) 2))
      (is-up? (eqv? (ly:grob-property stem-grob 'direction) UP))
      (yext (if is-up? (cons (* log -0.8) 0) (cons 0 (* log 0.8))))
      (flag-stencil (make-filled-box-stencil '(-0.4 . 0.4) yext))
      (stroke-style (ly:grob-property grob 'stroke-style))
      (stroke-stencil (if (equal? stroke-style "grace")
                          (make-line-stencil 0.2 -0.9 -0.4 0.9 -0.4)
                          empty-stencil)))
  (ly:stencil-add flag-stencil stroke-stencil)))

% Create a flag stencil by looking up the glyph from the font
#(define (inverted-flag grob)
  (let* ((stem-grob (ly:grob-parent grob X))
        (dir (if (eqv? (ly:grob-property stem-grob 'direction) UP) "d" "u"))
        (flag (retrieve-glyph-flag "" dir "" grob))
        (line-thickness (ly:staff-symbol-line-thickness grob))
        (stem-thickness (ly:grob-property stem-grob 'thickness))
        (stem-width (* line-thickness stem-thickness))
        (stroke-style (ly:grob-property grob 'stroke-style))
        (stencil (if (null? stroke-style)
                     flag
                     (add-stroke-glyph flag stem-grob dir stroke-style "")))
        (rotated-flag (ly:stencil-rotate-absolute stencil 180 0 0)))
    (ly:stencil-translate rotated-flag (cons (- (/ stem-width 2)) 0))))

snippetexamplenotes = { \autoBeamOff c'8 d'16 c'32 d'64 \acciaccatura {c'8} d'64 }■

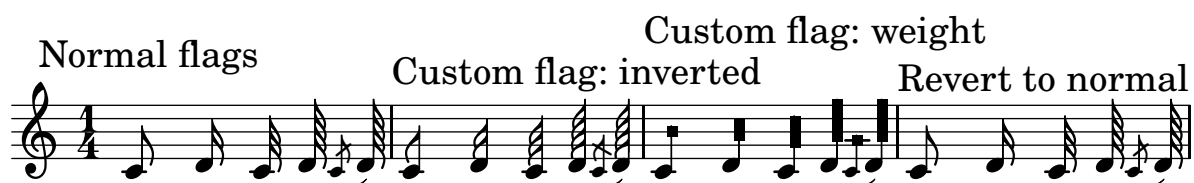
{
  \override Score.RehearsalMark #'self-alignment-X = #LEFT
  \time 1/4
  \mark "Normal flags"
  \snippetexamplenotes

  \mark "Custom flag: inverted"
  \override Flag #'stencil = #inverted-flag
  \snippetexamplenotes

  \mark "Custom flag: weight"
  \override Flag #'stencil = #weight-flag
  \snippetexamplenotes

  \mark "Revert to normal"
  \revert Flag #'stencil
  \snippetexamplenotes
}

```



## 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.
    }
  }
>>
```

The image shows a musical score for a song. The guitar part is on a single staff with a treble clef and a common time signature. The chords are C, F, G, and C. The lyrics are "This is my song. I like to sing." The guitar part is written in a simplified manner, with notes and rests indicated by numbers and symbols. The lyrics are written below the staff.

## Heavily customized polymetric time signatures

Though the polymetric time signature shown was not the most essential item here, it has been included to show the beat of this piece (which is the template of a real Balkan song!).

```
#(define plus (markup #:vcenter "+"))
#(define ((custom-time-signature one two three four five six
                                     seven eight nine ten eleven num) grob)
  (grob-interpret-markup grob
    (markup #:override '(baseline-skip . 0) #:number
      (#:line ((#:column (one num)) plus
                    (#:column (two num)) plus
                    (#:column (three num)) plus
                    (#:column (four num)) plus
                    (#:column (five num)) plus
                    (#:column (six num)) plus
                    (#:column (seven num)) plus
                    (#:column (eight num)) plus
                    (#:column (nine num)) plus
                    (#:column (ten num)) plus
                    (#:column (eleven num)))))))

melody = \relative c'' {
  \set Staff.instrumentName = #"Bb Sop."
  \key g \major
  \time #'(3 2 2 3 2 2 2 2 3 2 2) 25/8
  \override Staff.TimeSignature #'stencil =
    #(custom-time-signature "3" "2" "2" "3" "2" "2"
      "2" "2" "3" "2" "2" "8")
  c8 c c d4 c8 c b c b a4 g fis8 e d c b' c d e4-^ fis8 g \break
  c,4. d4 c4 d4. c4 d c2 d4. e4-^ d4
  c4. d4 c4 d4. c4 d c2 d4. e4-^ d4 \break
  c4. d4 c4 d4. c4 d c2 d4. e4-^ d4
  c4. d4 c4 d4. c4 d c2 d4. e4-^ d4 \break
}

drum = \new DrumStaff \drummode {
  \bar "|:" bd4.^ \markup { Drums } sn4 bd \bar ":" sn4.
  bd4 sn \bar ":" bd sn bd4. sn4 bd \bar ":@"
}

{
  \melody
  \drum
}
```



Bb Sop.

2

4

6 Drums

## Making an object invisible with the 'transparent property

Setting the `transparent` property will cause an object to be printed in “invisible ink”: the object is not printed, but all its other behavior is retained. The object still takes up space, it takes part in collisions, and slurs, ties and beams can be attached to it.

This snippet demonstrates how to connect different voices using ties. Normally, ties only connect two notes in the same voice. By introducing a tie in a different voice, and blanking the first up-stem in that voice, the tie appears to cross voices.

```
\relative c'' {
  \time 2/4
  <<
  {
    \once \override Stem #'transparent = ##t
    \once \override Stem #'length = #8
    b8 ~ b\noBeam
    \once \override Stem #'transparent = ##t
    \once \override Stem #'length = #8
    g8 ~ g\noBeam
  }
  \\\
  {
    b8 g g e
  }
  >>
}
```

## Making slurs with complex dash structure

Slurs can be made with complex dash patterns by defining the `dash-definition` property. `dash-definition` is a list of `dash-elements`. A `dash-element` is a list of parameters defining the dash behavior for a segment of the slur.

The slur is defined in terms of the bezier parameter `t` which ranges from 0 at the left end of the slur to 1 at the right end of the slur. `dash-element` is a list (`start-t stop-t`

`dash-fraction dash-period`). The region of the slur from `start-t` to `stop-t` will have a fraction `dash-fraction` of each `dash-period` black. `dash-period` is defined in terms of staff spaces. `dash-fraction` is set to 1 for a solid slur.

```
\relative c' {
  \once \override
    Slur #'dash-definition = #'((0 0.3 0.1 0.75)
                                (0.3 0.6 1 1)
                                (0.65 1.0 0.4 0.75))

  c4( d e f)
  \once \override
    Slur #'dash-definition = #'((0 0.25 1 1)
                                (0.3 0.7 0.4 0.75)
                                (0.75 1.0 1 1))

  c4( d e f)
}
```



## Manually controlling beam positions

Beam positions may be controlled manually, by overriding the `positions` setting of the `Beam` grob.

```
\relative c' {
  \time 2/4
  % from upper staff-line (position 2) to center (position 0)
  \override Beam #'positions = #'(2 . 0)
  c8 c
  % from center to one above center (position 1)
  \override Beam #'positions = #'(0 . 1)
  c8 c
}
```



## Merging multi-measure rests in a polyphonic part

When using multi-measure rests in a polyphonic staff, the rests will be placed differently depending on the voice they belong to. However they can be printed on the same staff line, using the following setting.

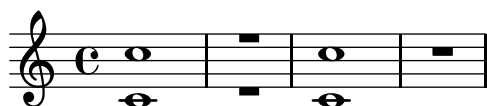
```
normalPos = \revert MultiMeasureRest #'staff-position

{
  <<
  {
    c''1
    R1
    c''1
  }
}
```

```

\normalPos
R1
}
\\
{
c'1
R1
c'1
\normalPos
R1
}
>>
}

```



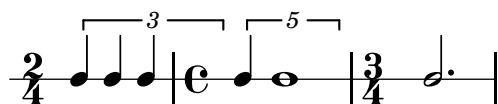
## Modifying tuplet bracket length

Tuplet brackets can be made to run to prefatory matter or the next note. Default tuplet brackets end at the right edge of the final note of the tuplet; full-length tuplet brackets extend farther to the right, either to cover all the non-rhythmic notation up to the following note, or to cover only the whitespace before the next item of notation, be that a clef, time signature, key signature, or another note. The example shows how to switch tuplets to full length mode and how to modify what material they cover.

```

\new RhythmicStaff {
% Set tuplets to be extendable...
\set tupletFullLength = ##t
% ...to cover all items up to the next note
\set tupletFullLengthNote = ##t
\time 2/4
\times 2/3 { c4 c c }
% ...or to cover just whitespace
\set tupletFullLengthNote = ##f
\time 4/4
\times 4/5 { c4 c1 }
\time 3/4
c2.
}

```



## Moving dotted notes in polyphony

When a dotted note in the upper voice is moved to avoid a collision with a note in another voice, the default is to move the upper note to the right. This behaviour can be over-ridden by using the `prefer-dotted-right` property of `NoteCollision`.

```

\new Staff \relative c' <<
{ f2. f4

```

```

\override Staff.NoteCollision #'prefer-dotted-right = ##f
f2. f4
\override Staff.NoteCollision #'prefer-dotted-right = ##t
f2. f4
}
\\
{ e4 e e e e e e e e e e }
>>

```



## Multi-measure rest markup

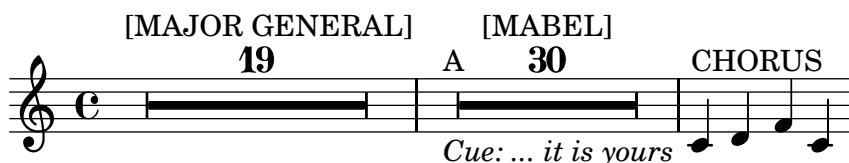
Markups attached to a multi-measure rest will be centered above or below it. Long markups attached to multi-measure rests do not cause the measure to expand. To expand a multi-measure rest to fit the markup, use a spacer rest with an attached markup before the multi-measure rest.

Note that the spacer rest causes a bar line to be inserted. Text attached to a spacer rest in this way is left-aligned to the position where the note would be placed in the measure, but if the measure length is determined by the length of the text, the text will appear to be centered.

```

\relative c' {
  \compressFullBarRests
  \textLengthOn
  s1*0^\markup { [MAJOR GENERAL] }
  R1*19
  s1*0_\markup { \italic { Cue: ... it is yours } }
  s1*0^\markup { A }
  R1*30^\markup { [MABEL] }
  \textLengthOff
  c4^\markup { CHORUS } d f c
}

```



## Non-default tuplet numbers

LilyPond also provides formatting functions to print tuplet numbers different than the actual fraction, as well as to append a note value to the tuplet number or tuplet fraction.

```

\relative c' {
  \once \override TupletNumber #'text =
    #(tuplet-number::non-default-tuplet-denominator-text 7)
  \times 2/3 { c4. c4. c4. c4. }
  \once \override TupletNumber #'text =
    #(tuplet-number::non-default-tuplet-fraction-text 12 7)
  \times 2/3 { c4. c4. c4. c4. }
  \once \override TupletNumber #'text =
    #(tuplet-number::append-note-wrapper

```

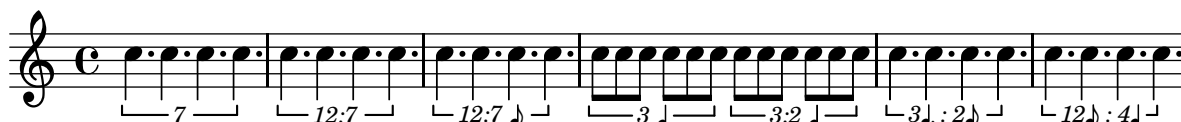
```

      (tuplet-number::non-default-tuplet-fraction-text 12 7) "8")
\times 2/3 { c4. c4. c4. c4. }

\once \override TupletNumber #'text =
  #(tuplet-number::append-note-wrapper
    tuplet-number::calc-denominator-text "4")
\times 2/3 { c8 c8 c8 c8 c8 c8 }
\once \override TupletNumber #'text =
  #(tuplet-number::append-note-wrapper
    tuplet-number::calc-fraction-text "4")
\times 2/3 { c8 c8 c8 c8 c8 c8 }

\once \override TupletNumber #'text =
  #(tuplet-number::fraction-with-notes "4." "8")
\times 2/3 { c4. c4. c4. c4. }
\once \override TupletNumber #'text =
  #(tuplet-number::non-default-fraction-with-notes 12 "8" 4 "4")
\times 2/3 { c4. c4. c4. c4. }
}

```



## Partcombine and autoBeamOff

The function of `\autoBeamOff` when used with `\partcombine` can be difficult to understand.

It may be preferable to use

```
\set Staff.autoBeaming = ##f
```

instead, to ensure that autobeaming will be turned off for the entire staff.

`\partcombine` apparently works with 3 voices – stem up single, stem down single, stem up combined.

An `\autoBeamOff` call in the first argument to `partcombine` will apply to the voice that is active at the time the call is processed, either stem up single or stem up combined. An `\autoBeamOff` call in the second argument will apply to the voice that is stem down single.

In order to use `\autoBeamOff` to stop all autobeaming when used with `\partcombine`, it will be necessary to use three calls to `\autoBeamOff`.

```

{
  %\set Staff.autoBeaming = ##f % turns off all autobeaming
  \partcombine
  {
    \autoBeamOff % applies to split up stems
    \repeat unfold 4 a'16
    %\autoBeamOff % applies to combined up stems
    \repeat unfold 4 a'8
    \repeat unfold 4 a'16
  }
  {
    \autoBeamOff % applies to down stems
    \repeat unfold 4 f'8
  }
}

```

```

\repeat unfold 8 f'16 |
}
}

```



## Permitting line breaks within beamed tuplets

This artificial example shows how both manual and automatic line breaks may be permitted to within a beamed tuplet. Note that such off-beat tuplets have to be beamed manually.

```

\layout {
  \context {
    \Voice
    % Permit line breaks within tuplets
    \remove "Forbid_line_break_engraver"
    % Allow beams to be broken at line breaks
    \override Beam #'breakable = ##t
  }
}
\relative c'' {
  a8
  \repeat unfold 5 { \times 2/3 { c[ b a] } }
  % Insert a manual line break within a tuplet
  \times 2/3 { c[ b \bar "" \break a] }
  \repeat unfold 5 { \times 2/3 { c[ b a] } }
  c8
}

```



## Positioning grace note beams at the height of normal note beams

When notes are placed on ledger lines, their beams are usually centred on the stave. Grace notes beams are shorter and grace notes on ledger lines may well have beams outside the stave. You can override this beaming for grace notes.

```

\relative c {
  f8[ e]
  \grace {
    f8[ e]
    \override Stem #'no-stem-extend = ##f
    f8[ e]
    \revert Stem #'no-stem-extend
  }
}

```

```

}
f8[ e]
}

```



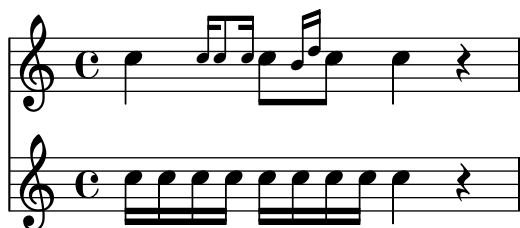
## Positioning grace notes with floating space

Setting the property '`strict-grace-spacing`' makes the musical columns for grace notes 'floating', i.e., decoupled from the non-grace notes: first the normal notes are spaced, then the (musical columns of the) graces are put left of the musical columns for the main notes.

```

\relative c'' {
  <<
    \override Score.SpacingSpanner #'strict-grace-spacing = ##t
    \new Staff \new Voice {
      \afterGrace c4 { c16[ c8 c16] }
      c8[ \grace { b16[ d] } c8]
      c4 r
    }
    \new Staff {
      c16 c c c c c c c c4 r
    }
  >>
}

```



## Positioning multi-measure rests

Unlike ordinary rests, there is no predefined command to change the staff position of a multi-measure rest symbol of either form by attaching it to a note. However, in polyphonic music multi-measure rests in odd-numbered and even-numbered voices are vertically separated. The positioning of multi-measure rests can be controlled as follows:

```

\relative c'' {
  % Multi-measure rests by default are set under the fourth line
  R1
  % They can be moved using an override
  \override MultiMeasureRest #'staff-position = #-2
  R1
  \override MultiMeasureRest #'staff-position = #0
  R1
  \override MultiMeasureRest #'staff-position = #2
  R1
  \override MultiMeasureRest #'staff-position = #3

```

```

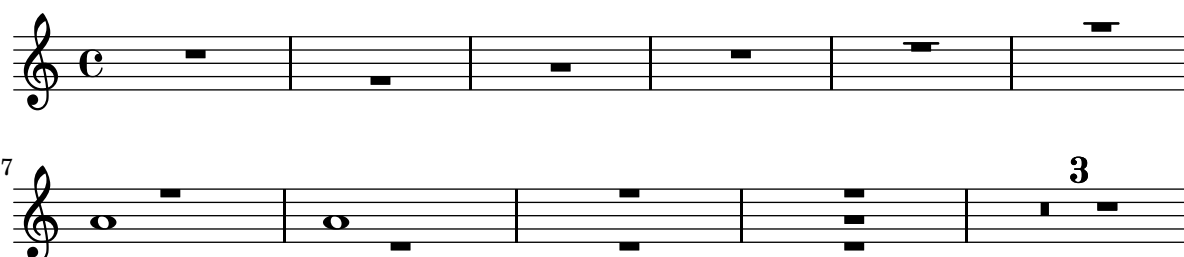
R1
\override MultiMeasureRest #'staff-position = #6
R1
\revert MultiMeasureRest #'staff-position
\break

% In two Voices, odd-numbered voices are under the top line
<< { R1 } \\\ { a1 } >>
% Even-numbered voices are under the bottom line
<< { a1 } \\\ { R1 } >>
% Multi-measure rests in both voices remain separate
<< { R1 } \\\ { R1 } >>

% Separating multi-measure rests in more than two voices
% requires an override
<< { R1 } \\\ { R1 } \\\
  \once \override MultiMeasureRest #'staff-position = #0
  { R1 }
>>

% Using compressed bars in multiple voices requires another override
% in all voices to avoid multiple instances being printed
\compressFullBarRests
<<
  \revert MultiMeasureRest #'staff-position
  { R1*3 }
  \\\
  \revert MultiMeasureRest #'staff-position
  { R1*3 }
>>
}

```



## Preventing final mark from removing final tuplet

The addition of a final mark can result in the loss of a final tuplet marking. This can be overcome by setting `TupletBracket #'full-length-to-extent` to `false`.

```

\new Staff {
  \set tupletFullLength = ##t
  \time 1/8
  \times 2/3 { c'16 c'16 c'16 }
  \times 2/3 { c'16 c'16 c'16 }
  \times 2/3 { c'16 c'16 c'16 }
  \override Score.RehearsalMark #'break-visibility = #'(#t #t #t)
  \override Score.RehearsalMark #'direction = #DOWN
}

```



```

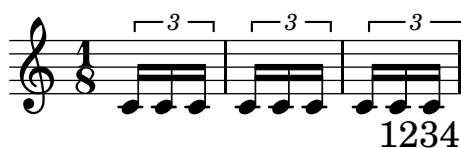
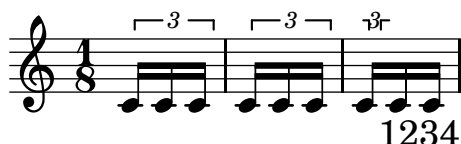
\override Score.RehearsalMark #'self-alignment-X = #RIGHT
% due to issue 2362 the following line is commented
% \mark "Composed Feb 2007 - Feb 2008"
% and a shorter mark is used.
\mark "1234"
}

\new Staff {
\set tupletFullLength = ##t

\override TupletBracket #'full-length-to-extent = ##f

\time 1/8
\times 2/3 { c'16 c'16 c'16 }
\times 2/3 { c'16 c'16 c'16 }
\times 2/3 { c'16 c'16 c'16 }
\override Score.RehearsalMark #'break-visibility = #'(#t #t #t)
\override Score.RehearsalMark #'direction = #DOWN
\override Score.RehearsalMark #'self-alignment-X = #RIGHT
% due to issue 2362 the following line is commented
% \mark "Composed Feb 2007 - Feb 2008"
% and a shorter mark is used.
\mark "1234"
}

```



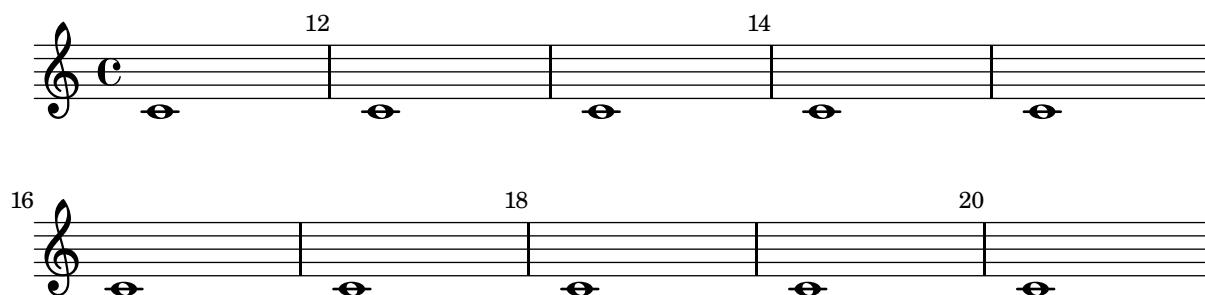
## Printing bar numbers at regular intervals

Bar numbers can be printed at regular intervals by setting the property `barNumberVisibility`. Here the bar numbers are printed every two measures except at the end of the line.

```

\relative c' {
\override Score.BarNumber #'break-visibility = #end-of-line-invisible
\set Score.currentBarNumber = #11
% Permit first bar number to be printed
\bar ""
% Print a bar number every second measure
\set Score.barNumberVisibility = #(every-nth-bar-number-visible 2)
c1 | c | c | c | c
\break
c1 | c | c | c | c
}

```



## Printing bar numbers inside boxes or circles

Bar numbers can also be printed inside boxes or circles.

```
\relative c' {
  % Prevent bar numbers at the end of a line and permit them elsewhere
  \override Score.BarNumber #'break-visibility = #end-of-line-invisible
  \set Score.barNumberVisibility = #(every-nth-bar-number-visible 4)

  % Increase the size of the bar number by 2
  \override Score.BarNumber #'font-size = #2

  % Draw a box round the following bar number(s)
  \override Score.BarNumber #'stencil
    = #(make-stencil-boxer 0.1 0.25 ly:text-interface::print)
  \repeat unfold 5 { c1 }

  % Draw a circle round the following bar number(s)
  \override Score.BarNumber #'stencil
    = #(make-stencil-circler 0.1 0.25 ly:text-interface::print)
  \repeat unfold 4 { c1 } \bar "|."
}
```



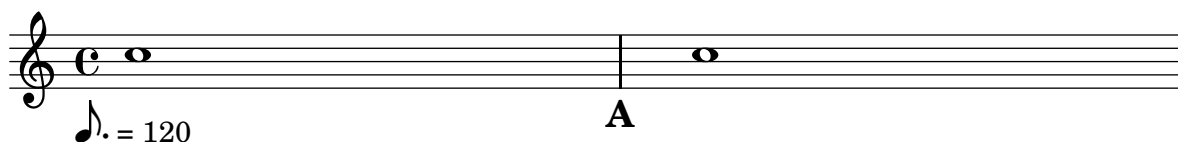
## Printing metronome and rehearsal marks below the staff

By default, metronome and rehearsal marks are printed above the staff. To place them below the staff simply set the `direction` property of `MetronomeMark` or `RehearsalMark` appropriately.

```
\layout { ragged-right = ##f }

{
  % Metronome marks below the staff
  \override Score.MetronomeMark #'direction = #DOWN
  \tempo 8. = 120
  c''1

  % Rehearsal marks below the staff
  \override Score.RehearsalMark #'direction = #DOWN
  \mark \default
  c''1
}
```



## Printing music with different time signatures

In the following snippet, two parts have a completely different time signature, yet remain synchronized. The bar lines can no longer be printed at the `Score` level; to allow independent bar lines in each part, the `Default_bar_line_engraver` and `Timing_translator` are moved from the `Score` context to the `Staff` context.

If bar numbers are required, the `Bar_number_engraver` should also be moved, since it relies on properties set by the `Timing_translator`; a `\with` block can be used to add bar numbers to the relevant staff.

```
\paper {
  indent = #0
  ragged-right = ##t
}

global = { \time 3/4 { s2.*3 } \bar "" \break { s2.*3 } }

\layout {
  \context {
    \Score
    \remove "Timing_translator"
    \remove "Default_bar_line_engraver"
    \remove "Bar_number_engraver"
    \override SpacingSpanner #'uniform-stretching = ##t
    \override SpacingSpanner #'strict-note-spacing = ##t
    proportionalNotationDuration = #(ly:make-moment 1 64)
  }
  \context {
    \Staff
    \consists "Timing_translator"
    \consists "Default_bar_line_engraver"
  }
  \context {
    \Voice
    \remove "Forbid_line_break_engraver"
    tupletFullLength = ##t
  }
}

Bassklarinette = \new Staff \with {
  \consists "Bar_number_engraver"
  barNumberVisibility = #(every-nth-bar-number-visible 2)
  \override BarNumber #'break-visibility = #end-of-line-invisible
} <<
\global {
  \bar "|"
  \clef treble
  \time 3/8
  d' '4.
```

```

\bar "|"
\time 3/4
r8 des''2( c''8)

\bar "|"
\time 7/8
r4. ees''2 ~

\bar "|"
\time 2/4
\tupletUp
\times 2/3 { ees''4 r4 d''4 ~ }

\bar "|"
\time 3/8
\tupletUp
\times 3/4 { d''4 r4 }

\bar "|"
\time 2/4
e''2

\bar "|"
\time 3/8
es''4.

\bar "|"
\time 3/4
r8 d''2 r8
\bar "|"
}
>>

```

```

Perkussion = \new StaffGroup <<
  \new Staff <<
    \global {
      \bar "|"
      \clef percussion
      \time 3/4
      r4 c'2 ~

      \bar "|"
      c'2.

      \bar "|"
      R2.

      \bar "|"
      r2 g'4 ~

      \bar "|"
      g'2. ~
    }
  >>
>>

```

```

        \bar "|"
        g'2.
    }
>>
\new Staff <<
  \global {
    \bar "|"
    \clef percussion
    \time 3/4
    R2.

    \bar "|"
    g'2. ~

    \bar "|"
    g'2.

    \bar "|"
    r4 g'2 ~

    \bar "|"
    g'2 r4

    \bar "|"
    g'2.
  }
>>
>>

\score {
  <<
    \Bassklarinette
    \Perkussion
  >>
}

```

The image shows a musical score for two parts: Bass Clarinet and Percussion. The Bass Clarinet part is written on a single staff in 3/4 time. It begins with a quarter note G4, followed by a half note G4 with a slur and a '2' above it. This is followed by a quarter rest, then a quarter note G4 with a slur and a '4' above it. This is followed by a quarter note G4 with a slur and a '3' above it. The Percussion part consists of two staves. The top staff has a single quarter note G4 with a slur. The bottom staff has a single quarter note G4 with a slur.

(4)

8

## Printing the bar number for the first measure

By default, the first bar number in a score is suppressed if it is less than or equal to '1'. By setting `barNumberVisibility` to `all-bar-numbers-visible`, any bar number can be printed for the first measure and all subsequent measures. Note that an empty bar line must be inserted before the first note for this to work.

```
\relative c' {
  \set Score.barNumberVisibility = #all-bar-numbers-visible
  \bar ""
  c1 | d | e | f \break
  g1 | e | d | c
}
```

1

5

## Redefining grace note global defaults

The global defaults for grace notes are stored in the identifiers `startGraceMusic`, `stopGraceMusic`, `startAcciaccaturaMusic`, `stopAcciaccaturaMusic`, `startAppoggiaturaMusic` and `stopAppoggiaturaMusic`, which are defined in the file `ly/grace-init.ly`. By redefining them other effects may be obtained.

```
startAcciaccaturaMusic = {
  <>(
    \override Flag #'stroke-style = #"grace"
    \slurDashed
  )
}
```

```
stopAcciaccaturaMusic = {
  \revert Flag #'stroke-style
  \slurSolid
  <>
}

\relative c'' {
  \acciaccatura d8 c1
}
```

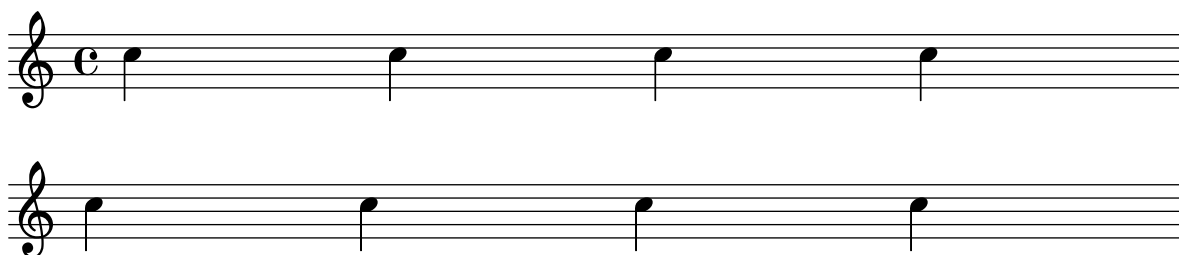


## Removing bar numbers from a score

Bar numbers can be removed entirely by removing the `Bar_number_engraver` from the `Score` context.

```
\layout {
  \context {
    \Score
    \remove "Bar_number_engraver"
  }
}

\relative c'' {
  c4 c c c \break
  c4 c c c
}
```



## Removing connecting bar lines on StaffGroup PianoStaff or GrandStaff

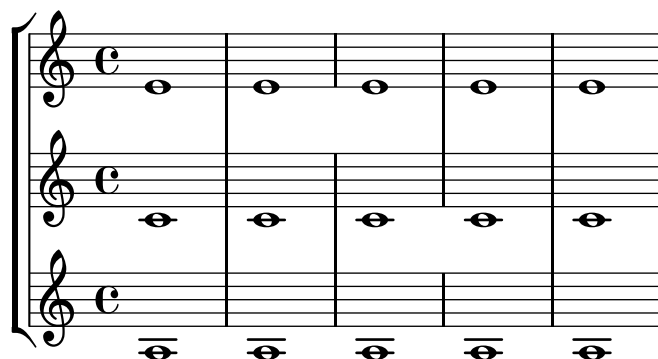
By default, bar lines in `StaffGroup`, `PianoStaff`, or `GrandStaff` groups are connected between the staves. This behaviour can be overridden on a staff-by-staff basis.

```
\relative c' {
  \new StaffGroup <<
    \new Staff {
      e1 | e
      \once \override Staff.BarLine #'allow-span-bar = ##f
      e1 | e | e
    }
    \new Staff {
      c1 | c | c
    }
  >>
}
```

```

\once \override Staff.BarLine #'allow-span-bar = ##f
c1 | c
}
\new Staff {
  a1 | a | a | a | a
}
>>
}

```



## Rest styles

Rests may be used in various styles.

```

\layout {
  indent = 0
  \context {
    \Staff
    \remove "Time_signature_engraver"
  }
}

\new Staff \relative c {
  \cadenzaOn
  \override Staff.Rest #'style = #'mensural
  r\maxima^\markup \typewriter { mensural }
  r\longa r\breve r1 r2 r4 r8 r16 s32 s64 s128 s128
  \bar ""

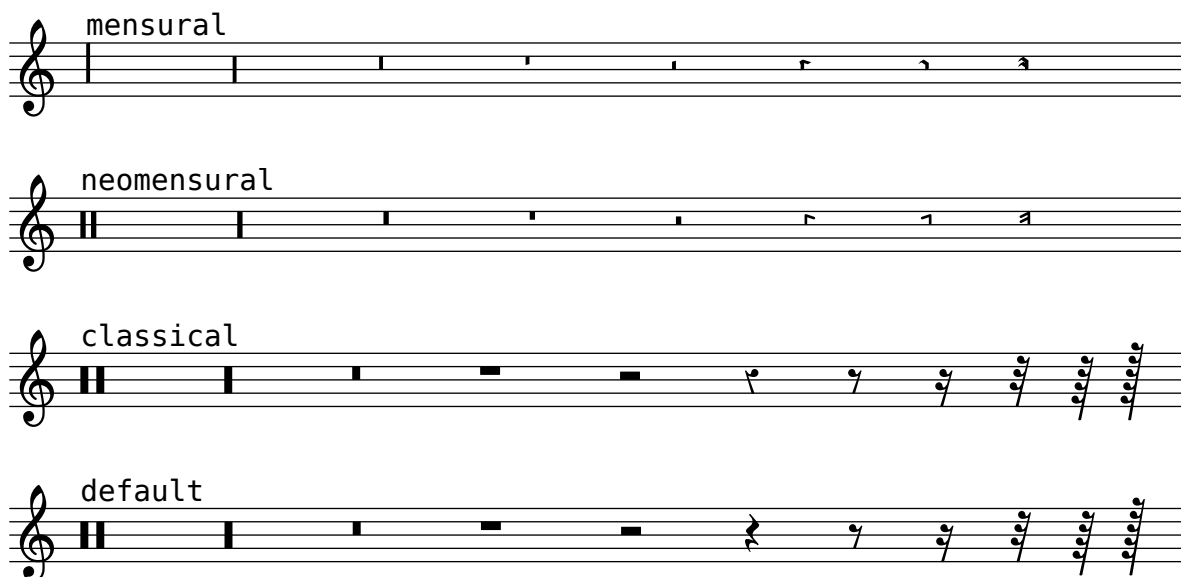
  \override Staff.Rest #'style = #'neomensural
  r\maxima^\markup \typewriter { neomensural }
  r\longa r\breve r1 r2 r4 r8 r16 s32 s64 s128 s128
  \bar ""

  \override Staff.Rest #'style = #'classical
  r\maxima^\markup \typewriter { classical }
  r\longa r\breve r1 r2 r4 r8 r16 r32 r64 r128 s128
  \bar ""

  \override Staff.Rest #'style = #'default
  r\maxima^\markup \typewriter { default }
  r\longa r\breve r1 r2 r4 r8 r16 r32 r64 r128 s128
}

```





## Reverting default beam endings

To typeset beams grouped 3-4-3-2 in 12/8 it is necessary first to override the default beam endings in 12/8, and then to set up the new beaming endings:

```
\relative c'' {
  \time 12/8

  % Default beaming
  a8 a a a a a a a a a a

  % Set new values for beam endings
  \set Score.beatStructure = #'(3 4 3 2)
  a8 a a a a a a a a a a
}
```



## Rhythmic slashes

In “simple” lead-sheets, sometimes no actual notes are written, instead only “rhythmic patterns” and chords above the measures are notated giving the structure of a song. Such a feature is for example useful while creating/transcribing the structure of a song and also when sharing lead sheets with guitarists or jazz musicians. The standard support for this using `\repeat percent` is unsuitable here since the first beat has to be an ordinary note or rest. This example shows two solutions to this problem, by redefining ordinary rests to be printed as slashes. (If the duration of each beat is not a quarter note, replace the `r4` in the definitions with a rest of the appropriate duration).

```
% Macro to print single slash
rs = {
  \once \override Rest #'stencil = #ly:percent-repeat-item-interface::beat-slash
  \once \override Rest #'thickness = #0.48
  \once \override Rest #'slope = #1.7
  r4
}
```

```
% Function to print a specified number of slashes
comp = #(define-music-function (parser location count) (integer?)
  #{
    \override Rest #'stencil = #ly:percent-repeat-item-interface::beat-slash
    \override Rest #'thickness = #0.48
    \override Rest #'slope = #1.7
    \repeat unfold $count { r4 }
    \revert Rest #'stencil
  }
)

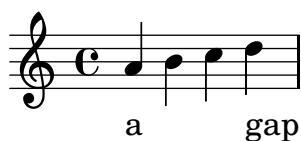
\score {
  \relative c' {
    c4 d e f |
    \rs \rs \rs \rs |
    \comp #4 |
  }
}
```



## Skips in lyric mode (2)

Although `s` skips cannot be used in `\lyricmode` (it is taken to be a literal “s”, not a space), double quotes (“”) or underscores (\_) are available. So for example:

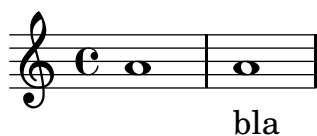
```
<<
  \relative c'' { a4 b c d }
  \new Lyrics \lyricmode { a4 "" _ gap }
>>
```



## Skips in lyric mode

The `s` syntax for skips is only available in note mode and chord mode. In other situations, for example, when entering lyrics, using the `\skip` command is recommended.

```
<<
  \relative c'' { a1 | a }
  \new Lyrics \lyricmode { \skip 1 bla1 }
>>
```



## Stemlets

In some notational conventions beams are allowed to extend over rests. Depending on preference, these beams may drop 'stemlets' to help the eye appreciate the rhythm better, and in some modern music the rest itself is omitted and only the stemlet remains.

This snippet shows a progression from traditional notation, to beams over the rest, to stemlets over the rest, to stemlets alone. Stemlets are generated by overriding the 'stemlet-length' property of `Stem`, while rests are hidden by setting 'transparent = ##t'.

Some `\markup` elements are included in the source to highlight the different notations.

```
\paper { ragged-right = ##f }

{
  c'16^\markup { traditional } d' r f'
  g'16[^\markup { beams over rests } f' r d']

  % N.B. use Score.Stem to set for the whole score.
  \override Staff.Stem #'stemlet-length = #0.75

  c'16[^\markup { stemlets over rests } d' r f']
  g'16[^\markup { stemlets and no rests } f'
  \once \override Rest #'transparent = ##t
  r16 d']
}
```



## Strict beat beaming

Beamlets can be set to point in the direction of the beat to which they belong. The first beam avoids sticking out flags (the default); the second beam strictly follows the beat.

```
\relative c'' {
  \time 6/8
  a8. a16 a a
  \set strictBeatBeaming = ##t
  a8. a16 a a
}
```



## Subdividing beams

The beams of consecutive 16th (or shorter) notes are, by default, not subdivided. That is, the three (or more) beams stretch unbroken over entire groups of notes. This behavior can be modified to subdivide the beams into sub-groups by setting the property `subdivideBeams`. When set, multiple beams will be subdivided at intervals defined by the current value of `baseMoment` by reducing the multiple beams to just one beam between the sub-groups. Note that `baseMoment` defaults to one over the denominator of the current time signature if not set explicitly. It must

be set to a fraction giving the duration of the beam sub-group using the `ly:make-moment` function, as shown in this snippet. Also, when `baseMoment` is changed, `beatStructure` should also be changed to match the new `baseMoment`:

```
\relative c' {
  c32[ c c c c c c c]
  \set subdivideBeams = ##t
  c32[ c c c c c c c]

  % Set beam sub-group length to an eighth note
  \set baseMoment = #(ly:make-moment 1 8)
  \set beatStructure = #'(2 2 2 2)
  c32[ c c c c c c c]

  % Set beam sub-group length to a sixteenth note
  \set baseMoment = #(ly:make-moment 1 16)
  \set beatStructure = #'(4 4 4 4)
  c32[ c c c c c c c]
}
```



## Three-sided box

This example shows how to add a markup command to get a three sided box around some text (or other markup).

```
% New command to add a three sided box, with sides north, west and south
% Based on the box-stencil command defined in scm/stencil.scm
% Note that ";;" is used to comment a line in Scheme
#(define-public (NWS-box-stencil stencil thickness padding)
  "Add a box around STENCIL, producing a new stencil."
  (let* ((x-ext (interval-widen (ly:stencil-extent stencil X) padding))
        (y-ext (interval-widen (ly:stencil-extent stencil Y) padding))
        (y-rule (make-filled-box-stencil (cons 0 thickness) y-ext))
        (x-rule (make-filled-box-stencil
                  (interval-widen x-ext thickness) (cons 0 thickness))))
    ;; (set! stencil (ly:stencil-combine-at-edge stencil X 1 y-rule padding))
    (set! stencil (ly:stencil-combine-at-edge stencil X LEFT y-rule padding))
    (set! stencil (ly:stencil-combine-at-edge stencil Y UP x-rule 0.0))
    (set! stencil (ly:stencil-combine-at-edge stencil Y DOWN x-rule 0.0))
    stencil))

% The corresponding markup command, based on the \box command defined
% in scm/define-markup-commands.scm
#(define-markup-command (NWS-box layout props arg) (markup?)
  "Draw a box round @var{arg}. Looks at @code{thickness},
@code{box-padding} and @code{font-size} properties to determine line
thickness and padding around the markup."
  (let* ((th (chain-assoc-get 'thickness props 0.1))
        (size (chain-assoc-get 'font-size props 0))
        (pad (* (magstep size)
```

```

(chain-assoc-get 'box-padding props 0.2)))
(m (interpret-markup layout props arg)))
(NWS-box-stencil m th pad)))

% Test it:

\relative c' {
  c1^\markup { \NWS-box ABCD }
  c1^\markup { \NWS-box \note #"4" #1.0 }
}
```



## Time signature printing only the numerator as a number (instead of the fraction)

Sometimes, a time signature should not print the whole fraction (e.g. 7/4), but only the numerator (7 in this case). This can be easily done by using `\override Staff.TimeSignature #'style = #'single-digit` to change the style permanently. By using `\revert Staff.TimeSignature #'style`, this setting can be reversed. To apply the single-digit style to only one time signature, use the `\override` command and prefix it with a `\once`.

```

\relative c' {
  \time 3/4
  c4 c c
  % Change the style permanently
  \override Staff.TimeSignature #'style = #'single-digit
  \time 2/4
  c4 c
  \time 3/4
  c4 c c
  % Revert to default style:
  \revert Staff.TimeSignature #'style
  \time 2/4
  c4 c
  % single-digit style only for the next time signature
  \once \override Staff.TimeSignature #'style = #'single-digit
  \time 5/4
  c4 c c c c
  \time 2/4
  c4 c
}
```



## Tweaking grace layout within music

The layout of grace expressions can be changed throughout the music using the functions `add-grace-property` and `remove-grace-property`. The following example undefines the `Stem`

direction for this grace, so that stems do not always point up, and changes the default note heads to crosses.

```
\relative c' {
  \new Staff {
    $(remove-grace-property 'Voice 'Stem 'direction)
    $(add-grace-property 'Voice 'NoteHead 'style 'cross)
    \new Voice {
      \acciaccatura { f16 } g4
      \grace { d16[ e] } f4
      \appoggiatura { f,32[ g a] } e2
    }
  }
}
```



## Using alternative flag styles

Alternative styles of flag on eighth and shorter notes can be displayed by overriding the `stencil` property of `Flag`. Valid values are `modern-straight-flag` and `old-straight-flag`.

```
testnotes = {
  \autoBeamOff
  c8 d16 c32 d64 \acciaccatura { c8 } d64 r4
}

\relative c' {
  \time 2/4
  \testnotes

  \override Flag #'stencil = #modern-straight-flag
  \testnotes

  \override Flag #'stencil = #old-straight-flag
  \testnotes

  \revert Flag #'stencil
  \testnotes
}
```



## Using grace note slashes with normal heads

The slash through the stem found in acciaccaturas can be applied in other situations.

```
\relative c' {
  \override Flag #'stroke-style = #"grace"
  c8( d2) e8( f4)
}
```



## Using ties with arpeggios

Ties are sometimes used to write out arpeggios. In this case, two tied notes need not be consecutive. This can be achieved by setting the `tieWaitForNote` property to `#t`. The same feature is also useful, for example, to tie a tremolo to a chord, but in principle, it can also be used for ordinary consecutive notes.

```
\relative c' {
  \set tieWaitForNote = ##t
  \grace { c16[ ~ e ~ g] ~ } <c, e g>2
  \repeat tremolo 8 { c32 ~ c' ~ } <c c,>1
  e8 ~ c ~ a ~ f ~ <e' c a f>2
  \tieUp
  c8 ~ a
  \tieDown
  \tieDotted
  g8 ~ c g2
}
```



## Expressive marks

Section “Expressive marks” in *Notation Reference*

### Adding beams slurs ties etc. when using tuplet and non-tuplet rhythms

LilyPond syntax can involve many unusual placements for parentheses, brackets etc., which might sometimes have to be interleaved. For example, when entering a manual beam, the left square bracket has to be placed after the starting note and its duration, not before. Similarly, the right square bracket should directly follow the note which is to be at the end of the requested beaming, even if this note happens to be inside a tuplet section. This snippet demonstrates how to combine manual beaming, manual slurs, ties and phrasing slurs with tuplet sections (enclosed within curly braces).

```
{
  r16[ g16 \times 2/3 { r16 e'8] }
  g16( a \times 2/3 { b d e' } )
  g8[( a \times 2/3 { b d' } e'] ~ }
  \time 2/4
  \times 4/5 { e'32\ ( a b d' e' } a'4.\)
}
```



### Adding parentheses around an expressive mark or chordal note

The `\parenthesize` function is a special tweak that encloses objects in parentheses. The associated grob is `ParenthesesItem`.

```
\relative c' {
  c2-\parenthesize ->
  \override ParenthesesItem #'padding = #0.1
  \override ParenthesesItem #'font-size = #-4
  <d \parenthesize f a>2
}
```



### Adjusting the shape of falls and doits

The `shortest-duration-space` property may be tweaked to adjust the shape of falls and doits.

```
\relative c' {
  \override Score.SpacingSpanner #'shortest-duration-space = #4.0
  c2-\bendAfter #5
  c2-\bendAfter #-4.75
  c2-\bendAfter #8.5
  c2-\bendAfter #-6
}
```



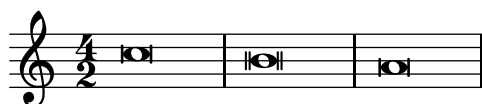
}



## Alternative breve note

This code demonstrates how to use the alternative breve note with two vertical lines on each side of the notehead instead of one line.

```
\relative c'' {
  \time 4/2
  c\breve |
  \override Staff.NoteHead #'style = #'altdefault
  b\breve
  \revert Staff.NoteHead #'style
  a\breve
}
```

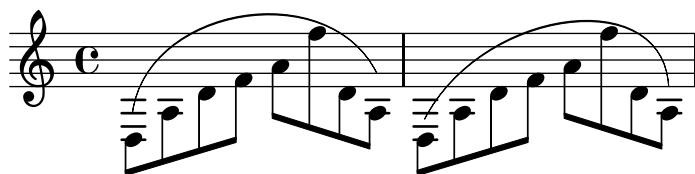


## Asymmetric slurs

Slurs can be made asymmetric to match an asymmetric pattern of notes better.

```
slurNotes = { d,8( a' d f a f' d, a) }
```

```
\relative c' {
  \stemDown
  \slurUp
  \slurNotes
  \once \override Slur #'eccentricity = #3.0
  \slurNotes
}
```



## Breathing signs

Breathing signs are available in different tastes: commas (default), ticks, vees and “railroad tracks” (caesura).

```
\new Staff \relative c'' {
  \key es \major
  \time 3/4
  % this bar contains no \breathe
  << { g4 as g } \ { es4 bes es } >> |
  % Modern notation:
```

```
% by default, \breathe uses the rcomma, just as if saying:
% \override BreathingSign #'text = #(make-musicglyph-markup "scripts.rcomma")
<< { g4 as g } \ { es4 \breathe bes es } >> |

% rvarcomma and lvarcomma are variations of the default rcomma and lcomma
% N.B.: must use Staff context here, since we start a Voice below
\override Staff.BreathingSign #'text = \markup { \musicglyph #"scripts.rvarcomma" }
<< { g4 as g } \ { es4 \breathe bes es } >> |

% vee
\override BreathingSign #'text = \markup { \musicglyph #"scripts.upbow" }
es8[ d es f g] \breathe f |

% caesura
\override BreathingSign #'text = \markup { \musicglyph #"scripts.caesura.curved" }
es8[ d] \breathe es[ f g f] |
es2 r4 \bar "||"
}
```



## Broken Crescendo Hairpin

In order to make parts of a crescendo hairpin invisible, the following method is used: A white rectangle is drawn on top of the respective part of the crescendo hairpin, making it invisible. The rectangle is defined as postscript code within a text markup.

To fine-tune the position and size of the markup, the number preceding `setgray` in the postscript definition can be set to a value less than one, making it grey. The two numbers before `scale` in the postscript code are responsible for the width and height of the rectangle, the two numbers before `translate` change the x- and y-origin of the rectangle.

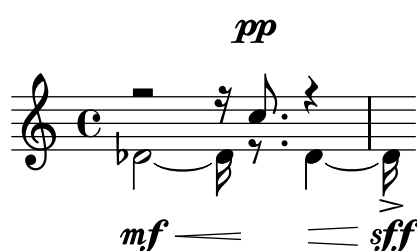
Make sure to put the hairpin in a lower layer than the text markup to draw the rectangle over the hairpin.

```
\relative c' {
  <<
  {
    \dynamicUp
    \override DynamicLineSpanner #'staff-padding = #4
    r2 r16 c'8.\pp r4
  }
  \\\
  {
    \override DynamicLineSpanner #'layer = #0
    des,2\mf\< ~
    \override TextScript #'layer = #2
    des16_\markup {
      \postscript #"
        1.9 -8 translate
        5 4 scale
    "
```

```

1 setgray
0 0 moveto
0 1 lineto
1 1 lineto
1 0 lineto
0 0 lineto
fill"
}
r8. des4 ~ des16->\sff
}
>>
}

```



## Caesura ("railtracks") with fermata

A caesura is sometimes denoted by a double “railtracks” breath mark with a fermata sign positioned above. This snippet shows an optically pleasing combination of railtracks and fermata.

```

\relative c' {
  c2.
  % construct the symbol
  \override BreathingSign #'text = \markup {
    \line {
      \musicglyph #"scripts.caesura.curved"
      \translate #'(-1.75 . 1.6)
      \musicglyph #"scripts.ufermata"
    }
  }
  \breathe c4
  % set the breathe mark back to normal
  \revert BreathingSign #'text
  c2. \breathe c4
  \bar "|."
}

```



## Center text below hairpin dynamics

This example provides a function to typeset a hairpin (de)crescendo with some additional text below it, such as “molto” or “poco”. The example also illustrates how to modify the way an object is normally printed, using some Scheme code.

```

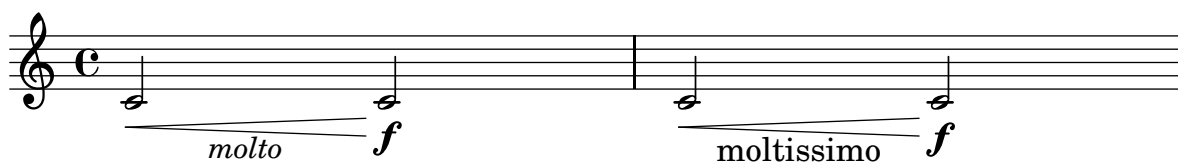
hairpinWithCenteredText =
#(define-music-function (parser location text) (markup?)
#{
  \override Voice.Hairpin #'stencil = #(lambda (grob)
    (ly:stencil-aligned-to
      (ly:stencil-combine-at-edge
        (ly:stencil-aligned-to (ly:hairpin::print grob) X CENTER)
        Y DOWN
        (ly:stencil-aligned-to (grob-interpret-markup grob text) X CENTER))
      X LEFT))
  #})

hairpinMolto = \hairpinWithCenteredText \markup { \italic molto }
hairpinMore = \hairpinWithCenteredText \markup { \larger moltissimo }

\layout { ragged-right = ##f }

\relative c' {
  \hairpinMolto
  c2\< c\f
  \hairpinMore
  c2\< c\f
}

```



## Changing \flageolet mark size

To make the `\flageolet` circle smaller use the following Scheme function.

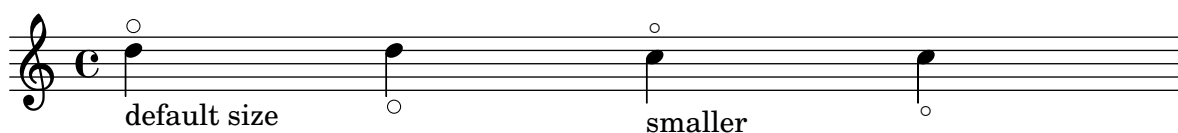
```

smallFlageolet =
#(let ((m (make-articulation "flageolet")))
  (set! (ly:music-property m 'tweaks)
    (acons 'font-size -3
      (ly:music-property m 'tweaks)))
  m)

\layout { ragged-right = ##f }

\relative c' {
  d4^\flageolet_\markup { default size } d_\flageolet
  c4^\smallFlageolet_\markup { smaller } c_\smallFlageolet
}

```



## Changing text and spanner styles for text dynamics

The text used for crescendos and decrescendos can be changed by modifying the context properties `crescendoText` and `decrescendoText`.

The style of the spanner line can be changed by modifying the `'style` property of `DynamicTextSpanner`. The default value is `'dashed-line`, and other possible values include `'line`, `'dotted-line` and `'none`.

```
\relative c' {
  \set crescendoText = \markup { \italic { cresc. poco } }
  \set crescendoSpanner = #'text
  \override DynamicTextSpanner #'style = #'dotted-line
  a2\< a
  a2 a
  a2 a
  a2 a\mf
}
```



## Changing the appearance of a slur from solid to dotted or dashed

The appearance of slurs may be changed from solid to dotted or dashed.

```
\relative c' {
  c4( d e c)
  \slurDotted
  c4( d e c)
  \slurSolid
  c4( d e c)
  \slurDashed
  c4( d e c)
  \slurSolid
  c4( d e c)
}
```



## Changing the breath mark symbol

The glyph of the breath mark can be tuned by overriding the `text` property of the `BreathingSign` layout object with any markup text.

```
\relative c' {
  c2
  \override BreathingSign #'text =
    \markup { \musicglyph #"scripts.rvarcomma" }
  \breathe
  d2
}
```

}



## Changing the number of augmentation dots per note

This code demonstrates how to change the number of augmentation dots on a single note.

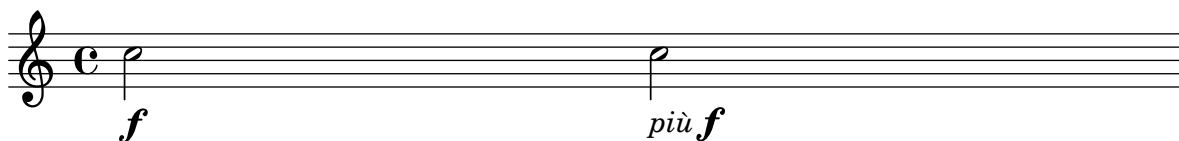
```
\relative c' {
  c4.. a16 r2 |
  \override Dots #'dot-count = #4
  c4.. a16 r2 |
  \override Dots #'dot-count = #0
  c4.. a16 r2 |
  \revert Dots #'dot-count
  c4.. a16 r2 |
}
```



## Combining dynamics with markup texts

Some dynamics may involve text indications (such as “più forte” or “piano subito”). These can be produced using a `\markup` block.

```
piuF = \markup { \italic più \dynamic f }
\layout { ragged-right = ##f }
\relative c' {
  c2\f c-\piuF
}
```



## Contemporary glissando

A contemporary glissando without a final note can be typeset using a hidden note and cadenza timing.

```
\relative c' {
  \time 3/4
  \override Glissando #'style = #'zigzag
  c4 c
  \cadenzaOn
  c4\glissando
  \hideNotes
  c,,4
  \unHideNotes
  \cadenzaOff
}
```

```
\bar "|"
}
```



## Controlling spanner visibility after a line break

The visibility of spanners which end on the first note following a line break is controlled by the `after-line-breaking` callback `ly:spanner::kill-zero-spanned-time`.

For objects such as glissandos and hairpins, the default behaviour is to hide the spanner after a break; disabling the callback will allow the left-broken span to be shown.

Conversely, spanners which are usually visible, such as text spans, can be hidden by enabling the callback.

```
\paper { ragged-right = ##t }

\relative c' {
  \override Hairpin #'to-barline = ##f
  \override Glissando #'breakable = ##t
  % show hairpin
  \override Hairpin #'after-line-breaking = ##t
  % hide text span
  \override TextSpanner #'after-line-breaking =
    #ly:spanner::kill-zero-spanned-time
  e2\<\startTextSpan
  % show glissando
  \override Glissando #'after-line-breaking = ##t
  f2\glissando
  \break
  f,1\!\stopTextSpan
}
```



## Controlling the vertical ordering of scripts

The vertical ordering of scripts is controlled with the `'script-priority` property. The lower this number, the closer it will be put to the note. In this example, the `TextScript` (the sharp symbol) first has the lowest priority, so it is put lowest in the first example. In the second, the prall trill (the `Script`) has the lowest, so it is on the inside. When two objects have the same priority, the order in which they are entered determines which one comes first.

```
\relative c''' {
  \once \override TextScript #'script-priority = #-100
  a2^\prall^\markup { \sharp }

  \once \override Script #'script-priority = #-100
  a2^\prall^\markup { \sharp }
}
```



## Creating a delayed turn

Creating a delayed turn, where the lower note of the turn uses the accidental, requires several overrides. The `outside-staff-priority` property must be set to `#f`, as otherwise this would take precedence over the `avoid-slur` property. The value of `halign` is used to position the turn horizontally.

```
\relative c' {
  \once \override TextScript #'avoid-slur = #'inside
  \once \override TextScript #'outside-staff-priority = ##f
  c2(^\markup \tiny \override #'(baseline-skip . 1) {
    \halign #-4
    \center-column {
      \sharp
      \musicglyph #"scripts.turn"
    }
  })
  d4.) c8
}
```



## Creating arpeggios across notes in different voices

An arpeggio can be drawn across notes in different voices on the same staff if the `Span_arpeggio_engraver` is added to the `Staff` context:

```
\new Staff \with {
  \consists "Span_arpeggio_engraver"
}
\relative c' {
  \set Staff.connectArpeggios = ##t
  <<
    { <e' g>4\arpeggio <d f> <d f>2 }
    \\\
    { <d, f>2\arpeggio <g b>2 }
  >>
```



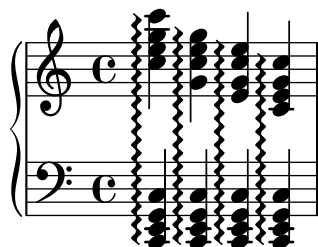
}



## Creating cross-staff arpeggios in a piano staff

In a `PianoStaff`, it is possible to let an arpeggio cross between the staves by setting the property `PianoStaff.connectArpeggios = ##t`.

```
\new PianoStaff \relative c'' <<
  \set PianoStaff.connectArpeggios = ##t
  \new Staff {
    <c e g c>4\arpeggio
    <g c e g>4\arpeggio
    <e g c e>4\arpeggio
    <c e g c>4\arpeggio
  }
  \new Staff {
    \clef bass
    \repeat unfold 4 {
      <c,, e g c>4\arpeggio
    }
  }
>>
```



## Creating cross-staff arpeggios in other contexts

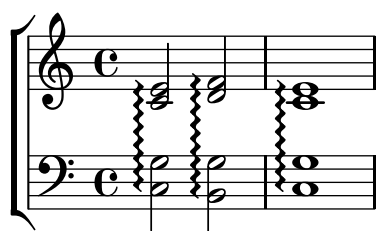
Cross-staff arpeggios can be created in contexts other than `GrandStaff`, `PianoStaff` and `StaffGroup` if the `Span_arpeggio_engraver` is included in the `Score` context.

```
\score {
  \new ChoirStaff {
    \set Score.connectArpeggios = ##t
    <<
      \new Voice \relative c' {
        <c e>2\arpeggio
        <d f>2\arpeggio
        <c e>1\arpeggio
      }
      \new Voice \relative c {
        \clef bass
        <c g'>2\arpeggio
        <b g'>2\arpeggio
      }
    >>
  }
}
```

```

        <c g'>1\arpeggio
      }
    >>
  }
  \layout {
    \context {
      \Score
      \consists "Span_arpeggio_engraver"
    }
  }
}

```



## Creating double-digit fingerings

By default you cannot make double-digit fingering notation (i.e. numbers larger than 9). This is a hard coded limitation.

This snippet shows two methods of creating fingerings larger than 9.

```

ten =
#(make-music 'FingeringEvent
             'digit 10)

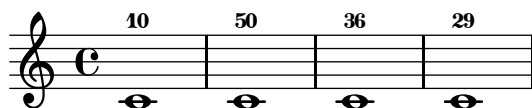
fifty =
#(make-music 'FingeringEvent
             'digit 50)

finger =
#(define-music-function (parser location digit) (integer?)
  (make-music 'FingeringEvent
              'digit digit))

#(define (calc-finger-without-warning grob)
  (let* ((event (event-cause grob))
        (digit (ly:event-property event 'digit)))
    (number->string digit 10)))

\relative c' {
  % optional override to remove warnings for fingerings larger than 5
  \override Fingering #'text = #calc-finger-without-warning
  c1\ten
  c1\fifty
  c1-\finger #36
  c1-\finger #29
}

```



## Creating "real" parenthesized dynamics

Although the easiest way to add parentheses to a dynamic mark is to use a `\markup` block, this method has a downside: the created objects will behave like text markups, and not like dynamics.

However, it is possible to create a similar object using the equivalent Scheme code (as described in the Notation Reference), combined with the `make-dynamic-script` function. This way, the markup will be regarded as a dynamic, and therefore will remain compatible with commands such as `\dynamicUp` or `\dynamicDown`.

```
parenF = #(make-dynamic-script (markup #:line (#:normal-text #:italic
      #:fontsize 2 "(" #:hspace -0.8 #:dynamic "f" #:normal-text
      #:italic #:fontsize 2 ")")))
```

```
\relative c' {
  c4\parenF c c \dynamicUp c\parenF
}
```



## Creating simultaneous rehearsal marks

Unlike text scripts, rehearsal marks cannot be stacked at a particular point in a score: only one `RehearsalMark` object is created. Using an invisible measure and bar line, an extra rehearsal mark can be added, giving the appearance of two marks in the same column. This method may also prove useful for placing rehearsal marks at both the end of one system and the start of the following system.

```
{
  \key a \major
  \set Score.markFormatter = #format-mark-box-letters
  \once \override Score.RehearsalMark #'outside-staff-priority = #5000
  \once \override Score.RehearsalMark #'self-alignment-X = #LEFT
  \once \override Score.RehearsalMark #'break-align-symbols = #'(key-signature)
  \mark \markup { \bold { Senza denti } }

  % the hidden measure and bar line
  % \cadenzaOn turns off automatic calculation of bar numbers
  \cadenzaOn
  \once \override Score.TimeSignature #'stencil = ##f
  \time 1/16
  s16 \bar ""
  \cadenzaOff

  \time 4/4
  \once \override Score.RehearsalMark #'self-alignment-X = #LEFT
  \mark \markup { \box \bold Intro }
  d'1
}
```



```

\override TextSpanner #'(bound-details right text) = #"blu"
a4 \startTextSpan
b4 c
a4 \stopTextSpan

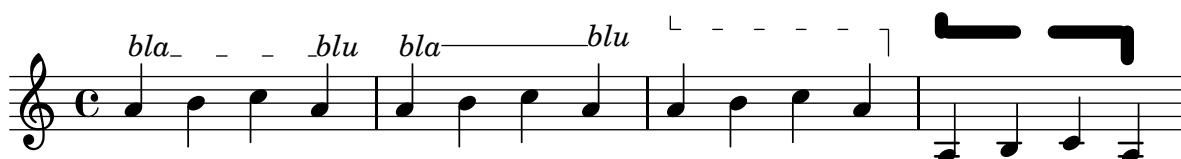
\override TextSpanner #'style = #'line
\once \override TextSpanner
  #'(bound-details left stencil-align-dir-y) = #CENTER
a4 \startTextSpan
b4 c
a4 \stopTextSpan

\override TextSpanner #'style = #'dashed-line
\override TextSpanner #'(bound-details left text) =
  \markup { \draw-line #'(0 . 1) }
\override TextSpanner #'(bound-details right text) =
  \markup { \draw-line #'(0 . -2) }
\once \override TextSpanner #'(bound-details right padding) = #-2

a4 \startTextSpan
b4 c
a4 \stopTextSpan

\set Staff.middleCPosition = #-13
\override TextSpanner #'dash-period = #10
\override TextSpanner #'dash-fraction = #0.5
\override TextSpanner #'thickness = #10
a4 \startTextSpan
b4 c
a4 \stopTextSpan
}

```



## Double glissando

To connect chords with glissando lines, attach a second glissando to a hidden voice.

```

\relative c {
  \clef bass
  <<
  {
    % new voice ( = \voiceOne), hidden
    \hideNotes
    % attach glissando to note heads
    e2\glissando g
  }
  \\\
  {

```

```

    % original voice with chords rearranged so that
    % glissando is attached to a & c
    <e a,>2\glissando <g c,>
  }
>>
}

```



## Dynamics custom text spanner postfix

Postfix functions for custom crescendo text spanners. The spanners should start on the first note of the measure. One has to use `-\mycresc`, otherwise the spanner start will rather be assigned to the next note.

```

% Two functions for (de)crescendo spanners where you can explicitly give the
% spanner text.
mycresc =

```

```

#(define-music-function (parser location mymarkup) (markup?)
  (make-music 'CrescendoEvent
    'span-direction START
    'span-type 'text
    'span-text mymarkup))

```

```

mydecresc =

```

```

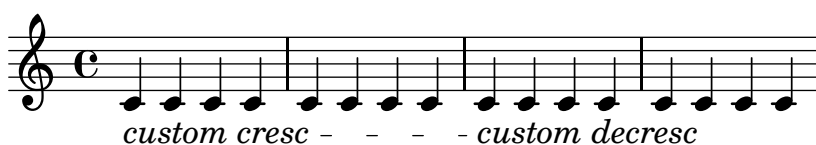
#(define-music-function (parser location mymarkup) (markup?)
  (make-music 'DecrescendoEvent
    'span-direction START
    'span-type 'text
    'span-text mymarkup))

```

```

\relative c' {
  c4-\mycresc "custom cresc" c4 c4 c4 |
  c4 c4 c4 c4 |
  c4-\mydecresc "custom decresc" c4 c4 c4 |
  c4 c4\! c4 c4
}

```



## Dynamics text spanner postfix

Custom text spanners can be defined and used with hairpin and text crescendos. `\<` and `\>` produce hairpins by default, `\cresc` etc. produce text spanners by default.

```

% Some sample text dynamic spanners, to be used as postfix operators
crpoco =

```

```

#(make-music 'CrescendoEvent
  'span-direction START

```

```

'span-type 'text
'span-text "cresc. poco a poco")

\relative c' {
  c4\cresc d4 e4 f4 |
  g4 a4\! b4\crpoco c4 |
  c4 d4 e4 f4 |
  g4 a4\! b4\< c4 |
  g4\dim a4 b4\decresc c4\!
}

```



## Glissandi can skip grobs

NoteColumn grobs can be skipped over by glissandi.

```

\relative c' {
  a2 \glissando
  \once \override NoteColumn #'glissando-skip = ##t
  f''4 d,
}

```



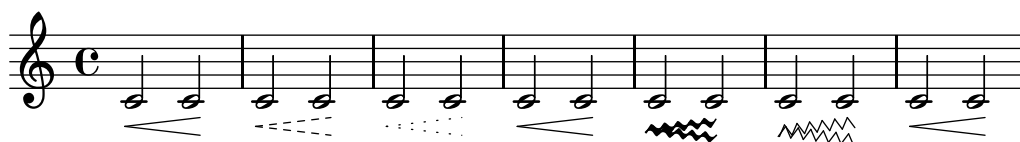
## Hairpins with different line styles

Hairpins can take any style from line-interface - dashed-line, dotted-line, line, trill or zigzag.

```

\relative c' {
  c2\< c\!
  \override Hairpin #'style = #'dashed-line
  c2\< c\!
  \override Hairpin #'style = #'dotted-line
  c2\< c\!
  \override Hairpin #'style = #'line
  c2\< c\!
  \override Hairpin #'style = #'trill
  c2\< c\!
  \override Hairpin #'style = #'zigzag
  c2\< c\!
  \revert Hairpin #'style
  c2\< c\!
}

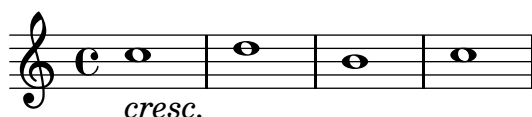
```



## Hiding the extender line for text dynamics

Text style dynamic changes (such as *cresc.* and *dim.*) are printed with a dashed line showing their extent. This line can be suppressed in the following way:

```
\relative c' {
  \override DynamicTextSpanner #'style = #'none
  \crescTextCresc
  c1\< | d | b | c\!
}
```



## Horizontally aligning custom dynamics (e.g. "sempre pp" "piu f" "subito p")

Some dynamic expressions involve additional text, like “sempre pp”. Since dynamics are usually centered under the note, the `\pp` would be displayed way after the note it applies to.

To correctly align the “sempre pp” horizontally, so that it is aligned as if it were only the `\pp`, there are several approaches:

- \* Simply use `\once\override DynamicText #'X-offset = #-9.2` before the note with the dynamics to manually shift it to the correct position. Drawback: This has to be done manually each time you use that dynamic markup... \* Add some padding (`\hspace 7.1`) into the definition of your custom dynamic mark, so that after LilyPond center-aligns it, it is already correctly aligned. Drawback: The padding really takes up that space and does not allow any other markup or dynamics to be shown in that position.

- \* Shift the dynamic script `\once\override ... #'X-offset = ...` Drawback: `\once\override` is needed for every invocation!

- \* Set the dimensions of the additional text to 0 (using `\with-dimensions '(0 . 0) '(0 . 0)`). Drawback: To LilyPond “sempre” has no extent, so it might put other stuff there and create collisions (which are not detected by the collision detection!). Also, there seems to be some spacing, so it’s not exactly the same alignment as without the additional text

- \* Add an explicit shifting directly inside the scheme function for the dynamic-script.

- \* Set an explicit alignment inside the dynamic-script. By default, this won’t have any effect, only if one sets `X-offset`! Drawback: One needs to set `DynamicText #'X-offset`, which will apply to all dynamic texts! Also, it is aligned at the right edge of the additional text, not at the center of `pp`.

```
\header { title = "Horizontally aligning custom dynamics" }
```

```
\paper { ragged-right = ##f }
```

```
% Solution 1: Using a simple markup with a particular halign value
% Drawback: It's a markup, not a dynamic command, so \dynamicDown
%           etc. will have no effect
semppMarkup = \markup { \halign #1.4 \italic "sempre" \dynamic "pp" }
```

```
% Solution 2: Using a dynamic script & shifting with
%           \once \override ... #'X-offset = ..
% Drawback: \once \override needed for every invocation
semppK =
```



```

#(make-dynamic-script
  (markup #:line
    (:normal-text
      #:italic "sempre"
      #:dynamic "pp"))))

% Solution 3: Padding the dynamic script so the center-alignment
%           puts it at the correct position
% Drawback: the padding really reserves the space, nothing else can be there
semppT =
#(make-dynamic-script
  (markup #:line
    (:normal-text
      #:italic "sempre"
      #:dynamic "pp"
      #:hspace 7.1)))

% Solution 4: Dynamic, setting the dimensions of the additional text to 0
% Drawback: To lilypond "sempre" has no extent, so it might put
%           other stuff there => collisions
% Drawback: Also, there seems to be some spacing, so it's not exactly the
%           same alignment as without the additional text
semppM =
#(make-dynamic-script
  (markup #:line
    (:with-dimensions '(0 . 0) '(0 . 0)
      #:right-align
      #:normal-text
      #:italic "sempre"
      #:dynamic "pp"))))

% Solution 5: Dynamic with explicit shifting inside the scheme function
semppG =
#(make-dynamic-script
  (markup #:hspace 0
    #:translate '(-18.85 . 0)
    #:line (:normal-text
      #:italic "sempre"
      #:dynamic "pp"))))

% Solution 6: Dynamic with explicit alignment. This has only effect
%           if one sets X-offset!
% Drawback: One needs to set DynamicText #'X-offset!
% Drawback: Aligned at the right edge of the additional text,
%           not at the center of pp
semppMII =
#(make-dynamic-script
  (markup #:line (:right-align
    #:normal-text
    #:italic "sempre"
    #:dynamic "pp"))))

```

```

\context StaffGroup <<
  \context Staff = "s" <<
    \set Staff.instrumentName = #"Normal"
    \relative c'' {
      \key es \major
      c4\pp c\p c c | c\ff c c\pp c
    }
  >>
  \context Staff = "sMarkup" <<
    \set Staff.instrumentName = \markup \column { Normal markup }
    \relative c'' {
      \key es \major
      c4-\semppMarkup c\p c c | c\ff c c-\semppMarkup c
    }
  >>
  \context Staff = "sK" <<
    \set Staff.instrumentName = \markup \column { Explicit shifting }
    \relative c'' {
      \key es \major
      \once \override DynamicText #'X-offset = #-9.2
      c4\semppK c\p c c
      c4\ff c
      \once \override DynamicText #'X-offset = #-9.2
      c4\semppK c
    }
  >>
  \context Staff = "sT" <<
    \set Staff.instrumentName = \markup \column { Right padding }
    \relative c'' {
      \key es \major
      c4\semppT c\p c c | c\ff c c\semppT c
    }
  >>
  \context Staff = "sM" <<
    \set Staff.instrumentName = \markup \column { Setting dimension "to zero" }
    \relative c'' {
      \key es \major
      c4\semppM c\p c c | c\ff c c\semppM c
    }
  >>
  \context Staff = "sG" <<
    \set Staff.instrumentName = \markup \column { Shifting inside dynamics }
    \relative c'' {
      \key es \major
      c4\semppG c\p c c | c\ff c c\semppG c
    }
  >>
  \context Staff = "sMII" <<
    \set Staff.instrumentName = \markup \column { Alignment inside dynamics }
    \relative c'' {
      \key es \major
      % Setting to ##f (false) gives the same result

```

```

\override DynamicText #'X-offset = #0
c4\semppMII c\p c c | c\ff c c\semppMII c
}
>>
>>

```

## Horizontally aligning custom dynamics

Normal

Normal markup

Explicit shifting

Right padding

Setting dimension to zero

Shifting inside dynamics

Alignment inside dynamics

## How to print two rehearsal marks above and below the same barline (method 1)

This method prints two 'rehearsal marks', one on top of the other. It shifts the lower rehearsal mark below the staff and then adds padding above it in order to place the upper rehearsal mark above the staff.

By adjusting the extra-offset and baseline-skip values you can increase or decrease the overall space between the rehearsal mark and the staff.

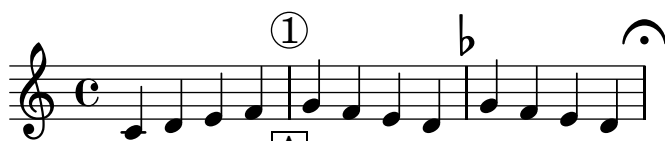
Because nearly every type of glyph or string can be made to behave like a rehearsal mark it is possible to centre those above and below a bar line.

Adding the appropriate 'break visibility' as shown in snippet 1 will allow you to position two marks at the end of a line as well.

Note: Method 1 is less complex than Method 2 but does not really allow for fine tuning of placement of one of the rehearsal marks without affecting the other. It may also give some

problems with vertical spacing, since using `extra-offset` does not change the bounding box of the mark from its original value.

```
\relative c'{
  c d e f |
  \once \override Score.RehearsalMark #'extra-offset = #'(0 . -8.5)
  \once \override Score.RehearsalMark #'baseline-skip = #9
  \mark \markup \center-column { \circle 1 \box A }
  g f e d |
  \once \override Score.RehearsalMark #'extra-offset = #'(0 . -8.5)
  \once \override Score.RehearsalMark #'baseline-skip = #9
  \mark \markup \center-column { \flat { \bold \small \italic Fine. } }
  g f e d |
  \once \override Score.RehearsalMark #'extra-offset = #'(0 . -8.5)
  \once \override Score.RehearsalMark #'baseline-skip = #9
  \override Score.RehearsalMark #'break-visibility = #begin-of-line-invisible
  \mark \markup \center-column { \musicglyph #"scripts.ufermata" \box z }
}
```



## How to print two rehearsal marks above and below the same barline (method 2)

This method prints two 'rehearsal marks' - one above the staff and one below, by creating two voices, adding the Rehearsal Mark engraver to each voice - without this no rehearsal mark is printed - and then placing each rehearsal mark UP and DOWN in each voice respectively.

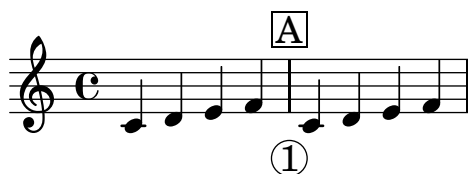
This method (as opposed to method 1) is more complex, but allows for more flexibility, should it be needed to tweak each rehearsal mark independently of the other.

```
\score {
  \relative c'
  <<
  \new Staff {
    <<
    \new Voice \with {
      \consists "Mark_engraver"
      \consists "Staff_collecting_engraver"
    }
    { c4 d e f
      \mark \markup { \box A }
      c4 d e f
    }
  }
  \new Voice \with {
    \consists "Mark_engraver"
    \consists "Staff_collecting_engraver"
    \override RehearsalMark #'direction = #DOWN
  }
}
```

```

    { s4 s s s
      \mark \markup { \circle 1 }
      s4 s s s
    }
  >>
}
>>
\layout {
  \context {
    \Score
    \remove "Mark_engraver"
    \remove "Staff_collecting_engraver"
  }
}
}

```



## Inserting a caesura

Caesura marks can be created by overriding the 'text property of the `BreathingSign` object. A curved caesura mark is also available.

```

\relative c' {
  \override BreathingSign #'text = \markup {
    \musicglyph #"scripts.caesura.straight"
  }
  c8 e4. \breathe g8. e16 c4

  \override BreathingSign #'text = \markup {
    \musicglyph #"scripts.caesura.curved"
  }
  g8 e'4. \breathe g8. e16 c4
}

```



## 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

  <c d e f>4\laissezVibrer r
  \override LaissezVibrerTieColumn #'tie-configuration
    = #-((-7 . ,DOWN)

```

```

                (-5 . ,DOWN)
                (-3 . ,UP)
                (-1 . ,UP))
  <c d e f>4\laissezVibrer r
}
```



## Line arrows

Arrows can be applied to text-spanners and line-spanners (such as the Glissando).

```
\relative c'' {
  \override TextSpanner #'bound-padding = #1.0
  \override TextSpanner #'style = #'line
  \override TextSpanner #'(bound-details right arrow) = ##t
  \override TextSpanner #'(bound-details left text) = #"fof"
  \override TextSpanner #'(bound-details right text) = #"gag"
  \override TextSpanner #'(bound-details right padding) = #0.6

  \override TextSpanner #'(bound-details right stencil-align-dir-y) = #CENTER
  \override TextSpanner #'(bound-details left stencil-align-dir-y) = #CENTER

  \override Glissando #'(bound-details right arrow) = ##t
  \override Glissando #'arrow-length = #0.5
  \override Glissando #'arrow-width = #0.25

  a8\startTextSpan gis a4 b\glissando b,
  g'4 c\stopTextSpan c2
}
```



## Making slurs with complex dash structure

Slurs can be made with complex dash patterns by defining the `dash-definition` property. `dash-definition` is a list of `dash-elements`. A `dash-element` is a list of parameters defining the dash behavior for a segment of the slur.

The slur is defined in terms of the bezier parameter `t` which ranges from 0 at the left end of the slur to 1 at the right end of the slur. `dash-element` is a list (`start-t stop-t dash-fraction dash-period`). The region of the slur from `start-t` to `stop-t` will have a fraction `dash-fraction` of each `dash-period` black. `dash-period` is defined in terms of staff spaces. `dash-fraction` is set to 1 for a solid slur.

```
\relative c' {
  \once \override
    Slur #'dash-definition = #'((0 0.3 0.1 0.75)
                                (0.3 0.6 1 1)
                                (0.65 1.0 0.4 0.75))
```

```

c4( d e f)
\once \override
  Slur #'dash-definition = #'((0 0.25 1 1)
                                (0.3 0.7 0.4 0.75)
                                (0.75 1.0 1 1))
c4( d e f)
}

```



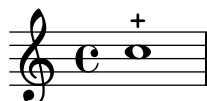
## Modifying default values for articulation shorthand notation

The shorthands are defined in ‘ly/script-init.ly’, where the variables `dashHat`, `dashPlus`, `dashDash`, `dashBar`, `dashLarger`, `dashDot`, and `dashUnderscore` are assigned default values. The default values for the shorthands can be modified. For example, to associate the `++` (`dashPlus`) shorthand with the trill symbol instead of the default `+` symbol, assign the value `trill` to the variable `dashPlus`:

```
\relative c' { c1-+ }
```

```
dashPlus = "trill"
```

```
\relative c' { c1-+ }
```



## Moving slur positions vertically

The vertical position of a slur can be adjusted using the `positions` property of `Slur`. The property has 2 parameters, the first referring to the left end of the slur and the second to the right. The values of the parameters are not used by LilyPond to make an exact movement of the slur - instead it selects what placement of the slur looks best, taking into account the parameter values. Positive values move the slur up, and are appropriate for notes with stems down. Negative values move downward slurs further down.

```

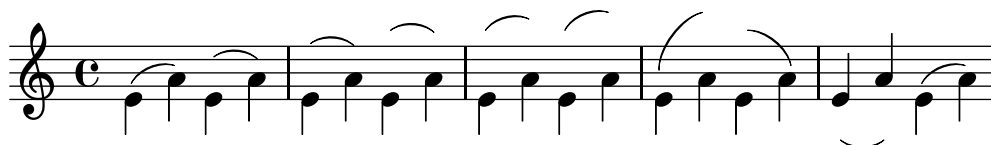
\relative c' {
  \stemDown
  e4( a)
  \override Slur #'positions = #'(1 . 1)
  e4( a)
  \override Slur #'positions = #'(2 . 2)
  e4( a)
  \override Slur #'positions = #'(3 . 3)
  e4( a)
  \override Slur #'positions = #'(4 . 4)
}

```

```

e4( a)
\override Slur #'positions = #'(5 . 5)
e4( a)
\override Slur #'positions = #'(0 . 5)
e4( a)
\override Slur #'positions = #'(5 . 0)
e4( a)
\stemUp
\override Slur #'positions = #'(-5 . -5)
e4( a)
\stemDown
\revert Slur #'positions
e4( a)
}

```



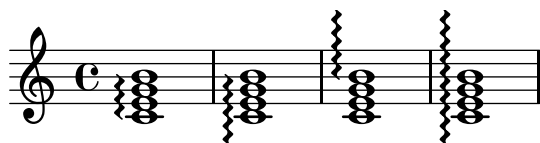
## Positioning arpeggios

If you need to extend or shorten an arpeggio, you can modify the upper and lower start positions independently.

```

\relative c' {
  <c e g b>1\arpeggio
  \once \override Arpeggio #'positions = #'(-5 . 0)
  <c e g b>1\arpeggio
  \once \override Arpeggio #'positions = #'(0 . 5)
  <c e g b>1\arpeggio
  \once \override Arpeggio #'positions = #'(-5 . 5)
  <c e g b>1\arpeggio
}

```



## Positioning text markups inside slurs

Text markups need to have the `outside-staff-priority` property set to `false` in order to be printed inside slurs.

```

\relative c' {
  \override TextScript #'avoid-slur = #'inside
  \override TextScript #'outside-staff-priority = ##f
  c2(^\markup { \halign #-10 \natural } d4.) c8
}

```





## Printing hairpins using al niente notation

Hairpin dynamics may be printed with a circled tip (“al niente” notation) by setting the circled-tip property of the Hairpin object to #t.

```
\relative c'' {
  \override Hairpin #'circled-tip = ##t
  c2\< c\!
  c4\> c\< c2\!
}
```



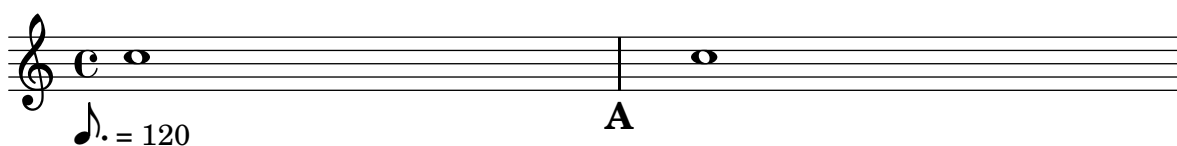
## Printing metronome and rehearsal marks below the staff

By default, metronome and rehearsal marks are printed above the staff. To place them below the staff simply set the direction property of MetronomeMark or RehearsalMark appropriately.

```
\layout { ragged-right = ##f }

{
  % Metronome marks below the staff
  \override Score.MetronomeMark #'direction = #DOWN
  \tempo 8. = 120
  c''1

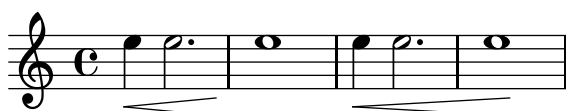
  % Rehearsal marks below the staff
  \override Score.RehearsalMark #'direction = #DOWN
  \mark \default
  c''1
}
```



## Setting hairpin behavior at bar lines

If the note which ends a hairpin falls on a downbeat, the hairpin stops at the bar line immediately preceding. This behavior can be controlled by overriding the 'to-barline property.

```
\relative c'' {
  e4\< e2.
  e1\!
  \override Hairpin #'to-barline = ##f
  e4\< e2.
  e1\!
}
```



## Setting the minimum length of hairpins

If hairpins are too short, they can be lengthened by modifying the `minimum-length` property of the `Hairpin` object.

```
\relative c' {
  c4\< c\! d\> e\!
  \override Hairpin #'minimum-length = #5
  << f1 { s4 s\< s\> s\! } >>
}
```



## Showing the same articulation above and below a note or chord

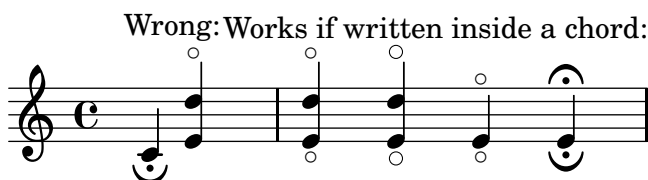
By default, LilyPond does not allow the same articulation (e.g., an accent, a fermata, a flageolet, etc.) to be displayed above and below a note. For example, `c4\_fermata^fermata` will only show a fermata below. The fermata above will simply be ignored. However, one can stick scripts (just like fingerings) inside a chord, which means it is possible to have as many articulations as desired. This approach has the advantage that it ignores the stem and positions the articulation relative to the note head. This can be seen in the case of the flageolets in the snippet. To mimic the behaviour of scripts outside a chord, `'add-stem-support` would be required. So, the solution is to write the note as a chord and add the articulations inside the `<...>`. The direction will always be above, but one can tweak this via a `\tweak`: `<c-\tweak #'direction #DOWN-\fermata^fermata>`

```
% The same as \flageolet, just a little smaller
smallFlageolet =
```

```
#(let ((m (make-articulation "flageolet")))
  (set! (ly:music-property m 'tweaks)
    (acons 'font-size -2
      (ly:music-property m 'tweaks)))
  m)
```

```
\relative c' {
  s4^"Wrong:"
  c4\_fermata^fermata % The second fermata is ignored!
  <e d'>4^smallFlageolet\_smallFlageolet

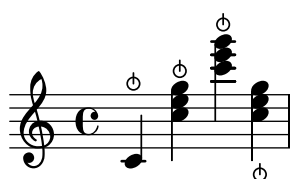
  s4^"Works if written inside a chord:"
  <e\_smallFlageolet d'^\_smallFlageolet>4
  <e\_flageolet d'^\_flageolet>4
  <e\_smallFlageolet^\_smallFlageolet>4
  <e\_fermata^fermata>4
}
```



## Snap-pizzicato or Bartok pizzicato

A snap-pizzicato (also known as “Bartok pizzicato”) is a “strong pizzicato where the string is plucked vertically by snapping and rebounds off the fingerboard of the instrument” (Wikipedia). It is denoted by a circle with a vertical line going from the center upwards outside the circle.

```
\relative c' {
  c4\snappizzicato
  <c' e g>4\snappizzicato
  <c' e g>4^\snappizzicato
  <c, e g>4_\snappizzicato
}
```

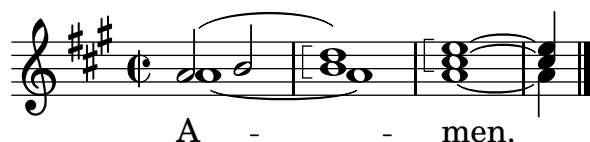


## Using arpeggioBracket to make divisi more visible

The `arpeggioBracket` can be used to indicate the division of voices where there are no stems to provide the information. This is often seen in choral music.

```
\include "english.ly"

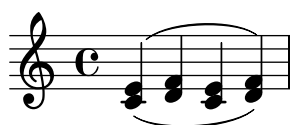
\score {
  \relative c'' {
    \key a \major
    \time 2/2
    <<
      \new Voice = "upper"
      <<
        { \voiceOne \arpeggioBracket
          a2( b2
            <b d>1\arpeggio)
            <cs e>\arpeggio ~
            <cs e>4
          }
        \addlyrics { \lyricmode { A -- men. } }
      >>
      \new Voice = "lower"
      { \voiceTwo
        a1 ~
        a
        a ~
        a4 \bar "|"
      }
    >>
  }
  \layout { ragged-right = ##t }
}
```



## Using double slurs for legato chords

Some composers write two slurs when they want legato chords. This can be achieved by setting `doubleSlurs`.

```
\relative c' {
  \set doubleSlurs = ##t
  <c e>4( <d f> <c e> <d f>)
}
```



## Using the whiteout property

Any graphical object can be printed over a white background to mask parts of objects that lie beneath. This can be useful to improve the appearance of collisions in complex situations when repositioning objects is impractical. It is necessary to explicitly set the `layer` property to control which objects are masked by the white background.

In this example the collision of the tie with the time signature is improved by masking out the part of the tie that crosses the time signature by setting the `whiteout` property of `TimeSignature`. To do this `TimeSignature` is moved to a layer above `Tie`, which is left in the default layer of 1, and `StaffSymbol` is moved to a layer above `TimeSignature` so it is not masked.

```
{
  \override Score.StaffSymbol #'layer = #4
  \override Staff.TimeSignature #'layer = #3
  b'2 b'~
  \once \override Staff.TimeSignature #'whiteout = ##t
  \time 3/4
  b' r4
}
```



## Vertical line as a baroque articulation mark

This short vertical line placed above the note is commonly used in baroque music. Its meaning can vary, but generally indicates notes that should be played with more “weight”. The following example demonstrates how to achieve such a notation.

```
upline =
#(let ((m (make-articulation "stopped")))
  (set! (ly:music-property m 'tweaks)
    (acons 'font-size 3
      (acons 'stencil (lambda (grob)
        (grob-interpret-markup
          grob
```

```

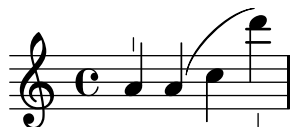
                                (make-draw-line-markup '(0 . 1)))
                                (ly:music-property m 'tweaks))))
m)

```

```

\relative c' {
  a'4^\upline a( c d')_\upline
}

```



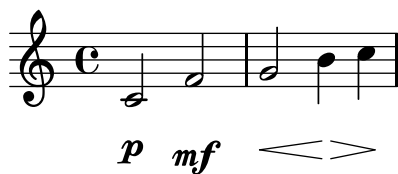
## Vertically aligning dynamics across multiple notes

Dynamics that occur at, begin on, or end on the same note will be vertically aligned. To ensure that dynamics are aligned when they do not occur on the same note, increase the **staff-padding** property of the **DynamicLineSpanner** object.

```

\relative c' {
  \override DynamicLineSpanner #'staff-padding = #4
  c2\p f\mf
  g2\< b4\> c\!
}

```



# Repeats

Section “Repeats” in *Notation Reference*

## Adding volta brackets to additional staves

The `Volta_engraver` by default resides in the `Score` context, and brackets for the repeat are thus normally only printed over the topmost staff. This can be adjusted by adding the `Volta_engraver` to the `Staff` context where the brackets should appear; see also the “Volta multi staff” snippet.

```
<<
  \new Staff { \repeat volta 2 { c'1 } \alternative { c' } }
  \new Staff { \repeat volta 2 { c'1 } \alternative { c' } }
  \new Staff \with { \consists "Volta_engraver" } { c'2 g' e' a' }
  \new Staff { \repeat volta 2 { c'1 } \alternative { c' } }
>>
```



## Cross-staff tremolos

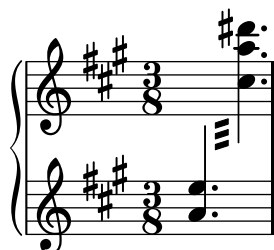
Since `\repeat tremolo` expects exactly two musical arguments for chord tremolos, the note or chord which changes staff within a cross-staff tremolo should be placed inside curly braces together with its `\change Staff` command.

```
\new PianoStaff <<
  \new Staff = "up" \relative c'' {
    \key a \major
    \time 3/8
    s4.
  }
  \new Staff = "down" \relative c'' {
    \key a \major
    \time 3/8
    \voiceOne
    \repeat tremolo 6 {
      <a e'>32
      {
        \change Staff = "up"
        \voiceTwo
      }
    }
  }
>>
```

```

        <cis a' dis>32
      }
    }
  }
>>

```



## Engraving tremolos with floating beams

If a tremolo's total duration is less than a quarter-note, or exactly a half-note, or between a half-note and a whole-note, it is normally typeset with all beams touching the stems. Certain engraving styles typeset some of these beams as centered floating beams that do not touch the stems. The number of floating beams in this type of tremolo is controlled with the `'gap-count` property of the `Beam` object, and the size of the gaps between beams and stems is set with the `'gap` property.

```

\relative c'' {
  \repeat tremolo 8 { a32 f }
  \override Beam #'gap-count = #1
  \repeat tremolo 8 { a32 f }
  \override Beam #'gap-count = #2
  \repeat tremolo 8 { a32 f }
  \override Beam #'gap-count = #3
  \repeat tremolo 8 { a32 f }

  \override Beam #'gap-count = #3
  \override Beam #'gap = #1.33
  \repeat tremolo 8 { a32 f }
  \override Beam #'gap = #1
  \repeat tremolo 8 { a32 f }
  \override Beam #'gap = #0.67
  \repeat tremolo 8 { a32 f }
  \override Beam #'gap = #0.33
  \repeat tremolo 8 { a32 f }
}

```



## Isolated percent repeats

Isolated percents can also be printed.

```

makePercent =
#(define-music-function (parser location note) (ly:music?)
  "Make a percent repeat the same length as NOTE."

```

```
(make-music 'PercentEvent
            'length (ly:music-length note)))

\relative c'' {
  \makePercent s1
}
```



## Measure counter

This snippet provides a workaround for emitting measure counters using transparent percent repeats.

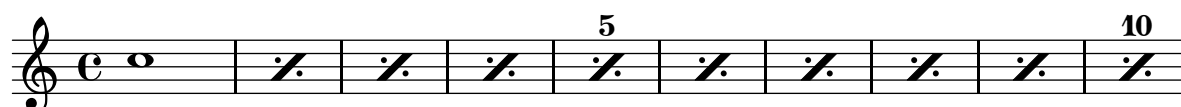
```
<<
  \context Voice = "foo" {
    \clef bass
    c4 r g r
    c4 r g r
    c4 r g r
    c4 r g r
  }
  \context Voice = "foo" {
    \set countPercentRepeats = ##t
    \override PercentRepeat #'transparent = ##t
    \override PercentRepeatCounter #'staff-padding = #1
    \repeat percent 4 { s1 }
  }
>>
```



## Percent repeat count visibility

Percent repeat counters can be shown at regular intervals by setting the context property `repeatCountVisibility`.

```
\relative c'' {
  \set countPercentRepeats = ##t
  \set repeatCountVisibility = #(every-nth-repeat-count-visible 5)
  \repeat percent 10 { c1 } \break
  \set repeatCountVisibility = #(every-nth-repeat-count-visible 2)
  \repeat percent 6 { c1 d1 }
}
```



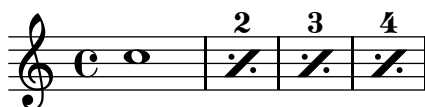




## Percent repeat counter

Measure repeats of more than two repeats can get a counter when the convenient property is switched, as shown in this example:

```
\relative c'' {
  \set countPercentRepeats = ##t
  \repeat percent 4 { c1 }
}
```



## Positioning segno and coda (with line break)

If you want to place an exiting segno sign and add text like “D.S. al Coda” next to it where usually the staff lines are you can use this snippet. The coda will resume in a new line. There is a variation documented in this snippet, where the coda will remain on the same line.

```
{
  \clef treble
  \key g \major
  \time 4/4
  \relative c'' {
    \repeat unfold 4 {
      c4 c c c
    }

    % Set segno sign as rehearsal mark and adjust size if needed
    % \once \override Score.RehearsalMark #'font-size = #3
    \mark \markup { \musicglyph #"scripts.segno" }
    \repeat unfold 2 {
      c4 c c c
    }

    % Set coda sign as rehearsal mark and adjust size if needed
    \once \override Score.RehearsalMark #'font-size = #4
    \mark \markup { \musicglyph #"scripts.coda" }
    \repeat unfold 2 {
      c4 c c c
    }

    % Should Coda be on anew line?
    % Coda NOT on new line: use \nobreak
    % Coda on new line: DON'T use \nobreak
    % \noBreak

    \bar "||"

    % Set segno sign as rehearsal mark and adjust size if needed
    \once \override Score.RehearsalMark #'break-visibility = #begin-of-line-invisible
```

```

% \once \override Score.RehearsalMark #'font-size = #3
\mark \markup { \musicglyph #"scripts.segno" }

% Here begins the trickery!
% \cadenzaOn will suppress the bar count and \stopStaff removes the staff lines.
\cadenzaOn
  \stopStaff
    % Some examples of possible text-displays

    % text line-aligned
    % =====
    % Move text to the desired position
    % \once \override TextScript #'extra-offset = #'( 2 . -3.5 )
    % | s1*0^\markup { D.S. al Coda } }

    % text center-aligned
    % =====
    % Move text to the desired position
    % \once \override TextScript #'extra-offset = #'( 6 . -5.0 )
    % | s1*0^\markup { \center-column { D.S. "al Coda" } }

    % text and symbols center-aligned
    % =====
    % Move text to the desired position and tweak spacing for optimum text alignment
    \repeat unfold 1 {
      s1
      \bar ""
    }
    \once \override TextScript #'extra-offset = #'( 0 . -3.0 )
    \once \override TextScript #'word-space = #1.5
    <>^\markup { \center-column { "D.S. al Coda" \line { \musicglyph #"scripts.coda" \m

% Increasing the unfold counter will expand the staff-free space
\repeat unfold 3 {
  s1
  \bar ""
}
% Resume bar count and show staff lines again
\startStaff
\cadenzaOff

% Should Coda be on new line?
% Coda NOT on new line: DON'T use \break
% Coda on new line: use \break
\break

% Show up, you clef and key!
\once \override Staff.KeySignature #'break-visibility = #end-of-line-invisible
\once \override Staff.Clef #'break-visibility = #end-of-line-invisible

% Set coda sign as rehearsal mark and adjust size and position

```

```

% Put the coda sign ontop of the (treble-)clef dependend on coda's line-position
% Coda NOT on new line, use this:
% \once \override Score.RehearsalMark #'extra-offset = #'( -2 . 1.75 )

% Coda on new line, use this:
\once \override Score.RehearsalMark #'extra-offset = #'( -4.5 . 0 )

\once \override Score.RehearsalMark #'font-size = #5
\mark \markup { \musicglyph #"scripts.coda" }

% The coda
\repeat unfold 5 {
  c4 c c c
}
\bar"|"
}

```

## Printing a repeat sign at the beginning of a piece

A |: bar line can be printed at the beginning of a piece, by overriding the relevant property:

```

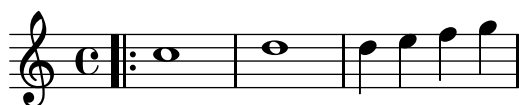
\relative c' {
  \once \override Score.BreakAlignment #'break-align-orders =
    #(make-vector 3 '(instrument-name
      left-edge
      ambitus
      breathing-sign
      clef
      key-signature
      time-signature
      staff-bar
      custos))
  \once \override Staff.TimeSignature #'space-alist =
    #'((first-note . (fixed-space . 2.0))

```

```

        (right-edge . (extra-space . 0.5))
        ;; free up some space between time signature
        ;; and repeat bar line
        (staff-bar . (extra-space . 1)))
\bar "|:"
c1
d1
d4 e f g
}

```



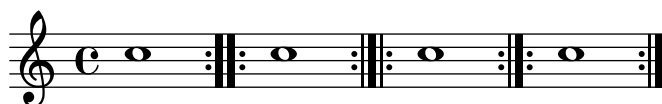
## Setting the double repeat default for volte

There are three different styles of double repeats for volte, that can be set using `doubleRepeatType`.

```

\relative c'' {
  \repeat volta 1 { c1 }
  \set Score.doubleRepeatType = #":|:"
  \repeat volta 1 { c1 }
  \set Score.doubleRepeatType = #":|.|:"
  \repeat volta 1 { c1 }
  \set Score.doubleRepeatType = #":|.:"
  \repeat volta 1 { c1 }
}

```



## Shortening volta brackets

By default, the volta brackets will be drawn over all of the alternative music, but it is possible to shorten them by setting `voltaSpannerDuration`. In the next example, the bracket only lasts one measure, which is a duration of  $3/4$ .

```

\relative c'' {
  \time 3/4
  c4 c c
  \set Score.voltaSpannerDuration = #(ly:make-moment 3 4)
  \repeat volta 5 { d4 d d }
  \alternative {
    {
      e4 e e
      f4 f f
    }
    { g4 g g }
  }
}

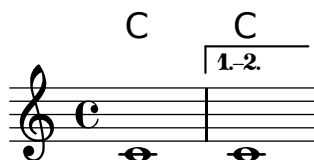
```



## Volta below chords

By adding the `Volta_engraver` to the relevant staff, volte can be put under chords.

```
\score {
  <<
    \chords {
      c1
      c1
    }
    \new Staff \with {
      \consists "Volta_engraver"
    }
    {
      \repeat volta 2 { c'1 }
      \alternative { c' }
    }
  >>
  \layout {
    \context {
      \Score
      \remove "Volta_engraver"
    }
  }
}
```



## Volta multi staff

By adding the `Volta_engraver` to the relevant staff, volte can be put over staves other than the topmost one in a score.

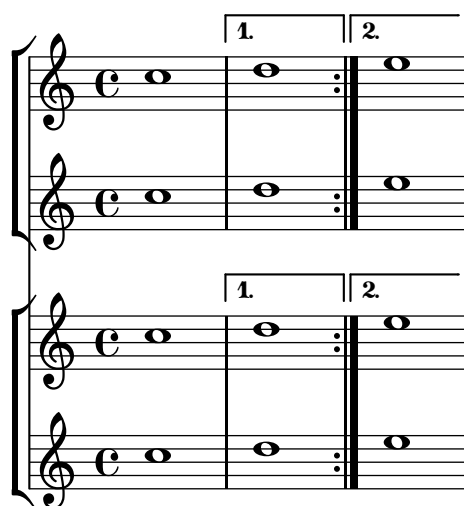
```
voltaMusic = \relative c'' {
  \repeat volta 2 {
    c1
  }
  \alternative {
    d1
    e1
  }
}
```

```
<<
  \new StaffGroup <<
    \new Staff \voltaMusic
    \new Staff \voltaMusic
  >>
>>
```

```

\new StaffGroup <<
  \new Staff \with { \consists "Volta_engraver" }
    \voltaMusic
  \new Staff \voltaMusic
>>
>>

```



## Volta text markup using repeatCommands

Though voltes are best specified using `\repeat volta`, the context property `repeatCommands` must be used in cases where the volta text needs more advanced formatting with `\markup`.

Since `repeatCommands` takes a list, the simplest method of including markup is to use an identifier for the text and embed it in the command list using the Scheme syntax `#(list (list 'volta textIdentifier))`. Start- and end-repeat commands can be added as separate list elements:

```
voltaAdLib = \markup { 1. 2. 3... \text \italic { ad lib. } }
```

```

\relative c'' {
  c1
  \set Score.repeatCommands = #(list (list 'volta voltaAdLib) 'start-repeat)
  c4 b d e
  \set Score.repeatCommands = #'((volta #f) (volta "4.") end-repeat)
  f1
  \set Score.repeatCommands = #'((volta #f))
}

```



## Simultaneous notes

Section “Simultaneous notes” in *Notation Reference*

### Additional voices to avoid collisions

In some instances of complex polyphonic music, additional voices are necessary to prevent collisions between notes. If more than four parallel voices are needed, additional voices can be added by defining a variable using the Scheme function `context-spec-music`.

```
voiceFive = #(context-spec-music (make-voice-props-set 4) 'Voice)
```

```
\relative c'' {
  \time 3/4
  \key d \minor
  \partial 2
  <<
    {
      \voiceOne
      a4. a8
      e'4 e4. e8
      f4 d4. c8
    }
    \\\
    {
      \voiceThree
      f,2
      bes4 a2
      a4 s2
    }
    \\\
    {
      \voiceFive
      s2
      g4 g2
      f4 f2
    }
    \\\
    \bar "||"{
      \voiceTwo
      d2
      d4 cis2
      d4 bes2
    }
  >>
}
```

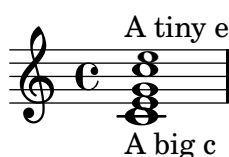


## Changing a single note's size in a chord

Individual note heads in a chord can be modified with the `\tweak` command inside a chord, by altering the `font-size` property.

Inside the chord (within the brackets `< >`), before the note to be altered, place the `\tweak` command, followed by `#'font-size` and define the proper size like `#-2` (a tiny note head).

```
\relative c' {
  <\tweak #'font-size #+2 c e g c \tweak #'font-size #-2 e>1^\markup { A tiny e }_\markup {
}
```



## Changing partcombine texts

When using the automatic part combining feature, the printed text for the solo and unison sections may be changed:

```
\new Staff <<
  \set Staff.soloText = #"girl"
  \set Staff.soloIIText = #"boy"
  \set Staff.aDueText = #"together"
  \partcombine
    \relative c'' {
      g4 g r r
      a2 g
    }
    \relative c'' {
      r4 r a( b)
      a2 g
    }
  >>
```



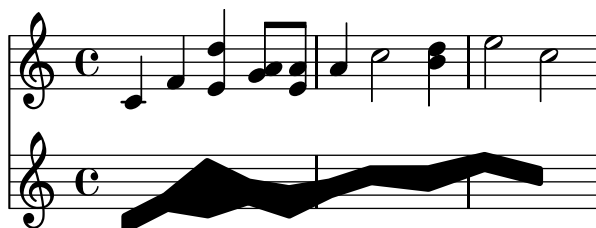
## Clusters

Clusters are a device to denote that a complete range of notes is to be played.

```
fragment = \relative c' {
  c4 f <e d'>4
  <g a>8 <e a> a4 c2 <d b>4
  e2 c
}

<<
  \new Staff \fragment
  \new Staff \makeClusters \fragment
>>
```





## Combining two parts on the same staff

The part combiner tool ( `\partcombine` command ) allows the combination of several different parts on the same staff. Text directions such as “solo” or “a2” are added by default; to remove them, simply set the property `printPartCombineTexts` to `f`. For vocal scores (hymns), there is no need to add “solo/a2” texts, so they should be switched off. However, it might be better not to use it if there are any solos, as they won’t be indicated. In such cases, standard polyphonic notation may be preferable.

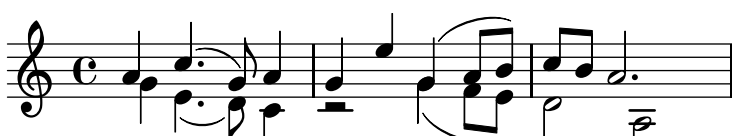
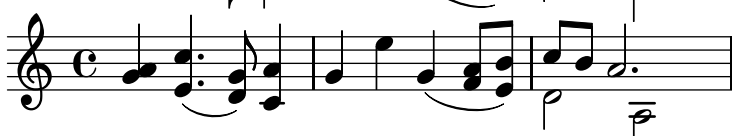

This snippet presents the three ways two parts can be printed on a same staff: standard polyphony, `\partcombine` without texts, and `\partcombine` with texts.

```
musicUp = \relative c'' {
  \time 4/4
  a4 c4.( g8) a4 |
  g4 e' g,( a8 b) |
  c b a2.
}

musicDown = \relative c'' {
  g4 e4.( d8) c4 |
  r2 g'4( f8 e) |
  d2 \stemDown a
}

\score {
  <<
    <<
      \new Staff {
        \set Staff.instrumentName = #"Standard polyphony"
        << \musicUp \\\musicDown >>
      }
      \new Staff \with { printPartCombineTexts = ##f } {
        \set Staff.instrumentName = #"PartCombine without texts"
        \partcombine \musicUp \musicDown
      }
      \new Staff {
        \set Staff.instrumentName = #"PartCombine with texts"
        \partcombine \musicUp \musicDown
      }
    >>
  >>
  \layout {
    indent = 6.0\cm
    \context {
      \Score
      \override SystemStartBar #'collapse-height = #30
    }
  }
}
```

}

Standard polyphony	
PartCombine without texts	
PartCombine with texts	

## Displaying complex chords

Here is a way to display a chord where the same note is played twice with different accidentals.

```
fixA = {
  \once \override Stem #'length = #9
}
fixB = {
  \once \override NoteHead #'X-offset = #1.7
  \once \override Stem #'rotation = #'(45 0 0)
  \once \override Stem #'extra-offset = #'(-0.2 . -0.2)
  \once \override Flag #'style = #'no-flag
  \once \override Accidental #'extra-offset = #'(4 . 0)
}

\relative c' {
  << { \fixA <b d!>8 } \ { \voiceThree \fixB dis } >> s
}
```



## Double glissando

To connect chords with glissando lines, attach a second glissando to a hidden voice.

```
\relative c {
  \clef bass
  <<
  {
    % new voice ( = \voiceOne), hidden
    \hideNotes
    % attach glissando to note heads
    e2\glissando g
  }
  \\\
  {
```

```

% original voice with chords rearranged so that
% glissando is attached to a & c
<e a,>2\glissando <g c,>
}
>>
}

```



## Forcing horizontal shift of notes

When the typesetting engine cannot cope, the following syntax can be used to override typesetting decisions. The units of measure used here are staff spaces.

```

\relative c' <<
{
  <d g>2 <d g>
}
\\
{
  <b f'>2
  \once \override NoteColumn #'force-hshift = #1.7
  <b f'>2
}
>>

```



## Making an object invisible with the 'transparent property

Setting the `transparent` property will cause an object to be printed in “invisible ink”: the object is not printed, but all its other behavior is retained. The object still takes up space, it takes part in collisions, and slurs, ties and beams can be attached to it.

This snippet demonstrates how to connect different voices using ties. Normally, ties only connect two notes in the same voice. By introducing a tie in a different voice, and blanking the first up-stem in that voice, the tie appears to cross voices.

```

\relative c'' {
  \time 2/4
  <<
  {
    \once \override Stem #'transparent = ##t
    \once \override Stem #'length = #8
    b8 ~ b\noBeam
    \once \override Stem #'transparent = ##t
    \once \override Stem #'length = #8
    g8 ~ g\noBeam
  }
}

```

```

\\
{
  b8 g g e
}
>>
}

```



## Moving dotted notes in polyphony

When a dotted note in the upper voice is moved to avoid a collision with a note in another voice, the default is to move the upper note to the right. This behaviour can be over-ridden by using the `prefer-dotted-right` property of `NoteCollision`.

```

\new Staff \relative c' <<
{ f2. f4
  \override Staff.NoteCollision #'prefer-dotted-right = ##f
  f2. f4
  \override Staff.NoteCollision #'prefer-dotted-right = ##t
  f2. f4
}
\\
{ e4 e e e e e e e e e e }
>>

```



## Suppressing warnings for clashing note columns

If notes from two voices with stems in the same direction are placed at the same position, and both voices have no shift or the same shift specified, the error message `'warning: ignoring too many clashing note columns'` will appear when compiling the LilyPond file. This message can be suppressed by setting the `'ignore-collision` property of the `NoteColumn` object to `#t`. Please note that this does not just suppress warnings but stops LilyPond trying to resolve collisions at all and so may have unintended results unless used with care.

```

ignore = \override NoteColumn #'ignore-collision = ##t

\relative c' {
  <<
    \ignore
    { \stemDown f2 g }
    \\
    { c2 c, }
  >>
}

```



## Staff notation

Section “Staff notation” in *Notation Reference*

### Adding ambitus per voice

Ambitus can be added per voice. In this case, the ambitus must be moved manually to prevent collisions.

```
\new Staff <<
  \new Voice \with {
    \consists "Ambitus_engraver"
  } \relative c'' {
    \override Ambitus #'X-offset = #2.0
    \voiceOne
    c4 a d e
    f1
  }
  \new Voice \with {
    \consists "Ambitus_engraver"
  } \relative c' {
    \voiceTwo
    es4 f g as
    b1
  }
}>>
```



### Adding an extra staff at a line break

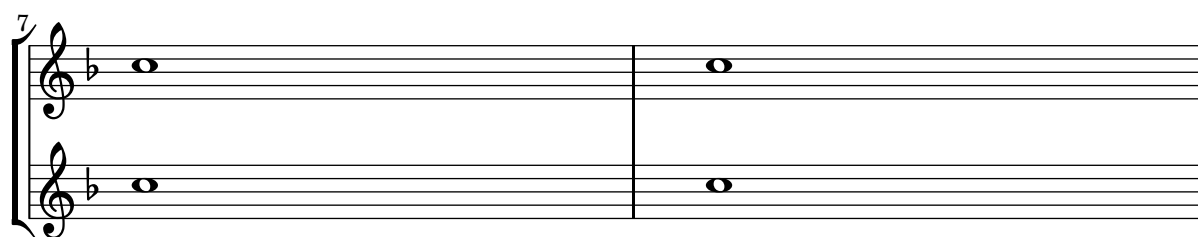
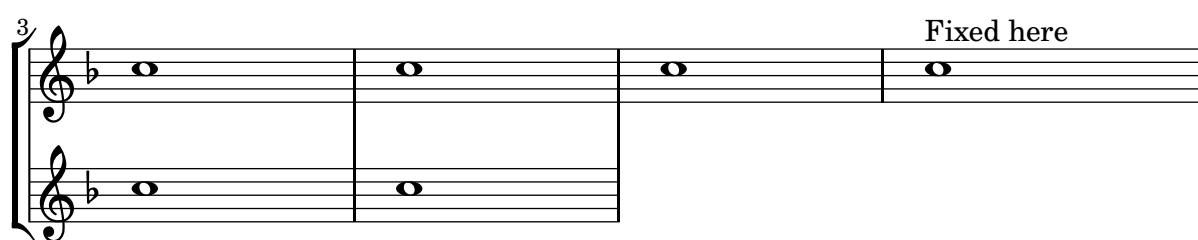
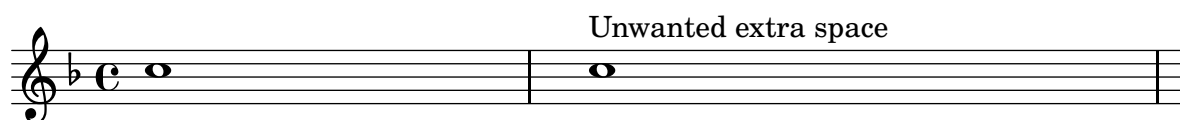
When adding a new staff at a line break, some extra space is unfortunately added at the end of the line before the break (to fit in a key signature change, which will never be printed anyway). The workaround is to add a setting of `Staff.explicitKeySignatureVisibility` as is shown in the example.

```
\score {
  \new StaffGroup \relative c'' {
    \new Staff
    \key f \major
    c1 c^"Unwanted extra space" \break
    << { c1 | c }
    \new Staff {
      \key f \major
      \once \override Staff.TimeSignature #'stencil = ##f
      c1 | c
    }
  }
  >>
  c1 | c^"Fixed here" \break
  << { c1 | c }
  \new Staff {
    \once \set Staff.explicitKeySignatureVisibility = #end-of-line-invisible
```

```

\key f \major
\once \override Staff.TimeSignature #'stencil = ##f
c1 | c
}
>>
}
}

```



## Adding an extra staff

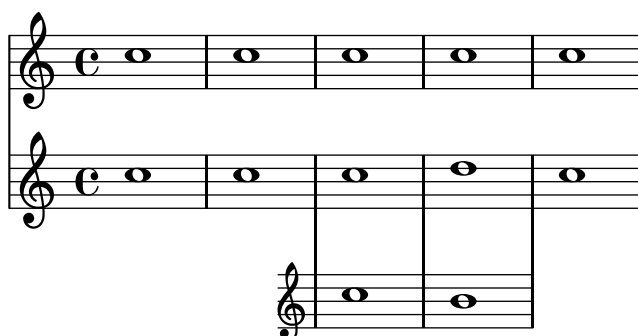
An extra staff can be added (possibly temporarily) after the start of a piece.

```

\score {
  <<
    \new Staff \relative c'' {
      c1 | c | c | c | c
    }
    \new StaffGroup \relative c'' {
      \new Staff {
        c1 | c
        <<
          {
            c1 | d
          }
          \new Staff {
            \once \override Staff.TimeSignature #'stencil = ##f
            c1 | b
          }
        >>
      }
    }
  >>
  c1
}
}
>>

```

}



## Adding indicators to staves which get split after a break

This snippet defines the `\splitStaffBarLine` command, which adds arrows in north-east and south-east directions at a bar line, to denote that several voices sharing a staff will each continue on a staff of their own in the next system.

```
#(define-markup-command (arrow-at-angle layout props angle-deg length fill)
  (number? number? boolean?)
  (let* (
    ;; PI-OVER-180 and degrees->radians are taken from flag-styles.scm
    (PI-OVER-180 (/ (atan 1 1) 45))
    (degrees->radians (lambda (degrees) (* degrees PI-OVER-180)))
    (angle-rad (degrees->radians angle-deg))
    (target-x (* length (cos angle-rad)))
    (target-y (* length (sin angle-rad))))
    (interpret-markup layout props
      (markup
        #:translate (cons (/ target-x 2) (/ target-y 2))
        #:rotate angle-deg
        #:translate (cons (/ length -2) 0)
        #:concat (cons #:draw-line (cons length 0)
          #:arrow-head X RIGHT fill))))))

splitStaffBarLineMarkup = \markup \with-dimensions #'(0 . 0) #'(0 . 0) {
  \combine
  \arrow-at-angle #45 #(sqrt 8) ##f
  \arrow-at-angle #-45 #(sqrt 8) ##f
}

splitStaffBarLine = {
  \once \override Staff.BarLine #'stencil =
    #(lambda (grob)
      (ly:stencil-combine-at-edge
        (ly:bar-line::print grob)
        X RIGHT
        (grob-interpret-markup grob splitStaffBarLineMarkup)
        0))
  \break
}
```



```

\paper {
  ragged-right = ##t
  short-indent = 5\mm
}

\score {
  <<
  \new ChoirStaff <<
    \new Staff \with { instrumentName = #"High I + II" } {
      <<
        \repeat unfold 4 f''1
        \\
        \repeat unfold 4 d''1
      >>
      \splitStaffBarLine
    }
    \new Staff \with { instrumentName = #"Low" } {
      <<
        \repeat unfold 4 b'1
        \\
        \repeat unfold 4 g'1
      >>
    }

    \new Staff \with { shortInstrumentName = #"H I" } {
      R1*4
      \repeat unfold 2 { r4 f''2 r4 } \repeat unfold 2 e''1
    }
    \new Staff \with { shortInstrumentName = #"H II" } {
      R1*4
      \repeat unfold 4 b'2 \repeat unfold 2 c''1
    }
    \new Staff \with { shortInstrumentName = #"L" } {
      R1*4
      <<
        \repeat unfold 4 g'1
        \\
        \repeat unfold 4 c'1
      >>
    }
  >>
  >>
  \layout {
    \context {
      \Staff \RemoveEmptyStaves
      \override VerticalAxisGroup #'remove-first = ##t
    }
  }
}

```



## Adding orchestral cues to a vocal score

This shows one approach to simplify adding many orchestral cues to the piano reduction in a vocal score. The music function `\cueWhile` takes four arguments: the music from which the cue is to be taken, as defined by `\addQuote`, the name to be inserted before the cue notes, then either `#UP` or `#DOWN` to specify either `\voiceOne` with the name above the staff or `\voiceTwo` with the name below the staff, and finally the piano music in parallel with which the cue notes are to appear. The name of the cued instrument is positioned to the left of the cued notes. Many passages can be cued, but they cannot overlap each other in time.

```
cueWhile =
#(define-music-function
  (parser location instrument name dir music)
  (string? string? ly:dir? ly:music?)
  #{
    \cueDuring $instrument #dir {
      \once \override TextScript #'self-alignment-X = #RIGHT
      \once \override TextScript #'direction = $dir
      <>-\markup { \tiny #name }
      $music
    }
  })

flute = \relative c'' {
  \transposition c'
  s4 s4 e g
}
\addQuote "flute" { \flute }

clarinet = \relative c' {
  \transposition bes
  fis4 d d c
}
\addQuote "clarinet" { \clarinet }

singer = \relative c'' { c4. g8 g4 bes4 }
words = \lyricmode { here's the lyr -- ics }
```

```

pianoRH = \relative c'' {
  \transposition c'
  \cueWhile "clarinet" "Clar." #DOWN { c4. g8 }
  \cueWhile "flute" "Flute" #UP { g4 bes4 }
}
pianoLH = \relative c { c4 <c' e> e, <g c> }

\score {
  <<
    \new Staff {
      \new Voice = "singer" {
        \singer
      }
    }
    \new Lyrics {
      \lyricsto "singer"
      \words
    }
    \new PianoStaff <<
      \new Staff {
        \new Voice {
          \pianoRH
        }
      }
      \new Staff {
        \clef "bass"
        \pianoLH
      }
    >>
  >>
}

```



## Alternative bar numbering

Two alternative methods for bar numbering can be set, especially for when using repeated music.

```

\relative c'{
  \set Score.alternativeNumberingStyle = #'numbers
  \repeat volta 3 { c4 d e f | }
  \alternative {

```

```

      { c4 d e f | c2 d \break }
      { f4 g a b | f4 g a b | f2 a | \break }
      { c4 d e f | c2 d }
    }
c1 \break
\set Score.alternativeNumberingStyle = #'numbers-with-letters
\repeat volta 3 { c,4 d e f | }
  \alternative {
    { c4 d e f | c2 d \break }
    { f4 g a b | f4 g a b | f2 a | \break }
    { c4 d e f | c2 d }
  }
c1
}

```

The musical score consists of six staves, each representing a different measure or section of music. The first staff is labeled '1' and contains a sequence of eighth notes. The second staff is labeled '2' and contains a sequence of eighth notes. The third staff is labeled '3' and contains a sequence of eighth notes. The fourth staff is labeled '5' and contains a sequence of eighth notes. The fifth staff is labeled '6b' and contains a sequence of eighth notes. The sixth staff is labeled '6c' and contains a sequence of eighth notes.

## Changing the number of lines in a staff

The number of lines in a staff may be changed by overriding the `StaffSymbol` property `line-count`.

```
upper = \relative c'' {
  c4 d e f
}

lower = \relative c {
  \clef bass
  c4 b a g
}

\score {
  \context PianoStaff <<
    \new Staff {
      \upper
    }
    \new Staff {
      \override Staff.StaffSymbol #'line-count = #4
      \lower
    }
  >>
}
```



## Changing the staff size

Though the simplest way to resize staves is to use  `#(set-global-staff-size xx)`, an individual staff's size can be changed by scaling the properties `'staff-space` and `fontSize`.

```
<<
  \new Staff {
    \relative c'' {
      \dynamicDown
      c8\ff c c c c c c c
    }
  }
  \new Staff \with {
    fontSize = #-3
    \override StaffSymbol #'staff-space = #(magstep -3)
  } {
    \clef bass
    c8 c c c c\f c c c
  }
>>
```



## Creating blank staves

To create blank staves, generate empty measures then remove the `Bar_number_engraver` from the `Score` context, and the `Time_signature_engraver`, `Clef_engraver` and `Bar_engraver` from the `Staff` context.

```

\set-global-staff-size 20)

```

```

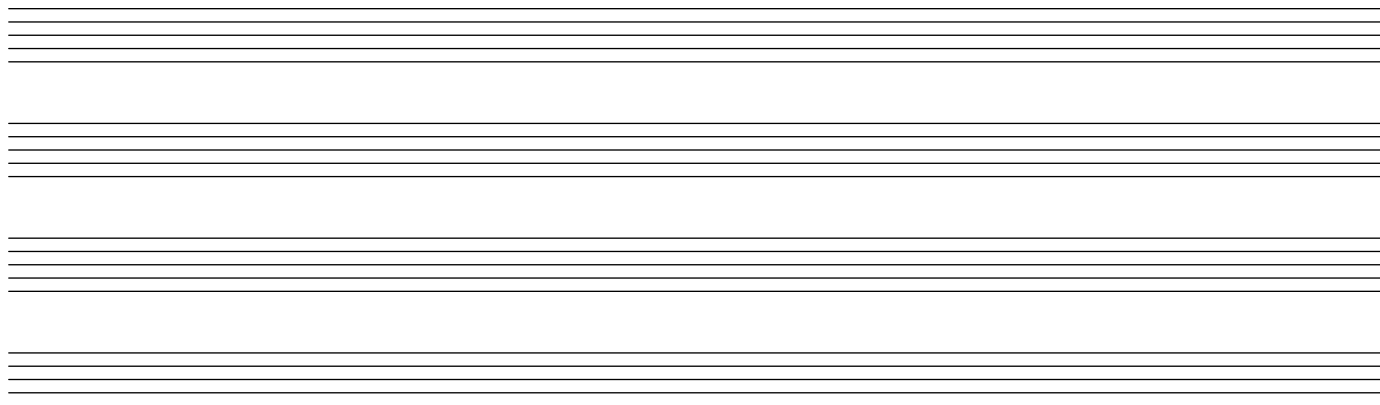
\score {
  {
    \repeat unfold 12 { s1 \break }
  }
  \layout {
    indent = 0\in
    \context {
      \Staff
      \remove "Time_signature_engraver"
      \remove "Clef_engraver"
      \remove "Bar_engraver"
    }
    \context {
      \Score
      \remove "Bar_number_engraver"
    }
  }
}

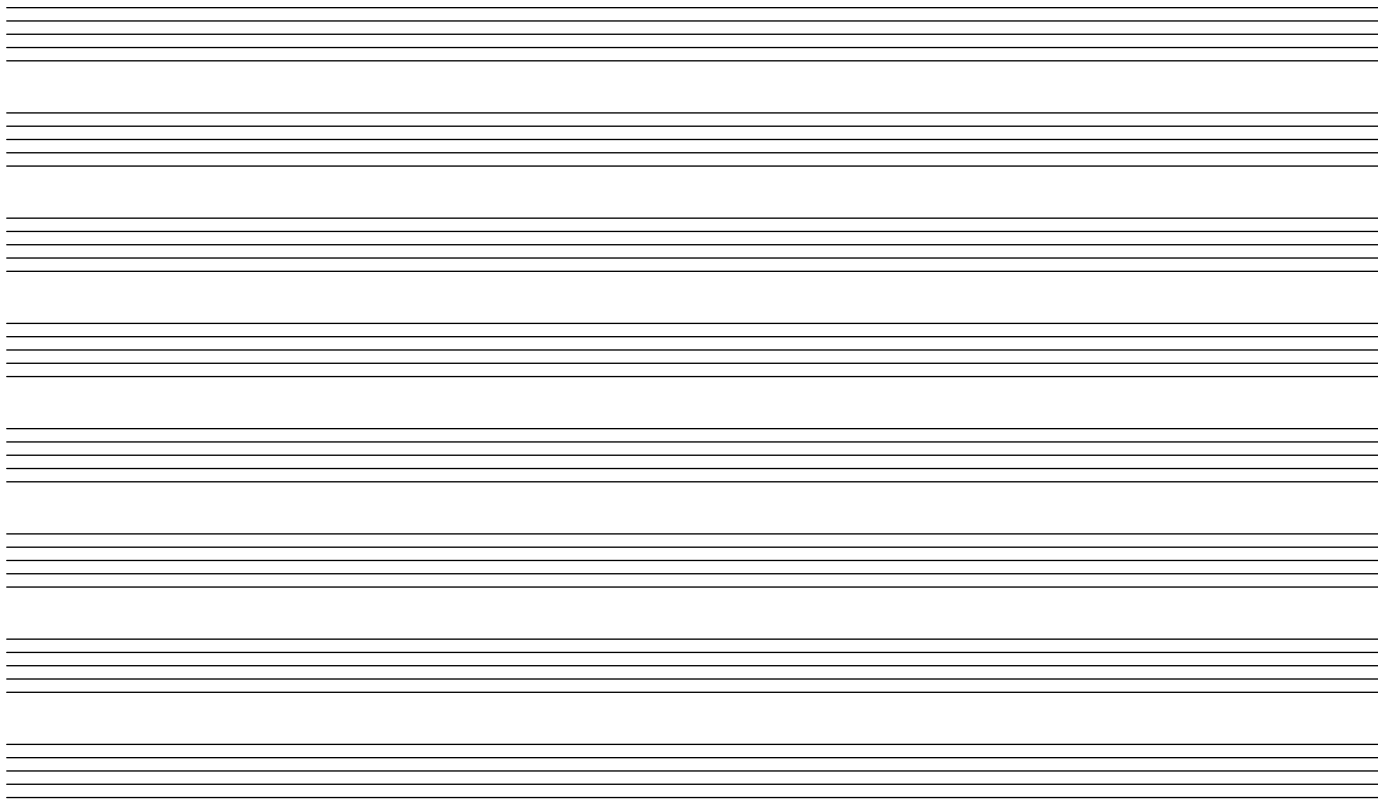
```

```

\paper {
  \set-paper-size "letter")
  ragged-last-bottom = ##f
  line-width = 7.5\in
  left-margin = 0.5\in
  bottom-margin = 0.25\in
  top-margin = 0.25\in
}

```





## Creating double-digit fingerings

By default you cannot make double-digit fingering notation (i.e. numbers larger than 9). This is a hard coded limitation.

This snippet shows two methods of creating fingerings larger than 9.

```
ten =
#(make-music 'FingeringEvent
             'digit 10)

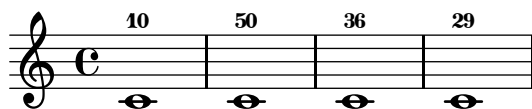
fifty =
#(make-music 'FingeringEvent
             'digit 50)

finger =
#(define-music-function (parser location digit) (integer?)
  (make-music 'FingeringEvent
              'digit digit))

#(define (calc-finger-without-warning grob)
  (let* ((event (event-cause grob))
        (digit (ly:event-property event 'digit)))
    (number->string digit 10)))

\relative c' {
  % optional override to remove warnings for fingerings larger than 5
  \override Fingering #'text = #calc-finger-without-warning
  c1\ten
  c1\fifty
  c1-\finger #36
```

```
c1-\finger #29
}
```

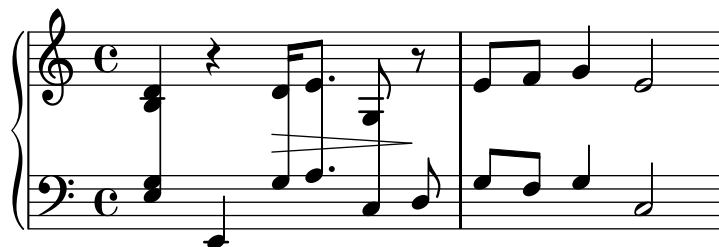


## Cross staff stems

This snippet shows the use of the `Span_stem_engraver` and `\crossStaff` to connect stems across staves automatically. The stem length need not be specified, as the variable distance between noteheads and staves is calculated automatically.

```
\layout {
  \context {
    \PianoStaff
    \consists #Span_stem_engraver
  }
}

{
  \new PianoStaff <<
    \new Staff {
      <b d'>4 r d'16\> e'8. g8 r\!
      e'8 f' g'4 e'2
    }
    \new Staff {
      \clef bass
      \voiceOne
      \autoBeamOff
      \crossStaff { <e g>4 e, g16 a8. c8} d
      \autoBeamOn
      g8 f g4 c2
    }
  >>
}
```



## Display bracket with only one staff in a system

If there is only one staff in one of the staff types `ChoirStaff` or `StaffGroup`, the bracket and the starting bar line will not be displayed as standard behavior. This can be changed by overriding the relevant properties.

Note that in contexts such as `PianoStaff` and `GrandStaff` where the systems begin with a brace instead of a bracket, another property has to be set, as shown on the second system in the example.



```

\markup \left-column {
  \score {
    \new StaffGroup <<
      % Must be lower than the actual number of staff lines
      \override StaffGroup.SystemStartBracket #'collapse-height = #1
      \override Score.SystemStartBar #'collapse-height = #1
      \new Staff {
        c'1
      }
    >>
    \layout { }
  }
  \null
  \score {
    \new PianoStaff <<
      \override PianoStaff.SystemStartBrace #'collapse-height = #1
      \override Score.SystemStartBar #'collapse-height = #1
      \new Staff {
        c'1
      }
    >>
    \layout { }
  }
}

```



## Forcing measure width to adapt to MetronomeMark's width

By default, metronome marks do not influence horizontal spacing. This has one downside: when using compressed rests, some metronome marks may be too close and therefore are printed vertically stacked, as demonstrated in the first part of this example. This can be solved through a simple override, as shown in the second half of the example.

```

example = {
  \tempo "Allegro"
  R1*6
  \tempo "Rall."
  R1*2
  \tempo "A tempo"
  R1*8
}

{
  \compressFullBarRests

  \example

```

R1

R1

```
\override Score.MetronomeMark #'extra-spacing-width = #'(0 . 0)
\example
}
```



## Glissandi can skip grobs

NoteColumn grobs can be skipped over by glissandi.

```
\relative c' {
  a2 \glissando
  \once \override NoteColumn #'glissando-skip = ##t
  f''4 d,
}
```



## How to print two rehearsal marks above and below the same barline (method 1)

This method prints two 'rehearsal marks', one on top of the other. It shifts the lower rehearsal mark below the staff and then adds padding above it in order to place the upper rehearsal mark above the staff.

By adjusting the extra-offset and baseline-skip values you can increase or decrease the overall space between the rehearsal mark and the staff.

Because nearly every type of glyph or string can be made to behave like a rehearsal mark it is possible to centre those above and below a bar line.

Adding the appropriate 'break visibility' as shown in snippet 1 will allow you to position two marks at the end of a line as well.

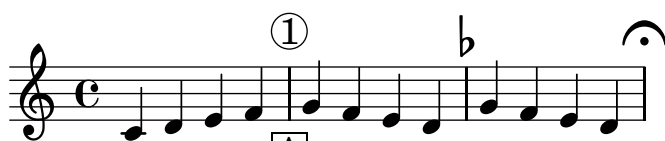
Note: Method 1 is less complex than Method 2 but does not really allow for fine tuning of placement of one of the rehearsal marks without affecting the other. It may also give some problems with vertical spacing, since using **extra-offset** does not change the bounding box of the mark from its original value.

```
\relative c'{
  c d e f |
  \once \override Score.RehearsalMark #'extra-offset = #'(0 . -8.5)
  \once \override Score.RehearsalMark #'baseline-skip = #9
  \mark \markup \center-column { \circle 1 \box A }
  g f e d |
  \once \override Score.RehearsalMark #'extra-offset = #'(0 . -8.5)
  \once \override Score.RehearsalMark #'baseline-skip = #9
  \mark \markup \center-column { \flat { \bold \small \italic Fine. } }
```

```

g f e d |
\once \override Score.RehearsalMark #'extra-offset = #'(0 . -8.5)
\once \override Score.RehearsalMark #'baseline-skip = #9
\override Score.RehearsalMark #'break-visibility = #begin-of-line-invisible
\mark \markup \center-column { \musicglyph #"scripts.ufermata" \box z }
}

```



## How to print two rehearsal marks above and below the same barline (method 2)

This method prints two 'rehearsal marks' - one above the staff and one below, by creating two voices, adding the Rehearsal Mark engraver to each voice - without this no rehearsal mark is printed - and then placing each rehearsal mark UP and DOWN in each voice respectively.

This method (as opposed to method 1) is more complex, but allows for more flexibility, should it be needed to tweak each rehearsal mark independently of the other.

```

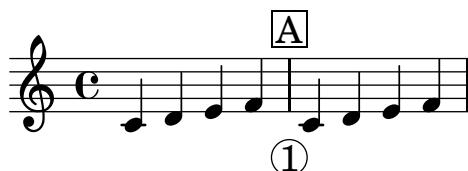
\score {
  \relative c'
  <<
    \new Staff {
      <<
        \new Voice \with {
          \consists "Mark_engraver"
          \consists "Staff_collecting_engraver"
        }
        { c4 d e f
          \mark \markup { \box A }
          c4 d e f
        }
        \new Voice \with {
          \consists "Mark_engraver"
          \consists "Staff_collecting_engraver"
          \override RehearsalMark #'direction = #DOWN
        }
        { s4 s s s
          \mark \markup { \circle 1 }
          s4 s s s
        }
      >>
    }
  >>
  \layout {
    \context {
      \Score
      \remove "Mark_engraver"
    }
  }
}

```

```

    \remove "Staff_collecting_engraver"
  }
}

```



## Incipit

Incipits can be added using the instrument name grob, but keeping separate the instrument name definition and the incipit definition.

```

incipit =
#(define-music-function (parser location incipit-music) (ly:music?)
  #{
    \once \override Staff.InstrumentName #'self-alignment-X = #RIGHT
    \once \override Staff.InstrumentName #'self-alignment-Y = #UP
    \once \override Staff.InstrumentName #'Y-offset =
      #(lambda (grob)
        (+ 4 (system-start-text::calc-y-offset grob)))
    \once \override Staff.InstrumentName #'padding = #0.3
    \once \override Staff.InstrumentName #'stencil =
      #(lambda (grob)
        (let* ((instrument-name (ly:grob-property grob 'long-text)))
          (set! (ly:grob-property grob 'long-text)
            #{ \markup
              \score
                {
                  { \context MensuralStaff \with {
                      instrumentName = #instrument-name
                      \override VerticalAxisGroup
                        #'Y-extent = #'(-4 . 4)
                    } $incipit-music
                }
              \layout { $(ly:grob-layout grob)
                line-width = \indent
                indent =
                % primitive-eval is probably easiest for
                % escaping lexical closure and evaluating
                % everything respective to (current-module).
                #(primitive-eval
                  '(or (false-if-exception (- indent (* mm incipit-width
                    (* 0.5 indent))))
                  ragged-right = ##f
                  ragged-last = ##f
                  system-count = #1 }
                }
              })
          (system-start-text::print grob)))
  })

```

```

#})

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

global = {
  \set Score.skipBars = ##t
  \key g \major
  \time 4/4

  % the actual music
  \skip 1*8

  % let finis bar go through all staves
  \override Staff.BarLine #'transparent = ##f

  % finis bar
  \bar "|."
}

discantusIncipit = <<
  \new MensuralVoice = "discantusIncipit" <<
    \repeat unfold 9 { s1 \noBreak }
    {
      \clef "neomensural-c1"
      \key f \major
      \time 2/2
      c''1.
    }
  >>
  \new Lyrics \lyricsto discantusIncipit { IV- }
>>

discantusNotes = {
  \transpose c' c'' {
    \clef "treble"
    d'2. d'4 |
    b e' d'2 |
    c'4 e'4.( d'8 c' b |
    a4) b a2 |
    b4.( c'8 d'4) c'4 |
    \once \override NoteHead #'transparent = ##t
    c'1 |
    b\breve |
  }
}

discantusLyrics = \lyricmode {
  Ju -- bi -- |
  la -- te De -- |
  o, om --
  nis ter -- |
  ra, -- om- |

```

```

    "... " |
    -us. |
}

altusIncipit = <<
  \new MensuralVoice = "altusIncipit" <<
    \repeat unfold 9 { s1 \noBreak }
    {
      \clef "neomensural-c3"
      \key f \major
      \time 2/2
      r1 f'1.
    }
  >>
  \new Lyrics \lyricsto altusIncipit { IV- }
>>

altusNotes = {
  \transpose c' c'' {
    \clef "treble"
    % two measures
    r2 g2. e4 fis g |
    a2 g4 e |
    fis g4.( fis16 e fis4) |
    g1 |
    \once \override NoteHead #'transparent = ##t
    g1 |
    g\breve |
  }
}

altusLyrics = \lyricmode {
  % two measures
  Ju -- bi -- la -- te |
  De -- o, om -- |
  nis ter -- ra, |
  "... " |
  -us. |
}

tenorIncipit = <<
  \new MensuralVoice = "tenorIncipit" <<
    \repeat unfold 9 { s1 \noBreak }
    {
      \clef "neomensural-c4"
      \key f \major
      \time 2/2
      r\longa
      r\breve
      r1 c'1.
    }
  >>

```

```

\new Lyrics \lyricsto tenorIncipit { IV- }
>>

tenorNotes = {
  \transpose c' c' {
    \clef "treble_8"
    R1 |
    R1 |
    R1 |
    % two measures
    r2 d'2. d'4 b e' |
    \once \override NoteHead #'transparent = ##t
    e'1 |
    d'\breve |
  }
}

tenorLyrics = \lyricmode {
  % two measures
  Ju -- bi -- la -- te |
  "... " |
  -us.
}

bassusIncipit = <<
  \new MensuralVoice = "bassusIncipit" <<
    \repeat unfold 9 { s1 \noBreak }
    {
      \clef "bass"
      \key f \major
      \time 2/2
      %% incipit
      r\maxima
      f1.
    }
  >>
  \new Lyrics \lyricsto bassusIncipit { IV- }
>>

bassusNotes = {
  \transpose c' c' {
    \clef "bass"
    R1 |
    R1 |
    R1 |
    R1 |
    g2. e4 |
    \once \override NoteHead #'transparent = ##t
    e1 |
    g\breve |
  }
}

```

```

bassusLyrics = \lyricmode {
  Ju -- bi- |
  "... " |
  -us.
}

\score {
  <<
    \new StaffGroup = choirStaff <<
      \new Voice = "discantusNotes" <<
        \global
        \set Staff.instrumentName = #"Discantus"
        \incipit \discantusIncipit
        \discantusNotes
      >>
      \new Lyrics = "discantusLyrics" \lyricsto discantusNotes { \discantusLyrics }
      \new Voice = "altusNotes" <<
        \global
        \set Staff.instrumentName = #"Altus"
        \incipit \altusIncipit
        \altusNotes
      >>
      \new Lyrics = "altusLyrics" \lyricsto altusNotes { \altusLyrics }
      \new Voice = "tenorNotes" <<
        \global
        \set Staff.instrumentName = #"Tenor"
        \incipit \tenorIncipit
        \tenorNotes
      >>
      \new Lyrics = "tenorLyrics" \lyricsto tenorNotes { \tenorLyrics }
      \new Voice = "bassusNotes" <<
        \global
        \set Staff.instrumentName = #"Bassus"
        \incipit \bassusIncipit
        \bassusNotes
      >>
      \new Lyrics = "bassusLyrics" \lyricsto bassusNotes { \bassusLyrics }
    >>
  >>
  \layout {
    \context {
      \Score
      %% no bar lines in staves or lyrics
      \override BarLine #'transparent = ##t
    }
    %% the next two instructions keep the lyrics between the bar lines
    \context {
      \Lyrics
      \consists "Bar_engraver"
      \consists "Separating_line_group_engraver"
    }
  }
}

```



```

\context {
  \Voice
  %% no slurs
  \override Slur #'transparent = ##t
  %% Comment in the below "\remove" command to allow line
  %% breaking also at those bar lines where a note overlaps
  %% into the next measure. The command is commented out in this
  %% short example score, but especially for large scores, you
  %% will typically yield better line breaking and thus improve
  %% overall spacing if you comment in the following command.
  %%\remove "Forbid_line_break_engraver"
}
indent = 6\cm
incipit-width = 4\cm
}
}

```

Discantus

Altus

Tenor

Bassus

IV-

IV-

IV-

IV-

3

o, om - nis ter - ra, om- ... -us.

De - o, om - nis ter - ra, ... -us.

Ju - bi - la - te ... -us.

Ju - bi- ... -us.

## Inserting score fragments above a staff as markups

The `\markup` command is quite versatile. In this snippet, it contains a `\score` block instead of texts or marks.

```

tuning = \markup {
  \score {
    \new Staff \with { \remove "Time_signature_engraver" }
    {
      \clef bass
      <c, g, d g>1
    }
    \layout { ragged-right = ##t }
  }
}

\header {
  title = "Solo Cello Suites"
  subtitle = "Suite IV"
  subsubtitle = \markup { Originalstimmung: \general-align #Y #CENTER \tuning }
}

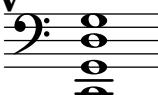
\layout { ragged-right = ##f }

\relative c'' {
  \time 4/8
  \times 2/3 { c8 d e } \times 2/3 { c d e }
  \times 2/3 { c8 d e } \times 2/3 { c d e }
  g8 a g a
  g8 a g a
}

```

## Solo Cello Suites

### Suite IV

Originalstimmung: 



## 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
}

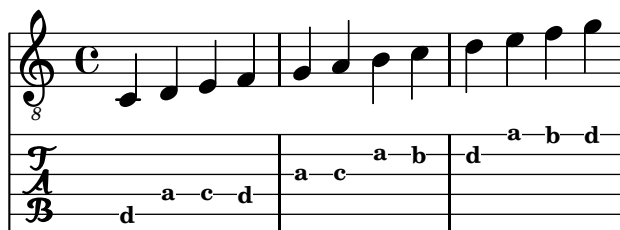
<<
\new Staff {
  \clef "G_8"
  \music
}

```

```

\new TabStaff \with {
  tablatureFormat = #fret-letter-tablature-format
}
{
  \music
}
>>

```



## Making some staff lines thicker than the others

For educational purposes, a staff line can be thickened (e.g., the middle line, or to emphasize the line of the G clef). This can be achieved by adding extra lines very close to the line that should be emphasized, using the `line-positions` property of the `StaffSymbol` object.

```

{
  \override Staff.StaffSymbol #'line-positions =
    #'(-4 -2 -0.2 0 0.2 2 4)
  d'4 e' f' g'
}

```



## Measure counter

This snippet provides a workaround for emitting measure counters using transparent percent repeats.

```

<<
  \context Voice = "foo" {
    \clef bass
    c4 r g r
    c4 r g r
    c4 r g r
    c4 r g r
  }
  \context Voice = "foo" {
    \set countPercentRepeats = ##t
    \override PercentRepeat #'transparent = ##t
    \override PercentRepeatCounter #'staff-padding = #1
    \repeat percent 4 { s1 }
  }
>>

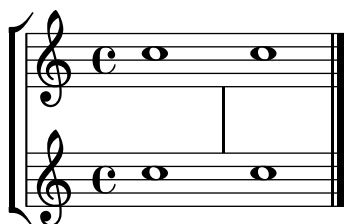
```



## Mensurstriche layout (bar lines between the staves)

The mensurstriche-layout where the bar lines do not show on the staves but between staves can be achieved with a `StaffGroup` instead of a `ChoirStaff`. The bar line on staves is blanked out by setting the `transparent` property.

```
global = {
  \override Staff.BarLine #'transparent = ##t
  s1 s
  % the final bar line is not interrupted
  \revert Staff.BarLine #'transparent
  \bar "|."
}
\new StaffGroup \relative c'' {
  <<
    \new Staff { << \global { c1 c } >> }
    \new Staff { << \global { c c } >> }
  >>
}
```

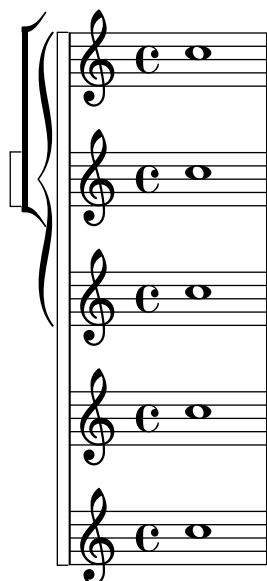


## Nesting staves

The property `systemStartDelimiterHierarchy` can be used to make more complex nested staff groups. The command `\set StaffGroup.systemStartDelimiterHierarchy` takes an alphabetical list of the number of staves produced. Before each staff a system start delimiter can be given. It has to be enclosed in brackets and takes as much staves as the brackets enclose. Elements in the list can be omitted, but the first bracket takes always the complete number of staves. The possibilities are `SystemStartBar`, `SystemStartBracket`, `SystemStartBrace`, and `SystemStartSquare`.

```
\new StaffGroup
\relative c'' <<
  \set StaffGroup.systemStartDelimiterHierarchy
    = #'(SystemStartSquare (SystemStartBrace (SystemStartBracket a
      (SystemStartSquare b) ) c ) d)

  \new Staff { c1 }
  \new Staff { c1 }
  \new Staff { c1 }
  \new Staff { c1 }
  \new Staff { c1 }
>>
```



## Non-traditional key signatures

The commonly used `\key` command sets the `keySignature` property, in the `Staff` context.

To create non-standard key signatures, set this property directly. The format of this command is a list:

`\set Staff.keySignature = #`(((octave . step) . alter) ((octave . step) . alter) ...)` where, for each element in the list, `octave` specifies the octave (0 being the octave from middle C to the B above), `step` specifies the note within the octave (0 means C and 6 means B), and `alter` is `,SHARP`, `,FLAT`, `,DOUBLE-SHARP` etc. (Note the leading comma.) The accidentals in the key signature will appear in the reverse order to that in which they are specified.

Alternatively, for each item in the list, using the more concise format `(step . alter)` specifies that the same alteration should hold in all octaves.

For microtonal scales where a “sharp” is not 100 cents, `alter` refers to the alteration as a proportion of a 200-cent whole tone.

Here is an example of a possible key signature for generating a whole-tone scale:

```
\relative c' {
  \set Staff.keySignature = #`(((0 . 6) . ,FLAT)
                                ((0 . 5) . ,FLAT)
                                ((0 . 3) . ,SHARP))

  c4 d e fis
  aes4 bes c2
}
```



## Orchestra choir and piano template

This template demonstrates the use of nested `StaffGroup` and `GrandStaff` contexts to sub-group instruments of the same type together, and a way to use `\transpose` so that variables hold music for transposing instruments at concert pitch.

```
 #(set-global-staff-size 17)
 \paper {
   indent = 3.0\cm % space for instrumentName
```

```

    short-indent = 1.5\cm % space for shortInstrumentName
}

fluteMusic = \relative c' { \key g \major g'1 b }
% Pitches as written on a manuscript for Clarinet in A
% are transposed to concert pitch.
clarinetMusic = \transpose c' a
    \relative c'' { \key bes \major bes1 d }
trumpetMusic = \relative c { \key g \major g''1 b }
% Key signature is often omitted for horns
hornMusic = \transpose c' f
    \relative c { d'1 fis }
percussionMusic = \relative c { \key g \major g1 b }
sopranoMusic = \relative c'' { \key g \major g'1 b }
sopranoLyrics = \lyricmode { Lyr -- ics }
altoIMusic = \relative c' { \key g \major g'1 b }
altoIIMusic = \relative c' { \key g \major g'1 b }
altoILyrics = \sopranoLyrics
altoIIILyrics = \lyricmode { Ah -- ah }
tenorMusic = \relative c' { \clef "treble_8" \key g \major g1 b }
tenorLyrics = \sopranoLyrics
pianoRHMus = \relative c { \key g \major g''1 b }
pianoLHMus = \relative c { \clef bass \key g \major g1 b }
violinIMusic = \relative c' { \key g \major g'1 b }
violinIIMusic = \relative c' { \key g \major g'1 b }
violaMusic = \relative c { \clef alto \key g \major g'1 b }
celloMusic = \relative c { \clef bass \key g \major g1 b }
bassMusic = \relative c { \clef "bass_8" \key g \major g,1 b }

\score {
  <<
    \new StaffGroup = "StaffGroup_woodwinds" <<
      \new Staff = "Staff_flute" {
        \set Staff.instrumentName = #"Flute"
        % shortInstrumentName, midiInstrument, etc.
        % may be set here as well
        \fluteMusic
      }
      \new Staff = "Staff_clarinet" {
        \set Staff.instrumentName =
        \markup { \concat { "Clarinet in B" \flat } }
        % Declare that written Middle C in the music
        % to follow sounds a concert B flat, for
        % output using sounded pitches such as MIDI.
        \transposition bes
        % Print music for a B-flat clarinet
        \transpose bes c' \clarinetMusic
      }
    >>
    \new StaffGroup = "StaffGroup_brass" <<
      \new Staff = "Staff_hornI" {
        \set Staff.instrumentName = #"Horn in F"

```

```

        \transposition f
        \transpose f c' \hornMusic
    }
    \new Staff = "Staff_trumpet" {
        \set Staff.instrumentName = #"Trumpet in C"
        \trumpetMusic
    }
>>
\new RhythmicStaff = "RhythmicStaff_percussion" <<
    \set RhythmicStaff.instrumentName = #"Percussion"
    \percussionMusic
>>
\new PianoStaff <<
    \set PianoStaff.instrumentName = #"Piano"
    \new Staff { \pianoRHMusical }
    \new Staff { \pianoLHMusical }
>>
\new ChoirStaff = "ChoirStaff_choir" <<
    \new Staff = "Staff_soprano" {
        \set Staff.instrumentName = #"Soprano"
        \new Voice = "soprano"
        \sopranoMusic
    }
    \new Lyrics \lyricsto "soprano" { \sopranoLyrics }
    \new GrandStaff = "GrandStaff_alto"
    \with { \accepts Lyrics } <<
        \new Staff = "Staff_altoI" {
            \set Staff.instrumentName = #"Alto I"
            \new Voice = "altoI"
            \altoIMusical
        }
        \new Lyrics \lyricsto "altoI" { \altoILyrics }
        \new Staff = "Staff_altoII" {
            \set Staff.instrumentName = #"Alto II"
            \new Voice = "altoII"
            \altoIIMusical
        }
        \new Lyrics \lyricsto "altoII" { \altoIILyrics }
    >>
    \new Staff = "Staff_tenor" {
        \set Staff.instrumentName = #"Tenor"
        \new Voice = "tenor"
        \tenorMusic
    }
    \new Lyrics \lyricsto "tenor" { \tenorLyrics }
>>
\new StaffGroup = "StaffGroup_strings" <<
    \new GrandStaff = "GrandStaff_violins" <<
        \new Staff = "Staff_violinI" {
            \set Staff.instrumentName = #"Violin I"
            \violinIMusical
        }
    >>

```

```
\new Staff = "Staff_violinII" {
  \set Staff.instrumentName = #"Violin II"
  \violinIIMusic
}
>>
\new Staff = "Staff_viola" {
  \set Staff.instrumentName = #"Viola"
  \violaMusic
}
\new Staff = "Staff_cello" {
  \set Staff.instrumentName = #"Cello"
  \celloMusic
}
\new Staff = "Staff_bass" {
  \set Staff.instrumentName = #"Double Bass"
  \bassMusic
}
>>
>>
\layout { }
}
```



## Putting lyrics inside the staff

Lyrics can be moved vertically to place them inside the staff. The lyrics are moved with `\override LyricText #'extra-offset = #'(0 . dy)` and there are similar commands to move the extenders and hyphens. The offset needed is established with trial and error.

```
<<
\new Staff <<
  \new Voice = "voc" \relative c' { \stemDown a bes c8 b c4 }
>>
\new Lyrics \with {
  \override LyricText #'extra-offset = #'(0 . 8.6)
  \override LyricExtender #'extra-offset = #'(0 . 8.6)
  \override LyricHyphen #'extra-offset = #'(0 . 8.6)
} \lyricsto "voc" { La la -- la _ _ la }
>>
```

## Quoting another voice with transposition

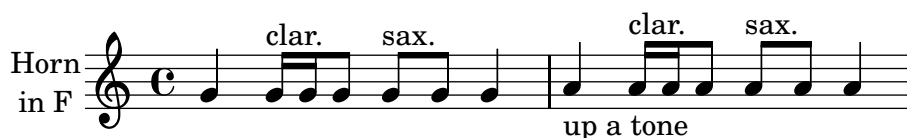
Quotations take into account the transposition of both source and target. In this example, all instruments play sounding middle C; the target is an instrument in F. The target part may be transposed using `\transpose`. In this case, all the pitches (including the quoted ones) are transposed.

```
\addQuote clarinet {
  \transposition bes
  \repeat unfold 8 { d'16 d' d'8 }
}

\addQuote sax {
  \transposition es'
  \repeat unfold 16 { a8 }
}

quoteTest = {
  % french horn
  \transposition f
  g'4
  << \quoteDuring #"clarinet" { \skip 4 } s4^"clar." >>
  << \quoteDuring #"sax" { \skip 4 } s4^"sax." >>
  g'4
}

{
  \set Staff.instrumentName =
    \markup {
      \center-column { Horn \line { in F } }
    }
  \quoteTest
  \transpose c' d' << \quoteTest s4_"up a tone" >>
}
```



## Quoting another voice

The `quotedEventTypes` property determines the music event types which should be quoted. The default value is `(note-event rest-event tie-event beam-event tuplet-span-event)`, which means that only the notes, rests, ties, beams and tuplets of the quoted voice will appear in the `\quoteDuring` expression. In the following example, a 16th rest is not quoted since `rest-event` is not in `quotedEventTypes`.

For a list of event types, consult the “Music classes” section of the Internals Reference.

```
quoteMe = \relative c' {
  fis4 r16 a8.-> b4\ff c
}

\addQuote quoteMe \quoteMe
```

```

original = \relative c'' {
  c8 d s2
  \once \override NoteColumn #'ignore-collision = ##t
  es8 gis8
}

<<
\new Staff {
  \set Staff.instrumentName = #"quoteMe"
  \quoteMe
}
\new Staff {
  \set Staff.instrumentName = #"orig"
  \original
}
\new Staff \relative c'' <<
  \set Staff.instrumentName = #"orig+quote"
  \set Staff.quotedEventTypes =
    #'(note-event articulation-event)
  \original
  \new Voice {
    s4
    \set fontSize = #-4
    \override Stem #'length-fraction = #(magstep -4)
    \quoteDuring #"quoteMe" { \skip 2. }
  }
}
>>
>>

```

The image shows a musical score with three staves. The top staff is labeled 'quoteMe' and contains a treble clef, common time signature, and a sequence of notes: C4, D4, E4, F#4, G4, A4, B4, and C5. The middle staff is labeled 'orig' and contains a treble clef, common time signature, and a sequence of notes: C4, D4, E4, F#4, G4, A4, B4, and C5. The bottom staff is labeled 'orig+quote' and contains a treble clef, common time signature, and a sequence of notes: C4, D4, E4, F#4, G4, A4, B4, and C5. The 'orig+quote' staff has a dynamic marking 'ff' and an articulation mark '>' over the G4 note.

## Removing the first empty line

The first empty staff can also be removed from the score by setting the `VerticalAxisGroup` property `remove-first`. This can be done globally inside the `\layout` block, or locally inside the specific staff that should be removed. In the latter case, you have to specify the context (`Staff` applies only to the current staff) in front of the property.

The lower staff of the second staff group is not removed, because the setting applies only to the specific staff inside of which it is written.

```

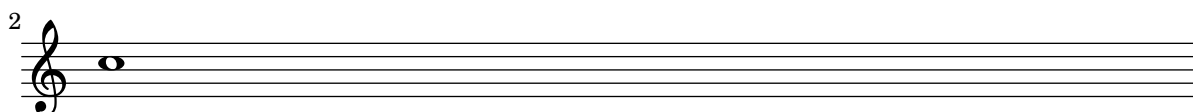
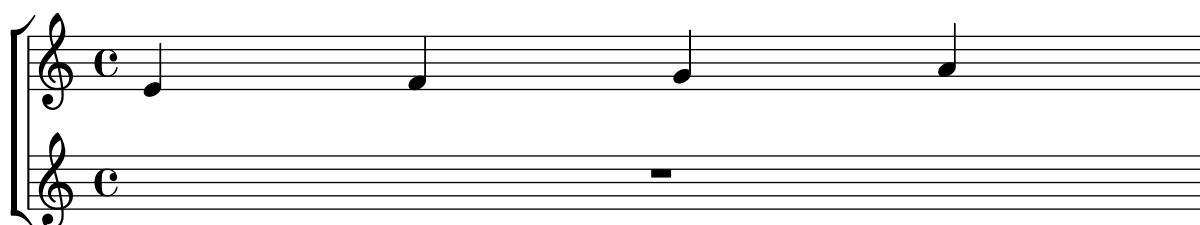
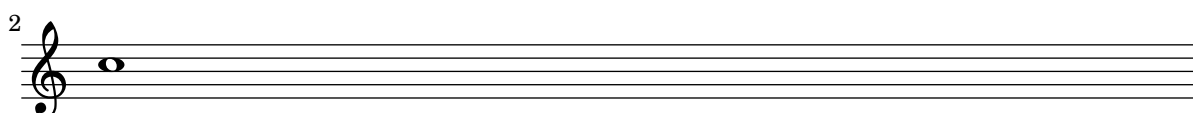
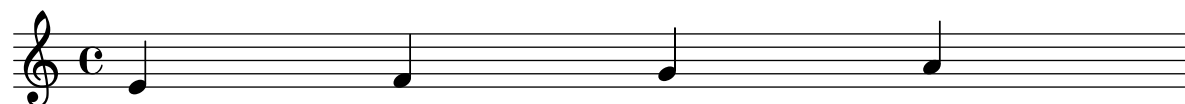
\layout {
  \context {
    \Staff \RemoveEmptyStaves
    % To use the setting globally, uncomment the following line:

```

```

    % \override VerticalAxisGroup #'remove-first = ##t
  }
}
\new StaffGroup <<
  \new Staff \relative c' {
    e4 f g a \break
    c1
  }
  \new Staff {
    % To use the setting globally, comment this line,
    % uncomment the line in the \layout block above
    \override Staff.VerticalAxisGroup #'remove-first = ##t
    R1 \break
    R
  }
>>
\new StaffGroup <<
  \new Staff \relative c' {
    e4 f g a \break
    c1
  }
  \new Staff {
    R1 \break
    R
  }
}
>>

```



## Setting system separators

System separators can be inserted between systems. Any markup can be used, but `\slashSeparator` has been provided as a sensible default.

```
\paper {  
  system-separator-markup = \slashSeparator  
}  
  
notes = \relative c' {  
  c1 | c \break  
  c1 | c \break  
  c1 | c  
}  
  
\book {  
  \score {  
    \new GrandStaff <<  
      \new Staff \notes  
      \new Staff \notes  
    >>  
  }  
}
```

The image displays three systems of musical notation, each consisting of a grand staff (treble and bass clef) and a common time signature 'C'. The notation is as follows:

- System 1:** The right hand plays a whole note chord (F4, A4, C5) and the left hand plays a whole note (F3). The first measure is identical to the second measure.
- System 2:** The right hand plays a whole note chord (F4, A4, C5) and the left hand plays a whole note (F3). The first measure is identical to the second measure. A double bar line and a '3' are placed above the first measure, indicating a triplet.
- System 3:** The right hand plays a whole note chord (F4, A4, C5) and the left hand plays a whole note (F3). The first measure is identical to the second measure. A double bar line and a '5' are placed above the first measure, indicating a quintuplet.

## Tick bar lines

'Tick' bar lines are often used in music where the bar line is used only for coordination and is not meant to imply any rhythmic stress.

```
\relative c' {
  \set Score.defaultBarType = #"'"
  c4 d e f
  g4 f e d
  c4 d e f
  g4 f e d
  \bar "|."
}
```



## Time signature in parentheses - method 3

Another way to put the time signature in parenthesis

```
\relative c' {
  \override Staff.TimeSignature #'stencil = #(lambda (grob)
    (parenthesize-size-stencil (ly:time-signature::print grob) 0.1 0.4 0.4 0.1 ))
  \time 2/4
  a4 b8 c
}
```



## Time signature in parentheses

The time signature can be enclosed within parentheses.

```
\relative c' {
  \override Staff.TimeSignature #'stencil = #(lambda (grob)
    (bracketify-stencil (ly:time-signature::print grob) Y 0.1 0.2 0.1))
  \time 2/4
  a4 b8 c
}
```



## Tweaking clef properties

The command `\clef "treble_8"` is equivalent to setting `clefGlyph`, `clefPosition` (which controls the vertical position of the clef), `middleCPosition` and `clefOctavation`. A clef is printed when any of the properties except `middleCPosition` are changed.

Note that changing the glyph, the position of the clef, or the octavation does not in itself change the position of subsequent notes on the staff: the position of middle C must also be specified to do this. The positional parameters are relative to the staff center line, positive

numbers displacing upwards, counting one for each line and space. The `clefOctavation` value would normally be set to 7, -7, 15 or -15, but other values are valid.

When a clef change takes place at a line break the new clef symbol is printed at both the end of the previous line and the beginning of the new line by default. If the warning clef at the end of the previous line is not required it can be suppressed by setting the `Staff` property `explicitClefVisibility` to the value `end-of-line-invisible`. The default behavior can be recovered with `\unset Staff.explicitClefVisibility`.

The following examples show the possibilities when setting these properties manually. On the first line, the manual changes preserve the standard relative positioning of clefs and notes, whereas on the second line, they do not.

```
\layout { ragged-right = ##t }

{
  % The default treble clef
  c'1
  % The standard bass clef
  \set Staff.clefGlyph = #"clefs.F"
  \set Staff.clefPosition = #2
  \set Staff.middleCPosition = #6
  c'1
  % The baritone clef
  \set Staff.clefGlyph = #"clefs.C"
  \set Staff.clefPosition = #4
  \set Staff.middleCPosition = #4
  c'1
  % The standard choral tenor clef
  \set Staff.clefGlyph = #"clefs.G"
  \set Staff.clefPosition = #-2
  \set Staff.clefOctavation = #-7
  \set Staff.middleCPosition = #1
  c'1
  % A non-standard clef
  \set Staff.clefPosition = #0
  \set Staff.clefOctavation = #0
  \set Staff.middleCPosition = #-4
  c'1 \break

  % The following clef changes do not preserve
  % the normal relationship between notes and clefs:

  \set Staff.clefGlyph = #"clefs.F"
  \set Staff.clefPosition = #2
  c'1
  \set Staff.clefGlyph = #"clefs.G"
  c'1
  \set Staff.clefGlyph = #"clefs.C"
  c'1
  \set Staff.clefOctavation = #7
  c'1
  \set Staff.clefOctavation = #0
  \set Staff.clefPosition = #0
```



```

c'1

% Return to the normal clef:

\set Staff.middleCPosition = #0
c'1
}

```



## Use square bracket at the start of a staff group

The system start delimiter `SystemStartSquare` can be used by setting it explicitly in a `StaffGroup` or `ChoirStaff` context.

```

\score {
  \new StaffGroup { <<
    \set StaffGroup.systemStartDelimiter = #'SystemStartSquare
    \new Staff { c'4 d' e' f' }
    \new Staff { c'4 d' e' f' }
  >> }
}

```



## Using autochange with more than one voice

Using `autochange` with more than one voice.

```

\score
{
  \new PianoStaff
  <<
    \new Staff = "up" {
      <<
        \set Timing.beamExceptions = #'()
        \set Timing.beatStructure = #'(4)
        \new Voice {
          \voiceOne
          \autochange
          \relative c' {
            g8 a b c d e f g
          }
        }
      >>
    }
  >>
}

```

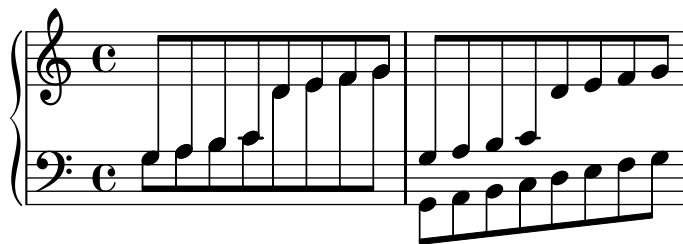
```

      g,8 a b c d e f g
    }
  }

  \new Voice {
    \voiceTwo
    \autochange
    \relative c' {
      g8 a b c d e f g
      g,,8 a b c d e f g
    }
  }
  >>
}

\new Staff = "down" {
  \clef bass
}
>>
}

```



## Volta below chords

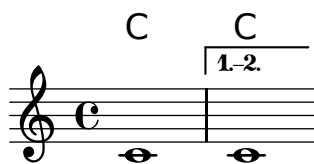
By adding the `Volta_engraver` to the relevant staff, volte can be put under chords.

```

\score {
  <<
    \chords {
      c1
      c1
    }
    \new Staff \with {
      \consists "Volta_engraver"
    }
    {
      \repeat volta 2 { c'1 }
      \alternative { c' }
    }
  >>
  \layout {
    \context {
      \Score
      \remove "Volta_engraver"
    }
  }
}

```

}



## Volta multi staff

By adding the `Volta_engraver` to the relevant staff, volte can be put over staves other than the topmost one in a score.

```
voltaMusic = \relative c'' {
  \repeat volta 2 {
    c1
  }
  \alternative {
    d1
    e1
  }
}

<<
  \new StaffGroup <<
    \new Staff \voltaMusic
    \new Staff \voltaMusic
  >>
  \new StaffGroup <<
    \new Staff \with { \consists "Volta_engraver" }
      \voltaMusic
    \new Staff \voltaMusic
  >>
>>
```



## Editorial annotations

Section “Editorial annotations” in *Notation Reference*

### Adding fingerings to a score

Fingering instructions can be entered using a simple syntax.

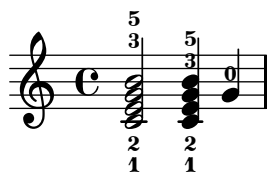
```
\relative c' {
  c4-1 d-2 f-4 e-3
}
```



### 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>
}
```



### Alternative bar numbering

Two alternative methods for bar numbering can be set, especially for when using repeated music.

```
\relative c'{
  \set Score.alternativeNumberingStyle = #'numbers
  \repeat volta 3 { c4 d e f | }
  \alternative {
    { c4 d e f | c2 d \break }
    { f4 g a b | f4 g a b | f2 a | \break }
    { c4 d e f | c2 d }
  }
  c1 \break
  \set Score.alternativeNumberingStyle = #'numbers-with-letters
  \repeat volta 3 { c,4 d e f | }
  \alternative {
    { c4 d e f | c2 d \break }
    { f4 g a b | f4 g a b | f2 a | \break }
    { c4 d e f | c2 d }
  }
  c1
}
```

The image displays six musical staves, each with a treble clef and a common time signature (C). The staves are labeled with measure numbers 1, 2, 3, 5, 6b, and 6c on the left. Above each staff, a horizontal analysis bracket is placed, spanning the first three measures of the staff. The bracket is labeled with a number (1, 2, or 3) indicating the ending. The first staff (1) shows a sequence of eighth notes. The second staff (2) shows a sequence of eighth notes. The third staff (3) shows a sequence of eighth notes. The fourth staff (5) shows a sequence of eighth notes. The fifth staff (6b) shows a sequence of eighth notes. The sixth staff (6c) shows a sequence of eighth notes.

## Analysis brackets above the staff

Simple horizontal analysis brackets are added below the staff by default. The following example shows a way to place them above the staff instead.

```
\layout {
  \context {
    \Voice
    \consists "Horizontal_bracket_engraver"
  }
}
\relative c'' {
  \once \override HorizontalBracket #'direction = #UP
  c2\startGroup
  d2\stopGroup
}
```

The image shows a musical staff with a treble clef and a common time signature (C). It contains two measures of music, each with a half note. A horizontal analysis bracket is placed above the staff, spanning both measures. The bracket is labeled with the number 1, indicating the first ending.

## Applying note head styles depending on the step of the scale

The `shapeNoteStyles` property can be used to define various note head styles for each step of the scale (as set by the key signature or the `tonic` property). This property requires a set of symbols, which can be purely arbitrary (geometrical expressions such as `triangle`, `cross`, and `xcircle` are allowed) or based on old American engraving tradition (some latin note names are also allowed).

That said, to imitate old American song books, there are several predefined note head styles available through shortcut commands such as `\aikenHeads` or `\sacredHarpHeads`.

This example shows different ways to obtain shape note heads, and demonstrates the ability to transpose a melody without losing the correspondence between harmonic functions and note head styles.

```
fragment = {
  \key c \major
  c2 d
  e2 f
  g2 a
  b2 c
}

\new Staff {
  \transpose c d
  \relative c' {
    \set shapeNoteStyles = #'#(do re mi fa
                          #f la ti)

    \fragment
  }

  \break

  \relative c' {
    \set shapeNoteStyles = #'#(cross triangle fa #f
                          mensural xcircle diamond)

    \fragment
  }
}
```



## Avoiding collisions with chord fingerings

Fingerings and string numbers applied to individual notes will automatically avoid beams and stems, but this is not true by default for fingerings and string numbers applied to the individual notes of chords. The following example shows how this default behavior can be overridden.

```
\relative c' {
```

```

\set fingeringOrientations = #'(up)
\set stringNumberOrientations = #'(up)
\set strokeFingerOrientations = #'(up)

% Default behavior
r8
<f c'-5>8
<f c'\5>8
<f c'-\rightHandFinger #2 >8

% Corrected to avoid collisions
r8
\override Fingering #'add-stem-support = ##t
<f c'-5>8
\override StringNumber #'add-stem-support = ##t
<f c'\5>8
\override StrokeFinger #'add-stem-support = ##t
<f c'-\rightHandFinger #2 >8
}

```



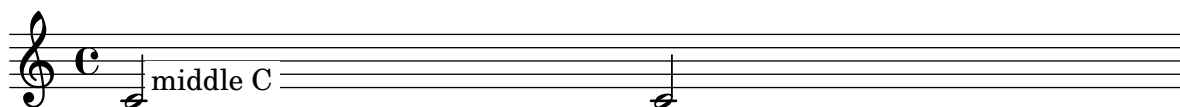
## Blanking staff lines using the `\whiteout` command

The `\whiteout` command underlays a markup with a white box. Since staff lines are in a lower layer than most other grobs, this white box will not overlap any other grob.

```

\layout { ragged-right = ##f }
\relative c' {
  \override TextScript #'extra-offset = #'(2 . 4)
  c2-\markup { \whiteout \pad-markup #0.5 "middle C" } c
}

```



## Changing a single note's size in a chord

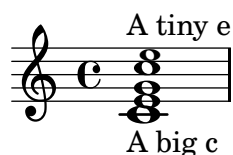
Individual note heads in a chord can be modified with the `\tweak` command inside a chord, by altering the `font-size` property.

Inside the chord (within the brackets `< >`), before the note to be altered, place the `\tweak` command, followed by `font-size` and define the proper size like `#-2` (a tiny note head).

```

\relative c' {
  <\tweak #'font-size #-2 c e g c \tweak #'font-size #-2 e>1^\markup { A tiny e }_\markup {
}

```



## Changing the appearance of a slur from solid to dotted or dashed

The appearance of slurs may be changed from solid to dotted or dashed.

```
\relative c' {
  c4( d e c)
  \slurDotted
  c4( d e c)
  \slurSolid
  c4( d e c)
  \slurDashed
  c4( d e c)
  \slurSolid
  c4( d e c)
}
```



## Coloring notes depending on their pitch

It is possible to color note heads depending on their pitch and/or their names: the function used in this example even makes it possible to distinguish enharmonics.

```
%Association list of pitches to colors.
#(define color-mapping
  (list
    (cons (ly:make-pitch 0 0 NATURAL) (x11-color 'red))
    (cons (ly:make-pitch 0 0 SHARP) (x11-color 'green))
    (cons (ly:make-pitch 0 1 FLAT) (x11-color 'green))
    (cons (ly:make-pitch 0 2 NATURAL) (x11-color 'red))
    (cons (ly:make-pitch 0 2 SHARP) (x11-color 'green))
    (cons (ly:make-pitch 0 3 FLAT) (x11-color 'red))
    (cons (ly:make-pitch 0 3 NATURAL) (x11-color 'green))
    (cons (ly:make-pitch 0 4 SHARP) (x11-color 'red))
    (cons (ly:make-pitch 0 5 NATURAL) (x11-color 'green))
    (cons (ly:make-pitch 0 5 FLAT) (x11-color 'red))
    (cons (ly:make-pitch 0 6 SHARP) (x11-color 'red))
    (cons (ly:make-pitch 0 1 NATURAL) (x11-color 'blue))
    (cons (ly:make-pitch 0 3 SHARP) (x11-color 'blue))
    (cons (ly:make-pitch 0 4 FLAT) (x11-color 'blue))
    (cons (ly:make-pitch 0 5 SHARP) (x11-color 'blue))
    (cons (ly:make-pitch 0 6 FLAT) (x11-color 'blue))))

%Compare pitch and alteration (not octave).
#(define (pitch-equals? p1 p2)
  (and
    (= (ly:pitch-alteration p1) (ly:pitch-alteration p2))
    (= (ly:pitch-notename p1) (ly:pitch-notename p2))))
```



```

#(define (pitch-to-color pitch)
  (let ((color (assoc pitch color-mapping pitch-equals?)))
    (if color
        (cdr color))))

#(define (color-notehead grob)
  (pitch-to-color
   (ly:event-property (event-cause grob) 'pitch)))

\score {
  \new Staff \relative c' {
    \override NoteHead #'color = #color-notehead
    c8 b d dis ees f g aes
  }
}

```



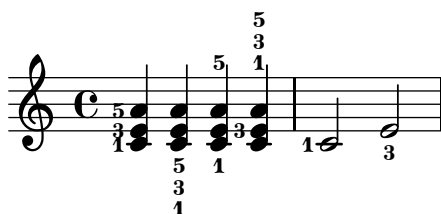
## Controlling the placement of chord fingerings

The placement of fingering numbers can be controlled precisely. For fingering orientation to apply, you must use a chord construct <> 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
}

```



## Creating a delayed turn

Creating a delayed turn, where the lower note of the turn uses the accidental, requires several overrides. The `outside-staff-priority` property must be set to `#f`, as otherwise this would take precedence over the `avoid-slur` property. The value of `halign` is used to position the turn horizontally.

```

\relative c'' {
  \once \override TextScript #'avoid-slur = #'inside
  \once \override TextScript #'outside-staff-priority = ##f
  c2(^\markup \tiny \override #'(baseline-skip . 1) {
    \halign #-4
    \center-column {
      \sharp
      \musicglyph #"scripts.turn"
    }
  })
  d4.) c8
}

```



## Creating blank staves

To create blank staves, generate empty measures then remove the `Bar_number_engraver` from the `Score` context, and the `Time_signature_engraver`, `Clef_engraver` and `Bar_engraver` from the `Staff` context.

```

#(set-global-staff-size 20)

```

```

\score {
  {
    \repeat unfold 12 { s1 \break }
  }
  \layout {
    indent = 0\in
    \context {
      \Staff
      \remove "Time_signature_engraver"
      \remove "Clef_engraver"
      \remove "Bar_engraver"
    }
    \context {
      \Score
      \remove "Bar_number_engraver"
    }
  }
}

```

```

\paper {
  #(set-paper-size "letter")
  ragged-last-bottom = ##f
  line-width = 7.5\in
  left-margin = 0.5\in
  bottom-margin = 0.25\in
  top-margin = 0.25\in
}

```

## Creating double-digit fingerings

By default you cannot make double-digit fingering notation (i.e. numbers larger than 9). This is a hard coded limitation.

This snippet shows two methods of creating fingerings larger than 9.

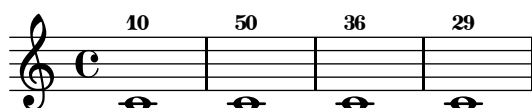
```
ten =  
#(make-music 'FingeringEvent  
            'digit 10)  
  
fifty =  
#(make-music 'FingeringEvent  
            'digit 50)  
  
finger =  
#(define-music-function (parser location digit) (integer?)  
  (make-music 'FingeringEvent  
              'digit digit))
```

```

#(define (calc-finger-without-warning grob)
  (let* ((event (event-cause grob))
        (digit (ly:event-property event 'digit)))
    (number->string digit 10)))

\relative c' {
  % optional override to remove warnings for fingerings larger than 5
  \override Fingering #'text = #calc-finger-without-warning
  c1\ten
  c1\fifty
  c1-\finger #36
  c1-\finger #29
}

```



## Default direction of stems on the center line of the staff

The default direction of stems on the center line of the staff is set by the `Stem` property `neutral-direction`.

```

\relative c' {
  a4 b c b
  \override Stem #'neutral-direction = #up
  a4 b c b
  \override Stem #'neutral-direction = #down
  a4 b c b
}

```



## Drawing boxes around grobs

The `print`-function can be overridden to draw a box around an arbitrary grob.

```

\relative c' {
  \override TextScript #'stencil =
    #(make-stencil-boxer 0.1 0.3 ly:text-interface::print)
  c'4^"foo"

  \override Stem #'stencil =
    #(make-stencil-boxer 0.05 0.25 ly:stem::print)
  \override Score.RehearsalMark #'stencil =
    #(make-stencil-boxer 0.15 0.3 ly:text-interface::print)
  b8

  \revert Stem #'stencil

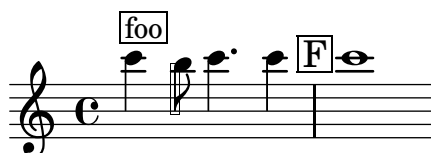
  \revert Flag #'stencil
}

```

```

c4. c4
\mark "F"
c1
}

```



## Drawing circles around note heads

Here is how to circle a note.

```

circle =
\once \override NoteHead #'stencil = #(lambda (grob)
  (let* ((note (ly:note-head::print grob))
        (combo-stencil (ly:stencil-add
          note
          (circle-stencil note 0.1 0.8))))
    (ly:make-stencil (ly:stencil-expr combo-stencil)
      (ly:stencil-extent note X)
      (ly:stencil-extent note Y))))

{ \circle c' }

```



## Drawing circles around various objects

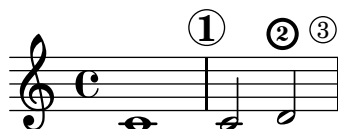
The `\circle` markup command draws circles around various objects, for example fingering indications. For other objects, specific tweaks may be required: this example demonstrates two strategies for rehearsal marks and measure numbers.

```

\relative c' {
  c1
  \set Score.markFormatter =
    #(lambda (mark context)
      (make-circle-markup (format-mark-numbers mark context)))
  \mark \default

  c2 d~\markup {
    \override #'(thickness . 3) {
      \circle \finger 2
    }
  }
  \override Score.BarNumber #'break-visibility = #all-visible
  \override Score.BarNumber #'stencil =
    #(make-stencil-circler 0.1 0.25 ly:text-interface::print)
}

```



## Embedding native PostScript in a \markup block

PostScript code can be directly inserted inside a \markup block.

% PostScript is a registered trademark of Adobe Systems Inc.

```
\relative c'' {
  a4-\markup { \postscript #"3 4 moveto 5 3 rlineto stroke" }
  -\markup { \postscript #"[ 0 1 ] 0 setdash 3 5 moveto 5 -3 rlineto stroke " }

  b4-\markup { \postscript #"3 4 moveto 0 0 1 2 8 4 20 3.5 rcurveto stroke" }
  s2
  a'1
}
```



## Grid lines: changing their appearance

The appearance of grid lines can be changed by overriding some of their properties.

```
\score {
  \new ChoirStaff <<
    \new Staff {
      \relative c'' {
        \stemUp
        c'4. d8 e8 f g4
      }
    }
  \new Staff {
    \relative c {
      % this moves them up one staff space from the default position
      \override Score.GridLine #'extra-offset = #'(0.0 . 1.0)
      \stemDown
      \clef bass
      \once \override Score.GridLine #'thickness = #5.0
      c4
      \once \override Score.GridLine #'thickness = #1.0
      g'4
      \once \override Score.GridLine #'thickness = #3.0
      f4
      \once \override Score.GridLine #'thickness = #5.0
      e4
    }
  }
}
>>
\layout {
  \context {
    \Staff
    % set up grids
  }
}
```

```

\consists "Grid_point_engraver"
% set the grid interval to one quarter note
gridInterval = #(ly:make-moment 1 4)
}
\context {
  \Score
  \consists "Grid_line_span_engraver"
  % this moves them to the right half a staff space
  \override NoteColumn #'X-offset = #-0.5
}
}
}

```



## Grid lines: emphasizing rhythms and notes synchronization

Regular vertical lines can be drawn between staves to show note synchronization; however, in case of monophonic music, you may want to make the second staff invisible, and make the lines shorter like in this snippet.

```

\score {
  \new ChoirStaff {
    \relative c'' <<
    \new Staff {
      \time 12/8
      \stemUp
      c4. d8 e8 f g4 f8 e8. d16 c8
    }
    \new Staff {
      % hides staff and notes so that only the grid lines are visible
      \hideNotes
      \override Staff.BarLine #'transparent = ##t
      \override Staff.StaffSymbol #'line-count = #0
      \override Staff.TimeSignature #'transparent = ##t
      \override Staff.Clef #'transparent = ##t

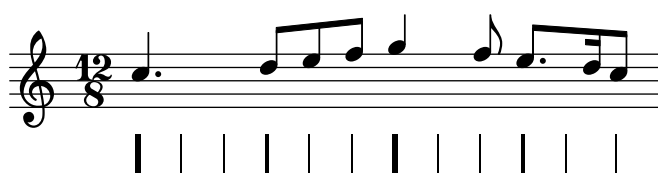
      % dummy notes to force regular note spacing
      \once \override Score.GridLine #'thickness = #4.0
      c8 c c
      \once \override Score.GridLine #'thickness = #3.0
      c8 c c
      \once \override Score.GridLine #'thickness = #4.0
      c8 c c
      \once \override Score.GridLine #'thickness = #3.0
      c8 c c
    }
  }
}

```

```

    }
  >>
}
\layout {
  \context {
    \Score
    \consists "Grid_line_span_engraver"
    % center grid lines horizontally below note heads
    \override NoteColumn #'X-offset = #-0.5
  }
  \context {
    \Staff
    \consists "Grid_point_engraver"
    gridInterval = #(ly:make-moment 1 8)
    % set line length and positioning:
    % two staff spaces above center line on hidden staff
    % to four spaces below center line on visible staff
    \override GridPoint #'Y-extent = #'(2 . -4)
  }
  ragged-right = ##t
}
}

```



## How to print two rehearsal marks above and below the same barline (method 1)

This method prints two 'rehearsal marks', one on top of the other. It shifts the lower rehearsal mark below the staff and then adds padding above it in order to place the upper rehearsal mark above the staff.

By adjusting the extra-offset and baseline-skip values you can increase or decrease the overall space between the rehearsal mark and the staff.

Because nearly every type of glyph or string can be made to behave like a rehearsal mark it is possible to centre those above and below a bar line.

Adding the appropriate 'break visibility' as shown in snippet 1 will allow you to position two marks at the end of a line as well.

Note: Method 1 is less complex than Method 2 but does not really allow for fine tuning of placement of one of the rehearsal marks without affecting the other. It may also give some problems with vertical spacing, since using `extra-offset` does not change the bounding box of the mark from its original value.

```

\relative c'{
  c d e f |
  \once \override Score.RehearsalMark #'extra-offset = #'(0 . -8.5)
  \once \override Score.RehearsalMark #'baseline-skip = #9

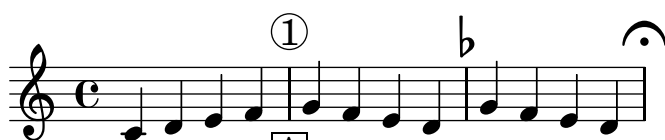
```



```

\mark \markup \center-column { \circle 1 \box A }
g f e d |
\once \override Score.RehearsalMark #'extra-offset = #'(0 . -8.5)
\once \override Score.RehearsalMark #'baseline-skip = #9
\mark \markup \center-column { \flat { \bold \small \italic Fine. } }
g f e d |
\once \override Score.RehearsalMark #'extra-offset = #'(0 . -8.5)
\once \override Score.RehearsalMark #'baseline-skip = #9
\override Score.RehearsalMark #'break-visibility = #begin-of-line-invisible
\mark \markup \center-column { \musicglyph #"scripts.ufermata" \box z }
}

```



## How to print two rehearsal marks above and below the same barline (method 2)

This method prints two 'rehearsal marks' - one above the staff and one below, by creating two voices, adding the Rehearsal Mark engraver to each voice - without this no rehearsal mark is printed - and then placing each rehearsal mark UP and DOWN in each voice respectively.

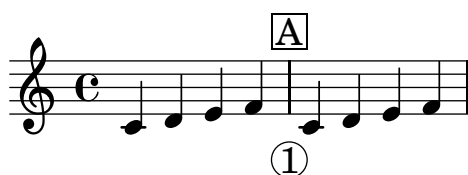
This method (as opposed to method 1) is more complex, but allows for more flexibility, should it be needed to tweak each rehearsal mark independently of the other.

```

\score {
  \relative c'
  <<
    \new Staff {
      <<
        \new Voice \with {
          \consists "Mark_engraver"
          \consists "Staff_collecting_engraver"
        }
        { c4 d e f
          \mark \markup { \box A }
          c4 d e f
        }
      \new Voice \with {
        \consists "Mark_engraver"
        \consists "Staff_collecting_engraver"
        \override RehearsalMark #'direction = #DOWN
      }
      { s4 s s s
        \mark \markup { \circle 1 }
        s4 s s s
      }
    }
  >>
}

```

```
>>
\layout {
  \context {
    \Score
    \remove "Mark_engraver"
    \remove "Staff_collecting_engraver"
  }
}
}
```



## Making some staff lines thicker than the others

For educational purposes, a staff line can be thickened (e.g., the middle line, or to emphasize the line of the G clef). This can be achieved by adding extra lines very close to the line that should be emphasized, using the `line-positions` property of the `StaffSymbol` object.

```
{
  \override Staff.StaffSymbol #'line-positions =
    #'(-4 -2 -0.2 0 0.2 2 4)
  d'4 e' f' g'
}
```



## Marking notes of spoken parts with a cross on the stem

This example shows how to put crosses on stems. Mark the beginning of a spoken section with the `\speakOn` keyword, and end it with the `\speakOff` keyword.

```
speakOn = {
  \override Stem #'stencil =
    #(lambda (grob)
      (let* ((x-parent (ly:grob-parent grob X))
             (is-rest? (ly:grob-object x-parent 'rest))))
        (if is-rest?
            empty-stencil
            (ly:stencil-combine-at-edge
              (ly:stem::print grob)
              Y
              (- (ly:grob-property grob 'direction))
              (grob-interpret-markup grob
                (markup #:center-align #:fontsize -4
                  #:musicglyph "noteheads.s2cross"))
              -2.3))))
}
```

```
speakOff = {
  \revert Stem #'stencil
  \revert Flag #'stencil
}
```

```
\score {
  \new Staff {
    \relative c' {
      a4 b a c
      \speakOn
      g4 f r g
      b4 r d e
      \speakOff
      c4 a g f
    }
  }
}
```



## Measure counter

This snippet provides a workaround for emitting measure counters using transparent percent repeats.

```
<<
  \context Voice = "foo" {
    \clef bass
    c4 r g r
    c4 r g r
    c4 r g r
    c4 r g r
  }
  \context Voice = "foo" {
    \set countPercentRepeats = ##t
    \override PercentRepeat #'transparent = ##t
    \override PercentRepeatCounter #'staff-padding = #1
    \repeat percent 4 { s1 }
  }
>>
```



## Positioning fingering indications precisely

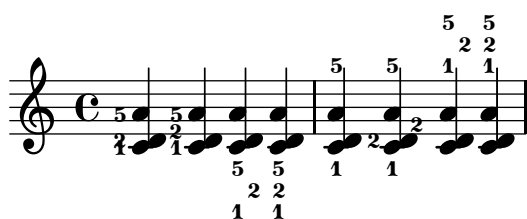
Generally the options available for positioning the fingering of chords work well by default, but if one of the indications needs to be positioned more precisely the following tweak may be used. This is particularly useful for correcting the positioning when intervals of a second are involved.

```
\relative c' {
```

```

\set fingeringOrientations = #'(left)
<c-1 d-2 a'-5>4
<c-1 d-\tweak #'extra-offset #'(0 . 0.7)-2 a'-5>4
\set fingeringOrientations = #'(down)
<c-1 d-2 a'-5>4
<c-1 d-\tweak #'extra-offset #'(-1.2 . 0)-2 a'-5>4
\set fingeringOrientations = #'(down right up)
<c-1 d-2 a'-5>4
<c-1 d-\tweak #'extra-offset #'(-1 . 1.2)-2 a'-5>4
\set fingeringOrientations = #'(up)
<c-1 d-2 a'-5>4
<c-1 d-\tweak #'extra-offset #'(-1.2 . 0)-2 a'-5>4
}

```



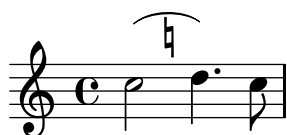
## Positioning text markups inside slurs

Text markups need to have the `outside-staff-priority` property set to `false` in order to be printed inside slurs.

```

\relative c'' {
  \override TextScript #'avoid-slur = #'inside
  \override TextScript #'outside-staff-priority = ##f
  c2(^\markup { \halign #-10 \natural } d4.) c8
}

```



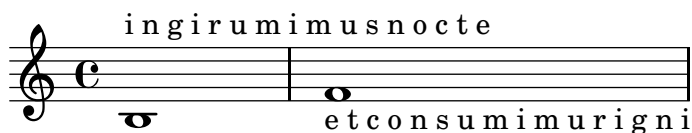
## Printing text from right to left

It is possible to print text from right to left in a markup object, as demonstrated here.

```

{
  b1^\markup {
    \line { i n g i r u m i m u s n o c t e }
  }
  f'_\markup {
    \override #'(text-direction . -1)
    \line { i n g i r u m i m u s n o c t e }
  }
}

```

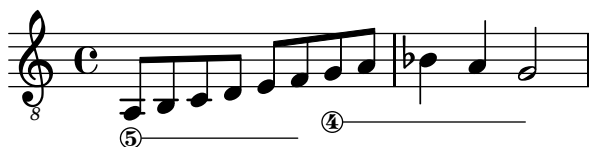


## String number extender lines

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?)
  #{
    \override TextSpanner #'style = #'solid
    \override TextSpanner #'font-size = #-5
    \override TextSpanner #'(bound-details left stencil-align-dir-y) = #CENTER
    \override TextSpanner #'(bound-details left text) = \markup { \circle \number #StringNumber }
  })

\relative c {
  \clef "treble_8"
  \stringNumberSpanner "5"
  \textSpannerDown
  a8\startTextSpan
  b c d e f\stopTextSpan
  \stringNumberSpanner "4"
  g\startTextSpan a
  bes4 a g2\stopTextSpan
}
```



## Using PostScript to generate special note head shapes

When a note head with a special shape cannot easily be generated with graphic markup, PostScript code can be used to generate the shape. This example shows how a parallelogram-shaped note head is generated.

```
parallelogram =
  #(ly:make-stencil (list 'embedded-ps
    "gsave
      currentpoint translate
      newpath
      0 0.25 moveto
      1.3125 0.75 lineto
      1.3125 -0.25 lineto
      0 -0.75 lineto
      closepath
      fill
      grestore" )
    (cons 0 1.3125)
    (cons -.75 .75))

myNoteHeads = \override NoteHead #'stencil = \parallelogram
normalNoteHeads = \revert NoteHead #'stencil
```

```
\relative c'' {
  \myNoteHeads
  g4 d'
  \normalNoteHeads
  <f, \tweak #'stencil \parallelogram b e>4 d
}
```



## Using the whiteout property

Any graphical object can be printed over a white background to mask parts of objects that lie beneath. This can be useful to improve the appearance of collisions in complex situations when repositioning objects is impractical. It is necessary to explicitly set the `layer` property to control which objects are masked by the white background.

In this example the collision of the tie with the time signature is improved by masking out the part of the tie that crosses the time signature by setting the `whiteout` property of `TimeSignature`. To do this `TimeSignature` is moved to a layer above `Tie`, which is left in the default layer of 1, and `StaffSymbol` is moved to a layer above `TimeSignature` so it is not masked.

```
{
  \override Score.StaffSymbol #'layer = #4
  \override Staff.TimeSignature #'layer = #3
  b'2 b'~
  \once \override Staff.TimeSignature #'whiteout = ##t
  \time 3/4
  b' r4
}
```



## Text

### Section “Text” in *Notation Reference*

#### Adding the current date to a score

With a little Scheme code, the current date can easily be added to a score.

```
% first, define a variable to hold the formatted date:
date = #(strftime "%d-%m-%Y" (localtime (current-time)))
```

```
% use it in the title block:
\header {
  title = "Including the date!"
  subtitle = \date
}
```

```
\score {
  \relative c' {
    c4 c c c
  }
}
```

```
% and use it in a \markup block:
\markup {
  \date
}
```

**Including the date!**  
**09-11-2012**



09-11-2012

#### Adjusting lyrics vertical spacing

This snippet shows how to bring the lyrics line closer to the staff.

```
% Default layout:
```

```
<<
\new Staff \new Voice = melody \relative c' {
  c4 d e f
  g4 f e d
  c1
}
\new Lyrics \lyricsto melody { aa aa aa aa aa aa aa aa aa }

\new Staff {
  \new Voice = melody \relative c' {
    c4 d e f
    g4 f e d
  }
}
```

```

        c1
    }
}
% Reducing the minimum space below the staff and above the lyrics:
\new Lyrics \with {
  \override VerticalAxisGroup #'nonstaff-relatedstaff-spacing = #'((basic-distance . 1))
}
\lyricsto melody { aa aa aa aa aa aa aa aa aa }
>>

```



## Aligning and centering instrument names

The horizontal alignment of instrument names is tweaked by changing the `Staff.InstrumentName #'self-alignment-X` property. The `\layout` variables `indent` and `short-indent` define the space in which the instrument names are aligned before the first and the following systems, respectively.

```

\paper {
  left-margin = 3\cm
}

\score {
  \new StaffGroup <<
    \new Staff {
      \override Staff.InstrumentName #'self-alignment-X = #LEFT
      \set Staff.instrumentName = \markup \left-column {
        "Left aligned"
        "instrument name"
      }
      \set Staff.shortInstrumentName = #"Left"
      c'1
      \break
      c'1
    }
    \new Staff {
      \override Staff.InstrumentName #'self-alignment-X = #CENTER
      \set Staff.instrumentName = \markup \center-column {
        Centered
        "instrument name"
      }
      \set Staff.shortInstrumentName = #"Centered"
      g'1
      g'1
    }
  \new Staff {

```



```


\override Staff.InstrumentName #'self-alignment-X = #RIGHT
\set Staff.instrumentName = \markup \right-column {
  "Right aligned"
  "instrument name"
}
\set Staff.shortInstrumentName = #"Right"
e'1
e'1
}
>>
\layout {
  ragged-right = ##t
  indent = 4\cm
  short-indent = 2\cm
}
}

```

Left aligned  
instrument name

Centered  
instrument name


Right aligned  
instrument name



Left

Centered

Right



## Aligning marks with various notation objects

If specified, text marks may be aligned with notation objects other than bar lines. These objects include ambitus, breathing-sign, clef, custos, staff-bar, left-edge, key-cancellation, key-signature, and time-signature.

In such cases, text marks will be horizontally centered above the object. However this can be changed, as demonstrated on the second line of this example (in a score with multiple staves, this setting should be done for all the staves).

```

\relative c' {
  e1

  % the RehearsalMark will be centered above the Clef
  \override Score.RehearsalMark #'break-align-symbols = #'(clef)
}

```

```

\key a \major
\clef treble
\mark \markup { \char ##x2193 }
e1

% the RehearsalMark will be centered above the TimeSignature
\override Score.RehearsalMark #'break-align-symbols = #'(time-signature)
\key a \major
\clef treble
\time 3/4
\mark \markup { \char ##x2193 }
e2.

% the RehearsalMark will be centered above the KeySignature
\override Score.RehearsalMark #'break-align-symbols = #'(key-signature)
\key a \major
\clef treble
\time 4/4
\mark \markup { \char ##x2193 }
e1

\break
e1

% the RehearsalMark will be aligned with the left edge of the KeySignature
\once \override Score.KeySignature #'break-align-anchor-alignment = #LEFT
\mark \markup { \char ##x2193 }
\key a \major
e1

% the RehearsalMark will be aligned with the right edge of the KeySignature
\once \override Score.KeySignature #'break-align-anchor-alignment = #RIGHT
\key a \major
\mark \markup { \char ##x2193 }
e1

% the RehearsalMark will be aligned with the left edge of the KeySignature
% and then shifted right by one unit.
\once \override Score.KeySignature #'break-align-anchor = #1
\key a \major
\mark \markup { \char ##x2193 }
e1
}

```





## Aligning objects created with the \mark command

By default the `\mark` command centers objects over a bar line. This behavior can be modified to align at right or left.

```
\relative c' {
  c1 \mark "(Center)"
  c1
  \once \override Score.RehearsalMark #'self-alignment-X = #LEFT
  \mark "(Left)"
  c4 c c c
  c4 c c c
  \once \override Score.RehearsalMark #'self-alignment-X = #RIGHT
  \mark "(Right)"
  c1
}
```



## Aligning syllables with melisma

By default, lyrics syllables that start a melisma are left aligned on their note. The alignment can be altered using the `lyricMelismaAlignment` property.

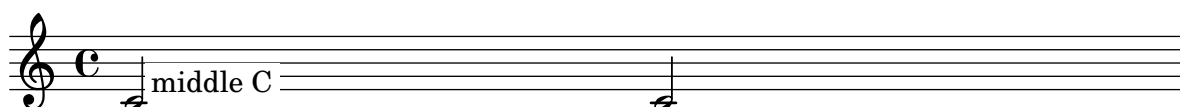
```
\score {
  <<
  \new Staff {
    \relative c''
    \new Voice = "vocal" {
      c d~\markup default d e
      c d~\markup "right aligned" d e
      c d~\markup "center aligned" d e
      c d~\markup "reset to default" d e
    }
  }
  \new Lyrics \lyricsto "vocal" \lyricmode {
    word word word
    \set lyricMelismaAlignment = #RIGHT
    word word word
    \set lyricMelismaAlignment = #CENTER
    word word word
    \unset lyricMelismaAlignment
    word word word
  }
  >>
}
```



## Blanking staff lines using the `\whiteout` command

The `\whiteout` command underlays a markup with a white box. Since staff lines are in a lower layer than most other grobs, this white box will not overlap any other grob.

```
\layout { ragged-right = ##f }
\relative c' {
  \override TextScript #'extra-offset = #'(2 . 4)
  c2-\markup { \whiteout \pad-markup #0.5 "middle C" } c
}
```



## Center text below hairpin dynamics

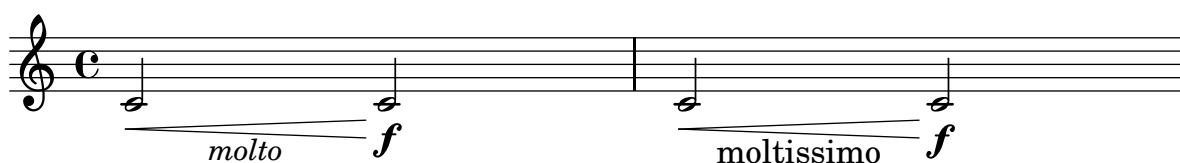
This example provides a function to typeset a hairpin (de)crescendo with some additional text below it, such as “molto” or “poco”. The example also illustrates how to modify the way an object is normally printed, using some Scheme code.

```
hairpinWithCenteredText =
#(define-music-function (parser location text) (markup?)
#{
  \override Voice.Hairpin #'stencil = #(lambda (grob)
    (ly:stencil-aligned-to
      (ly:stencil-combine-at-edge
        (ly:stencil-aligned-to (ly:hairpin::print grob) X CENTER)
        Y DOWN
        (ly:stencil-aligned-to (grob-interpret-markup grob text) X CENTER))
      X LEFT))
#})
```

```
hairpinMolto = \hairpinWithCenteredText \markup { \italic molto }
hairpinMore = \hairpinWithCenteredText \markup { \larger moltissimo }
```

```
\layout { ragged-right = ##f }
```

```
\relative c' {
  \hairpinMolto
  c2\< c\f
  \hairpinMore
  c2\< c\f
}
```



## Centering markup on note heads automatically

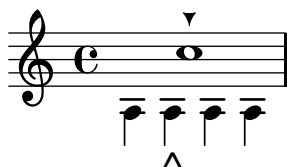
For technical reasons, text scripts attached to note heads cannot easily be centered on a note head's width, unlike articulations.

Instead of using trial-and-error offset tweaks, this snippet uses a Scheme engraver to reset the horizontal parent of each markup to a `NoteColumn`. This also allows text to follow note heads which have been shifted via `force-hshift`.

```
#(define (Text_align_engraver ctx)
  (let ((scripts '())
        (note-column #f))
    (make-engraver
      (acknowledgers
        ((note-column-interface trans grob source)
         ;; cache NoteColumn in this Voice context
         (set! note-column grob))
        ((text-script-interface trans grob source)
         ;; whenever a TextScript is acknowledged,
         ;; add it to `scripts' list
         (set! scripts (cons grob scripts))))
      ((stop-translation-timestep trans)
       ;; if any TextScript grobs exist,
       ;; set NoteColumn as X-parent
       (for-each (lambda (script)
                    (set! (ly:grob-parent script X) note-column))
                  scripts)
       ;; clear scripts ready for next timestep
       (set! scripts '())))))

\layout {
  \context {
    \Voice
    \consists #Text_align_engraver
    \override TextScript #'X-offset =
      #ly:self-alignment-interface::aligned-on-x-parent
    \override TextScript #'self-alignment-X = #CENTER
  }
}

\new Staff <<
  \relative c'' {
    \override NoteColumn #'force-hshift = #3
    c1-\markup { \arrow-head #Y #DOWN ##t }
  }
  \\\
  \relative c' {
    a4 a-\markup { \huge ^ } a a
  }
>>
```



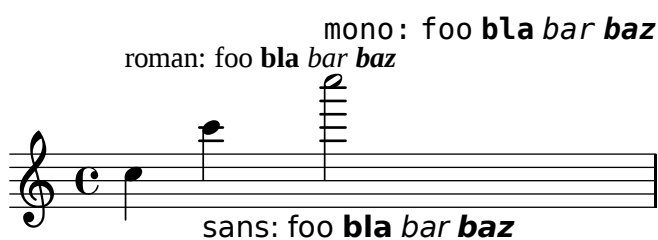
## Changing the default text font family

The default font families for text can be overridden with `make-pango-font-tree`.

```
\paper {
  % change for other default global staff size.
  myStaffSize = #20
  %{
    run
      lilypond -dshow-available-fonts blabla
      to show all fonts available in the process log.
  %}

  #(define fonts
    (make-pango-font-tree "Times New Roman"
                          "Nimbus Sans"
                          "Luxi Mono"
                          "Helvetica"
                          "Courier"
      (/ myStaffSize 20)))
}

\relative c'' {
  c4^\markup {
    roman: foo \bold bla \italic bar \italic \bold baz
  }
  c'4_\markup {
    \override #'(font-family . sans)
    {
      sans: foo \bold bla \italic bar \italic \bold baz
    }
  }
  c'2^\markup {
    \override #'(font-family . typewriter)
    {
      mono: foo \bold bla \italic bar \italic \bold baz
    }
  }
}
```



## Combining dynamics with markup texts

Some dynamics may involve text indications (such as “più forte” or “piano subito”). These can be produced using a `\markup` block.

```
piuF = \markup { \italic più \dynamic f }
\layout { ragged-right = ##f }
\relative c'' {
  c2\f c-\piuF
}
```



## Combining two parts on the same staff

The part combiner tool ( `\partcombine` command ) allows the combination of several different parts on the same staff. Text directions such as “solo” or “a2” are added by default; to remove them, simply set the property `printPartCombineTexts` to `f`. For vocal scores (hymns), there is no need to add “solo/a2” texts, so they should be switched off. However, it might be better not to use it if there are any solos, as they won’t be indicated. In such cases, standard polyphonic notation may be preferable.

This snippet presents the three ways two parts can be printed on a same staff: standard polyphony, `\partcombine` without texts, and `\partcombine` with texts.

```
musicUp = \relative c'' {
  \time 4/4
  a4 c4.( g8) a4 |
  g4 e' g,( a8 b) |
  c b a2.
}

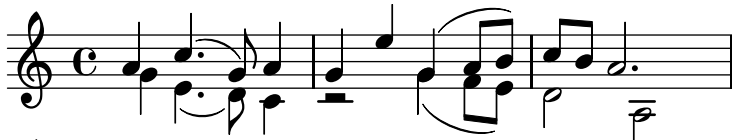


musicDown = \relative c'' {
  g4 e4.( d8) c4 |
  r2 g'4( f8 e) |
  d2 \stemDown a
}

\score {
  <<
    <<
      \new Staff {
        \set Staff.instrumentName = #"Standard polyphony"
        << \musicUp \\\musicDown >>
      }
      \new Staff \with { printPartCombineTexts = ##f } {
        \set Staff.instrumentName = #"PartCombine without texts"
        \partcombine \musicUp \musicDown
      }
      \new Staff {
        \set Staff.instrumentName = #"PartCombine with texts"
        \partcombine \musicUp \musicDown
      }
    >>
  }
}
```

```

    }
    >>
  >>
  \layout {
    indent = 6.0\cm
    \context {
      \Score
      \override SystemStartBar #'collapse-height = #30
    }
  }
}

```

Standard polyphony	
PartCombine without texts	
PartCombine with texts	

## Creating "real" parenthesized dynamics

Although the easiest way to add parentheses to a dynamic mark is to use a `\markup` block, this method has a downside: the created objects will behave like text markups, and not like dynamics.

However, it is possible to create a similar object using the equivalent Scheme code (as described in the Notation Reference), combined with the `make-dynamic-script` function. This way, the markup will be regarded as a dynamic, and therefore will remain compatible with commands such as `\dynamicUp` or `\dynamicDown`.

```

parenF = #(make-dynamic-script (markup #:line (#:normal-text #:italic
  #:font-size 2 "(" #:hspace -0.8 #:dynamic "f" #:normal-text
  #:italic #:font-size 2 ")"))))

```

```

\relative c' {
  c4\parenF c c \dynamicUp c\parenF
}

```



## Creating simultaneous rehearsal marks

Unlike text scripts, rehearsal marks cannot be stacked at a particular point in a score: only one `RehearsalMark` object is created. Using an invisible measure and bar line, an extra rehearsal



mark can be added, giving the appearance of two marks in the same column. This method may also prove useful for placing rehearsal marks at both the end of one system and the start of the following system.

```
{
  \key a \major
  \set Score.markFormatter = #format-mark-box-letters
  \once \override Score.RehearsalMark #'outside-staff-priority = #5000
  \once \override Score.RehearsalMark #'self-alignment-X = #LEFT
  \once \override Score.RehearsalMark #'break-align-symbols = #'(key-signature)
  \mark \markup { \bold { Senza denti } }

  % the hidden measure and bar line
  % \cadenzaOn turns off automatic calculation of bar numbers
  \cadenzaOn
  \once \override Score.TimeSignature #'stencil = ##f
  \time 1/16
  s16 \bar ""
  \cadenzaOff

  \time 4/4
  \once \override Score.RehearsalMark #'self-alignment-X = #LEFT
  \mark \markup { \box \bold Intro }
  d'1
  \mark \default
  d'1
}
```



## Creating text spanners

The `\startTextSpan` and `\stopTextSpan` commands allow the creation of text spanners as easily as pedal indications or octavations. Override some properties of the `TextSpanner` object to modify its output.

```
\paper { ragged-right = ##f }

\relative c' {
  \override TextSpanner #'(bound-details left text) = #"bla"
  \override TextSpanner #'(bound-details right text) = #"blu"
  a4 \startTextSpan
  b4 c
  a4 \stopTextSpan

  \override TextSpanner #'style = #'line
  \once \override TextSpanner
    #'(bound-details left stencil-align-dir-y) = #CENTER
  a4 \startTextSpan
  b4 c
}
```

```

a4 \stopTextSpan

\override TextSpanner #'style = #'dashed-line
\override TextSpanner #'(bound-details left text) =
  \markup { \draw-line #'(0 . 1) }
\override TextSpanner #'(bound-details right text) =
  \markup { \draw-line #'(0 . -2) }
\once \override TextSpanner #'(bound-details right padding) = #-2

a4 \startTextSpan
b4 c
a4 \stopTextSpan

\set Staff.middleCPosition = #-13
\override TextSpanner #'dash-period = #10
\override TextSpanner #'dash-fraction = #0.5
\override TextSpanner #'thickness = #10
a4 \startTextSpan
b4 c
a4 \stopTextSpan
}

```



## Demonstrating all headers

All header fields with special meanings.

```

\header {
  copyright = "copyright"
  title = "title"
  subtitle = "subtitle"
  composer = "composer"
  arranger = "arranger"
  instrument = "instrument"
  metre = "metre"
  opus = "opus"
  piece = "piece"
  poet = "poet"
  texidoc = "All header fields with special meanings."
  copyright = "public domain"
  enteredby = "jcn"
  source = "urtext"
}

\layout {
  ragged-right = ##f
}

```

```

\score {
  \relative c'' { c1 | c | c | c }
}

\score {
  \relative c'' { c1 | c | c | c }
  \header {
    title = "localtitle"
    subtitle = "localsubtitle"
    composer = "localcomposer"
    arranger = "localarranger"
    instrument = "localinstrument"
    metre = "localmetre"
    opus = "localopus"
    piece = "localpiece"
    poet = "localpoet"
    copyright = "localcopyright"
  }
}

```

	<b>title</b>	
	<b>subtitle</b>	
poet	<b>instrument</b>	composer
		arranger
piece		opus



localpiece	localopus
------------	-----------



## Embedding native PostScript in a \markup block

PostScript code can be directly inserted inside a \markup block.

% PostScript is a registered trademark of Adobe Systems Inc.

```

\relative c'' {
  a4-\markup { \postscript #"3 4 moveto 5 3 rlineto stroke" }
  -\markup { \postscript #"[ 0 1 ] 0 setdash 3 5 moveto 5 -3 rlineto stroke " }

  b4-\markup { \postscript #"3 4 moveto 0 0 1 2 8 4 20 3.5 rcurveto stroke" }
  s2
  a'1
}

```

}

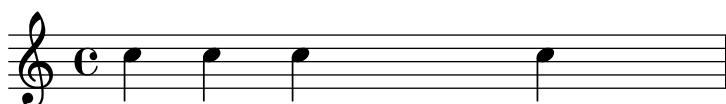


## Formatting lyrics syllables

Markup mode may be used to format individual syllables in lyrics.

```
mel = \relative c'' { c4 c c c }
lyr = \lyricmode {
  Lyrics \markup { \italic can } \markup { \with-color #red contain }
  \markup { \fontsize #8 \bold Markup! }
}
```

```
<<
  \new Voice = melody \mel
  \new Lyrics \lyricsto melody \lyr
>>
```



Lyrics *can* contain **Markup!**

## How to put ties between syllables in lyrics

This can be achieved by separating those syllables by tildes.

```
\lyrics {
  wa~o~a
}
```

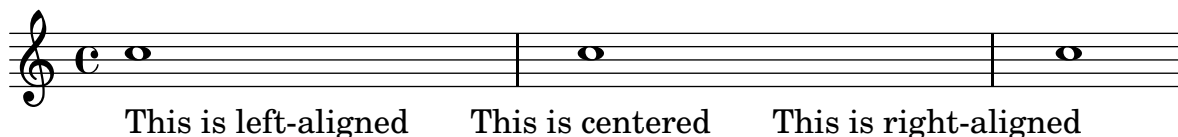
waoa

## Lyrics alignment

Horizontal alignment for lyrics can be set by overriding the `self-alignment-X` property of the `LyricText` object. #-1 is left, #0 is center and #1 is right; however, you can use `#LEFT`, `#CENTER` and `#RIGHT` as well.

```
\layout { ragged-right = ##f }
\relative c'' {
  c1
  c1
  c1
}
\addlyrics {
  \once \override LyricText #'self-alignment-X = #LEFT
  "This is left-aligned"
  \once \override LyricText #'self-alignment-X = #CENTER
  "This is centered"
  \once \override LyricText #'self-alignment-X = #1
```

```
"This is right-aligned"
}
```



## Markup lines

Text that can spread over pages is entered with the `\markuplist` command.

```
#(set-default-paper-size "a6")

#(define-markup-list-command (paragraph layout props args) (markup-list?)
  (interpret-markup-list layout props
    (make-justified-lines-markup-list (cons (make-hspace-markup 2) args))))

% Candide, Voltaire
\markuplist {
  \override-lines #'(baseline-skip . 2.5) {
    \paragraph {
      Il y avait en Westphalie, dans le château de M. le baron de
      Thunder-ten-tronckh, un jeune garçon à qui la nature avait donné
      les mœurs les plus douces. Sa physionomie annonçait son âme.
      Il avait le jugement assez droit, avec l'esprit le plus simple ;
      c'est, je crois, pour cette raison qu'on le nommait Candide. Les
      anciens domestiques de la maison soupçonnaient qu'il était fils
      de la sœur de monsieur le baron et d'un bon et honnête
      gentilhomme du voisinage, que cette demoiselle ne voulut jamais
      épouser parce qu'il n'avait pu prouver que soixante et onze
      quartiers, et que le reste de son arbre généalogique avait été
      perdu par l'injure du temps.
    }
    \paragraph {
      Monsieur le baron était un des plus puissants seigneurs de la
      Westphalie, car son château avait une porte et des fenêtres. Sa
      grande salle même était ornée d'une tapisserie. Tous les chiens
      de ses basses-cours composaient une meute dans le besoin ; ses
      palefreniers étaient ses piqueurs; le vicaire du village était
      son grand-aumônier. Ils l'appelaient tous monseigneur, et ils
      riaient quand il faisait des contes.
    }
  }
}
```

Il y avait en Westphalie, dans le château de M. le

baron de Thunder-ten-tronckh, un jeune garçon à qui

la nature avait donné les mœurs les plus douces. Sa

physionomie annonçait son âme. Il avait le jugement assez droit, avec l'esprit le plus simple ; c'est, je crois, pour cette raison qu'on le nommait Candide. Les anciens domestiques de la maison soupçonnaient qu'il était fils de la sœur de monsieur le baron et d'un bon et honnête gentilhomme du voisinage, que cette demoiselle ne voulut jamais épouser parce qu'il n'avait pu prouver que soixante et onze quartiers, et que le reste de son arbre généalogique avait été perdu par l'injure du temps.

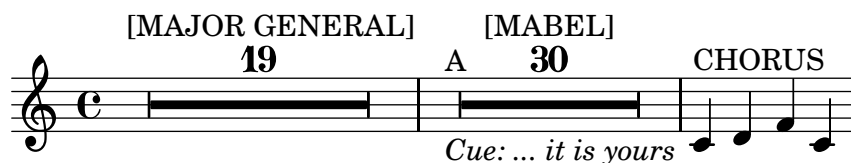
Monsieur le baron était un des plus puissants seigneurs de la Westphalie, car son château avait une porte et des fenêtres. Sa grande salle même était ornée d'une tapisserie. Tous les chiens de ses basses-cours composaient une meute dans le besoin ; ses palefreniers étaient ses piqueurs; le vicaire du village était son grand-aumônier. Ils l'appelaient tous monseigneur, et ils riaient quand il faisait des contes.

## Multi-measure rest markup

Markups attached to a multi-measure rest will be centered above or below it. Long markups attached to multi-measure rests do not cause the measure to expand. To expand a multi-measure rest to fit the markup, use a spacer rest with an attached markup before the multi-measure rest.

Note that the spacer rest causes a bar line to be inserted. Text attached to a spacer rest in this way is left-aligned to the position where the note would be placed in the measure, but if the measure length is determined by the length of the text, the text will appear to be centered.

```
\relative c' {
  \compressFullBarRests
  \textLengthOn
  s1*0^\markup { [MAJOR GENERAL] }
  R1*19
  s1*0_\markup { \italic { Cue: ... it is yours } }
  s1*0^\markup { A }
  R1*30^\markup { [MABEL] }
  \textLengthOff
  c4^\markup { CHORUS } d f c
}
```



## Ottava text

Internally, `\ottava` sets the properties `ottavation` (for example, to `8va` or `8vb`) and `middleCPosition`. To override the text of the bracket, set `ottavation` after invoking `\ottava`.

```
{
  \ottava #1
  \set Staff.ottavation = #"8"
  c''1
  \ottava #0
  c'1
  \ottava #1
  \set Staff.ottavation = #"Text"
  c''1
}
```



## Outputting the version number

By putting the output of `lilypond-version` into a lyric, it is possible to print the version number of LilyPond in a score, or in a document generated with `lilypond-book`. Another possibility is to append the version number to the doc-string, in this manner:

```
\score {
  \new Lyrics {
```

```

\override Score.RehearsalMark #'self-alignment-X = #LEFT
\mark #(string-append "Processed with LilyPond version " (lilypond-version))
s2
}
}

```

## Processed with LilyPond version 2.16.1

### Piano template with centered lyrics

Instead of having a full staff for the melody and lyrics, lyrics can be centered between the staves of a piano staff.

```

upper = \relative c'' {
  \clef treble
  \key c \major
  \time 4/4

  a4 b c d
}

lower = \relative c {
  \clef bass
  \key c \major
  \time 4/4

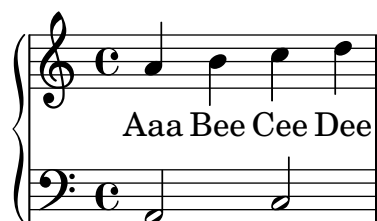
  a2 c
}

text = \lyricmode {
  Aaa Bee Cee Dee
}

\score {
  \new GrandStaff <<
    \new Staff = upper { \new Voice = "singer" \upper }
    \new Lyrics \lyricsto "singer" \text
    \new Staff = lower { \lower }
  >>
  \layout {
    \context {
      \GrandStaff
      \accepts "Lyrics"
    }
    \context {
      \Lyrics
      \consists "Bar_engraver"
    }
  }
  \midi {}
}

```

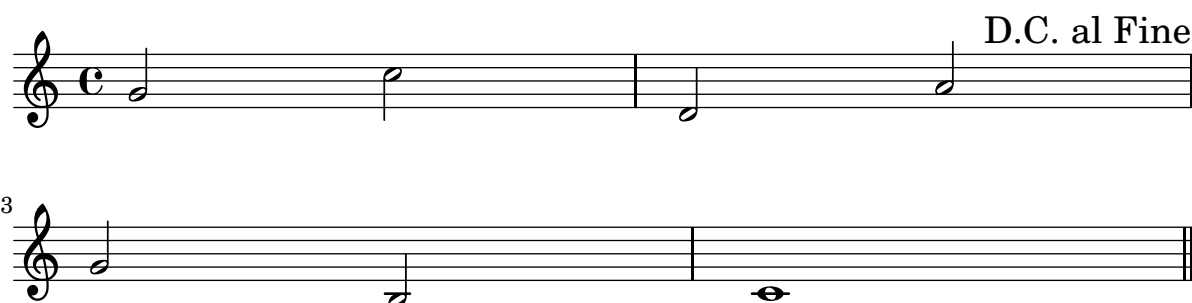




## Printing marks at the end of a line

Marks can be printed at the end of the current line, instead of the beginning of the following line. In such cases, it might be preferable to align the right end of the mark with the bar line.

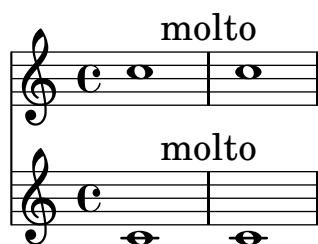
```
\relative c' ' {
  g2 c
  d,2 a'
  \once \override Score.RehearsalMark #'break-visibility = #end-of-line-visible
  \once \override Score.RehearsalMark #'self-alignment-X = #RIGHT
  \mark "D.C. al Fine"
  \break
  g2 b,
  c1 \bar "||"
}
```



## Printing marks on every staff

Although text marks are normally only printed above the topmost staff, they may also be printed on every staff.

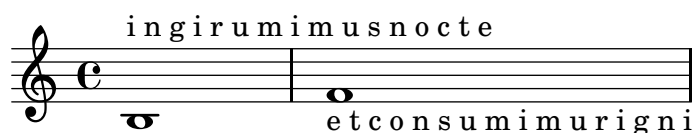
```
\score {
  <<
    \new Staff { c''1 \mark "molto" c'' }
    \new Staff { c'1 \mark "molto" c' }
  >>
  \layout {
    \context {
      \Score
      \remove "Mark_engraver"
      \remove "Staff_collecting_engraver"
    }
    \context {
      \Staff
      \consists "Mark_engraver"
      \consists "Staff_collecting_engraver"
    }
  }
}
```



## Printing text from right to left

It is possible to print text from right to left in a markup object, as demonstrated here.

```
{
  b1^\markup {
    \line { i n g i r u m i m u s n o c t e }
  }
  f'_\markup {
    \override #'(text-direction . -1)
    \line { i n g i r u m i m u s n o c t e }
  }
}
```



## Putting lyrics inside the staff

Lyrics can be moved vertically to place them inside the staff. The lyrics are moved with `\override LyricText #'extra-offset = #'(0 . dy)` and there are similar commands to move the extenders and hyphens. The offset needed is established with trial and error.

```
<<
  \new Staff <<
    \new Voice = "voc" \relative c' { \stemDown a bes c8 b c4 }
  >>
  \new Lyrics \with {
    \override LyricText #'extra-offset = #'(0 . 8.6)
    \override LyricExtender #'extra-offset = #'(0 . 8.6)
    \override LyricHyphen #'extra-offset = #'(0 . 8.6)
  } \lyricsto "voc" { La la -- la _ _ la }
>>
```



## Stand-alone two-column markup

Stand-alone text may be arranged in several columns using `\markup` commands:

```
\markup {
  \fill-line {
    \hspace #1
    \column {
```

```

\line { 0 sacrum convivium }
\line { in quo Christus sumitur, }
\line { recolitur memoria passionis ejus, }
\line { mens impletur gratia, }
\line { futurae gloriae nobis pignus datur. }
\line { Amen. }
}
\hspace #2
\column {
  \line { \italic { 0 sacred feast } }
  \line { \italic { in which Christ is received, } }
  \line { \italic { the memory of His Passion is renewed, } }
  \line { \italic { the mind is filled with grace, } }
  \line { \italic { and a pledge of future glory is given to us. } }
  \line { \italic { Amen. } }
}
\hspace #1
}
}

```

O sacrum convivium  
in quo Christus sumitur,  
recolitur memoria passionis ejus,  
mens impletur gratia,  
futurae gloriae nobis pignus datur.  
Amen.

*O sacred feast  
in which Christ is received,  
the memory of His Passion is renewed,  
the mind is filled with grace,  
and a pledge of future glory is given to us.  
Amen.*

## String number extender lines

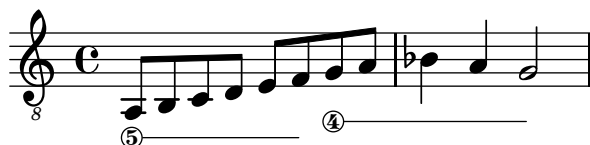
Make an extender line for string number indications, showing that a series of notes is supposed to be played all on the same string.

```

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

\relative c {
  \clef "treble_8"
  \stringNumberSpanner "5"
  \textSpannerDown
  a8\startTextSpan
  b c d e f\stopTextSpan
  \stringNumberSpanner "4"
  g\startTextSpan a
  bes4 a g2\stopTextSpan
}

```



## Three-sided box

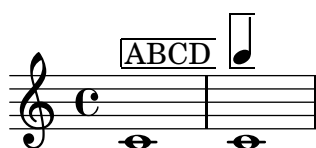
This example shows how to add a markup command to get a three sided box around some text (or other markup).

```
% New command to add a three sided box, with sides north, west and south
% Based on the box-stencil command defined in scm/stencil.scm
% Note that ";;" is used to comment a line in Scheme
#(define-public (NWS-box-stencil stencil thickness padding)
  "Add a box around STENCIL, producing a new stencil."
  (let* ((x-ext (interval-widen (ly:stencil-extent stencil X) padding))
        (y-ext (interval-widen (ly:stencil-extent stencil Y) padding))
        (y-rule (make-filled-box-stencil (cons 0 thickness) y-ext))
        (x-rule (make-filled-box-stencil
                  (interval-widen x-ext thickness) (cons 0 thickness))))
    ;; (set! stencil (ly:stencil-combine-at-edge stencil X 1 y-rule padding))
    (set! stencil (ly:stencil-combine-at-edge stencil X LEFT y-rule padding))
    (set! stencil (ly:stencil-combine-at-edge stencil Y UP x-rule 0.0))
    (set! stencil (ly:stencil-combine-at-edge stencil Y DOWN x-rule 0.0))
    stencil))

% The corresponding markup command, based on the \box command defined
% in scm/define-markup-commands.scm
#(define-markup-command (NWS-box layout props arg) (markup?)
  "Draw a box round @var{arg}. Looks at @code{thickness},
@code{box-padding} and @code{font-size} properties to determine line
thickness and padding around the markup."
  (let* ((th (chain-assoc-get 'thickness props 0.1))
        (size (chain-assoc-get 'font-size props 0))
        (pad (* (magstep size)
                (chain-assoc-get 'box-padding props 0.2)))
        (m (interpret-markup layout props arg)))
    (NWS-box-stencil m th pad)))
```

% Test it:

```
\relative c' {
  c1^\markup { \NWS-box ABCD }
  c1^\markup { \NWS-box \note #"4" #1.0 }
}
```



## UTF-8

Various scripts may be used for texts (like titles and lyrics) by entering them in UTF-8 encoding, and using a Pango based backend. Depending on the fonts installed, this fragment will render Bulgarian (Cyrillic), Hebrew, Japanese and Portuguese.

```

% end verbatim - this comment is a hack to prevent texinfo.tex
% from choking on non-European UTF-8 subsets

%% Edit this file using a Unicode aware editor, such as GVIM, GEDIT, Emacs

%{

You may have to install additional fonts.

Red Hat Fedora

    taipeifonts fonts-xorg-truetype ttfonts-ja fonts-arabic \
    ttfonts-zh_CN fonts-ja fonts-hebrew

Debian GNU/Linux

    apt-get install emacs-intl-fonts xfonts-intl-.* \
    ttf-kochi-gothic ttf-kochi-mincho \
    xfonts-bolkhov-75dpi xfonts-cronyx-100dpi xfonts-cronyx-75dpi
%}

% Cyrillic font
bulgarian = \lyricmode {
    , , , .
}

hebrew = \lyricmode {
    .
}

japanese = \lyricmode {

}

% "a legal song to you"
portuguese = \lyricmode {
    à vo -- cê uma can -- ção legal
}

\relative c' {
    c2 d
    e2 f
    g2 f
    e1
}
\addlyrics { \bulgarian }
\addlyrics { \hebrew }
\addlyrics { \japanese }
\addlyrics { \portuguese }

```

The image shows a musical score for a vocal ensemble. It consists of two staves. The first staff has a treble clef and a common time signature (C). It contains four measures of music, each with a single note. The lyrics are written below the staff, aligned with the notes. The second staff has a treble clef and a common time signature (C). It contains three measures of music, each with a single note. The lyrics are written below the staff, aligned with the notes. The lyrics are in Bulgarian, Hebrew, and Japanese.

Жълтата дюля беше щастлива,  
 הַי דּוּלָּהּ בִּשְׂמֵחָה,  
 いろはにほへと ちりぬるを わがよたれぞ つねならむ  
 à vo - - cê uma

че пухът, който  
 הָאֵר הַנֶּחֱמָה הַזֶּה  
 うみのおくや まけふこえて あさきゆめみじ  
 can - - ção legal

## Vocal ensemble template with lyrics aligned below and above the staves

This template is basically the same as the simple “Vocal ensemble” template, with the exception that here all the lyrics lines are placed using `alignAboveContext` and `alignBelowContext`.

```
global = {
  \key c \major
  \time 4/4
}

sopMusic = \relative c' {
  c4 c c8[( b)] c4
}
sopWords = \lyricmode {
  hi hi hi hi
}

altoMusic = \relative c' {
  e4 f d e
}
altoWords = \lyricmode {
  ha ha ha ha
}

tenorMusic = \relative c' {
  g4 a f g
}
tenorWords = \lyricmode {
  hu hu hu hu
}

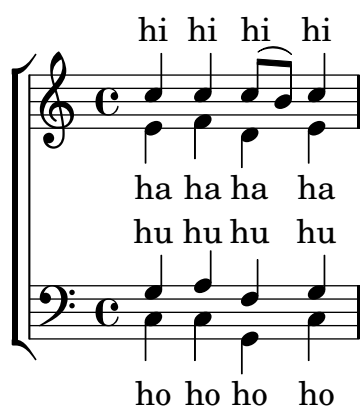
bassMusic = \relative c {
  c4 c g c
}
bassWords = \lyricmode {
  ho ho ho ho
}
```

```

\score {
  \new ChoirStaff <<
    \new Staff = "women" <<
      \new Voice = "sopranos" { \voiceOne << \global \sopMusic >> }
      \new Voice = "altos" { \voiceTwo << \global \altoMusic >> }
    >>
    \new Lyrics \with { alignAboveContext = #"women" }
      \lyricsto "sopranos" \sopWords
    \new Lyrics \with { alignBelowContext = #"women" }
      \lyricsto "altos" \altoWords
    % we could remove the line about this with the line below, since
    % we want the alto lyrics to be below the alto Voice anyway.
    % \new Lyrics \lyricsto "altos" \altoWords

    \new Staff = "men" <<
      \clef bass
      \new Voice = "tenors" { \voiceOne << \global \tenorMusic >> }
      \new Voice = "basses" { \voiceTwo << \global \bassMusic >> }
    >>
    \new Lyrics \with { alignAboveContext = #"men" }
      \lyricsto "tenors" \tenorWords
    \new Lyrics \with { alignBelowContext = #"men" }
      \lyricsto "basses" \bassWords
    % again, we could replace the line above this with the line below.
    % \new Lyrics \lyricsto "basses" \bassWords
  >>
}

```



## Volta text markup using repeatCommands

Though volta are best specified using `\repeat volta`, the context property `repeatCommands` must be used in cases where the volta text needs more advanced formatting with `\markup`.

Since `repeatCommands` takes a list, the simplest method of including markup is to use an identifier for the text and embed it in the command list using the Scheme syntax  `#(list (list 'volta textIdentifier))`. Start- and end-repeat commands can be added as separate list elements:

```
voltaAdLib = \markup { 1. 2. 3... \text \italic { ad lib. } }
```

```
\relative c' {
```

```
c1
\set Score.repeatCommands = #(list (list 'volta voltaAdLib) 'start-repeat)
c4 b d e
\set Score.repeatCommands = #'((volta #f) (volta "4.") end-repeat)
f1
\set Score.repeatCommands = #'((volta #f))
}
```





## Vocal music

Section “Vocal music” in *Notation Reference*

### Adding ambitus per voice

Ambitus can be added per voice. In this case, the ambitus must be moved manually to prevent collisions.

```
\new Staff <<
  \new Voice \with {
    \consists "Ambitus_engraver"
  } \relative c' {
    \override Ambitus #'X-offset = #2.0
    \voiceOne
    c4 a d e
    f1
  }
  \new Voice \with {
    \consists "Ambitus_engraver"
  } \relative c' {
    \voiceTwo
    es4 f g as
    b1
  }
}>>
```



### Adding indicators to staves which get split after a break

This snippet defines the `\splitStaffBarLine` command, which adds arrows in north-east and south-east directions at a bar line, to denote that several voices sharing a staff will each continue on a staff of their own in the next system.

```
#(define-markup-command (arrow-at-angle layout props angle-deg length fill)
  (number? number? boolean?)
  (let* (
    ;; PI-OVER-180 and degrees->radians are taken from flag-styles.scm
    (PI-OVER-180 (/ (atan 1 1) 45))
    (degrees->radians (lambda (degrees) (* degrees PI-OVER-180)))
    (angle-rad (degrees->radians angle-deg))
    (target-x (* length (cos angle-rad)))
    (target-y (* length (sin angle-rad))))
    (interpret-markup layout props
      (markup
        #:translate (cons (/ target-x 2) (/ target-y 2))
        #:rotate angle-deg
        #:translate (cons (/ length -2) 0)
        #:concat (lambda (draw-line) (cons length 0)
          #:arrow-head X RIGHT fill))))))
```

```

splitStaffBarLineMarkup = \markup \with-dimensions #'(0 . 0) #'(0 . 0) {
  \combine
    \arrow-at-angle #45 #(sqrt 8) ##f
    \arrow-at-angle #-45 #(sqrt 8) ##f
}

splitStaffBarLine = {
  \once \override Staff.BarLine #'stencil =
    #(lambda (grob)
      (ly:stencil-combine-at-edge
        (ly:bar-line::print grob)
        X RIGHT
        (grob-interpret-markup grob splitStaffBarLineMarkup)
        0))
  \break
}

\paper {
  ragged-right = ##t
  short-indent = 5\mm
}

\score {
  <<
    \new ChoirStaff <<
      \new Staff \with { instrumentName = #"High I + II" } {
        <<
          \repeat unfold 4 f''1
          \\
          \repeat unfold 4 d''1
        >>
        \splitStaffBarLine
      }
      \new Staff \with { instrumentName = #"Low" } {
        <<
          \repeat unfold 4 b'1
          \\
          \repeat unfold 4 g'1
        >>
      }
    >>

    \new Staff \with { shortInstrumentName = #"H I" } {
      R1*4
      \repeat unfold 2 { r4 f''2 r4 } \repeat unfold 2 e''1
    }
    \new Staff \with { shortInstrumentName = #"H II" } {
      R1*4
      \repeat unfold 4 b'2 \repeat unfold 2 c''1
    }
    \new Staff \with { shortInstrumentName = #"L" } {
      R1*4
      <<

```

```

        \repeat unfold 4 g'1
        \\\
        \repeat unfold 4 c'1
    >>
  }
  >>
>>
\layout {
  \context {
    \Staff \RemoveEmptyStaves
    \override VerticalAxisGroup #'remove-first = ##t
  }
}
}

```

High I + II

Low

H I

H II

L

## Adding orchestral cues to a vocal score

This shows one approach to simplify adding many orchestral cues to the piano reduction in a vocal score. The music function `\cueWhile` takes four arguments: the music from which the cue is to be taken, as defined by `\addQuote`, the name to be inserted before the cue notes, then either `#UP` or `#DOWN` to specify either `\voiceOne` with the name above the staff or `\voiceTwo` with the name below the staff, and finally the piano music in parallel with which the cue notes are to appear. The name of the cued instrument is positioned to the left of the cued notes. Many passages can be cued, but they cannot overlap each other in time.

```

cueWhile =
#(define-music-function
  (parser location instrument name dir music)
  (string? string? ly:dir? ly:music?)
  #{
    \cueDuring $instrument #dir {
      \once \override TextScript #'self-alignment-X = #RIGHT
      \once \override TextScript #'direction = $dir
      <->-\markup { \tiny #name }
    }
  }

```

```

        $music
    }
    #})

flute = \relative c'' {
    \transposition c'
    s4 s4 e g
}
\addQuote "flute" { \flute }

clarinet = \relative c' {
    \transposition bes
    fis4 d d c
}
\addQuote "clarinet" { \clarinet }

singer = \relative c'' { c4. g8 g4 bes4 }
words = \lyricmode { here's the lyr -- ics }

pianoRH = \relative c'' {
    \transposition c'
    \cueWhile "clarinet" "Clar." #DOWN { c4. g8 }
    \cueWhile "flute" "Flute" #UP { g4 bes4 }
}
pianoLH = \relative c { c4 <c' e> e, <g c> }

\score {
    <<
        \new Staff {
            \new Voice = "singer" {
                \singer
            }
        }
        \new Lyrics {
            \lyricsto "singer"
            \words
        }
        \new PianoStaff <<
            \new Staff {
                \new Voice {
                    \pianoRH
                }
            }
            \new Staff {
                \clef "bass"
                \pianoLH
            }
        >>
    >>
}

```



## Adjusting lyrics vertical spacing

This snippet shows how to bring the lyrics line closer to the staff.

% Default layout:

<<

```
\new Staff \new Voice = melody \relative c' {
  c4 d e f
  g4 f e d
  c1
}
\new Lyrics \lyricsto melody { aa aa aa aa aa aa aa aa }
```

```
\new Staff {
  \new Voice = melody \relative c' {
    c4 d e f
    g4 f e d
    c1
  }
}
```

% Reducing the minimum space below the staff and above the lyrics:

```
\new Lyrics \with {
  \override VerticalAxisGroup #'nonstaff-relatedstaff-spacing = #'((basic-distance . 1))
}
\lyricsto melody { aa aa aa aa aa aa aa aa }
```

>>



## Aligning syllables with melisma

By default, lyrics syllables that start a melisma are left aligned on their note. The alignment can be altered using the `lyricMelismaAlignment` property.

```
\score {
  <<
  \new Staff {
    \relative c''
    \new Voice = "vocal" {
```

```

      c d~\markup default d e
      c d~\markup "right aligned" d e
      c d~\markup "center aligned" d e
      c d~\markup "reset to default" d e
    }
  }
  \new Lyrics \lyricsto "vocal" \lyricmode {
    word word word
    \set lyricMelismaAlignment = #RIGHT
    word word word
    \set lyricMelismaAlignment = #CENTER
    word word word
    \unset lyricMelismaAlignment
    word word word
  }
>>
}

```



## Ambitus with multiple voices

Adding the `Ambitus_engraver` to the `Staff` context creates a single ambitus per staff, even in the case of staves with multiple voices.

```

\new Staff \with {
  \consists "Ambitus_engraver"
}
<<
\new Voice \relative c'' {
  \voiceOne
  c4 a d e
  f1
}
\new Voice \relative c' {
  \voiceTwo
  es4 f g as
  b1
}
>>

```



## Ambitus

Ambitus indicate pitch ranges for voices.

Accidentals only show up if they are not part of the key signature. `AmbitusNoteHead` grobs also have ledger lines.

```
\layout {
  \context {
    \Voice
    \consists "Ambitus_engraver"
  }
}
```

```
<<
  \new Staff {
    \relative c' {
      \time 2/4
      c4 f'
    }
  }
  \new Staff {
    \relative c' {
      \time 2/4
      \key d \major
      cis4 as'
    }
  }
}>>
```



## Ancient notation template – modern transcription of gregorian music

This example demonstrates how to do modern transcription of Gregorian music. Gregorian music has no measure, no stems; it uses only half and quarter note heads, and special marks, indicating rests of different length.

```
\include "gregorian.ly"
```

```
chant = \relative c' {
  \set Score.timing = ##f
  f4 a2 \divisioMinima
  g4 b a2 f2 \divisioMaior
  g4( f) f( g) a2 \finalis
}
```

```
verba = \lyricmode {
  Lo -- rem ip -- sum do -- lor sit a -- met
}
```

```
\score {
  \new Staff <<
    \new Voice = "melody" \chant
```

```

\new Lyrics = "one" \lyricsto melody \verba
>>
\layout {
  \context {
    \Staff
    \remove "Time_signature_engraver"
    \remove "Bar_engraver"
    \override Stem #'transparent = ##t
    \override Flag #'transparent = ##t
  }
  \context {
    \Voice
    \override Stem #'length = #0
  }
  \context {
    \Score
    barAlways = ##t
  }
}
}

```



## Anglican psalm template

This template shows one way of setting out an Anglican psalm chant. It also shows how the verses may be added as stand-alone text under the music. The two verses are coded in different styles to demonstrate more possibilities.

```

SopranoMusic = \relative g' {
  g1 | c2 b | a1 | \bar "||"
  a1 | d2 c | c b | c1 | \bar "||"
}

```

```

AltoMusic = \relative c' {
  e1 | g2 g | f1 |
  f1 | f2 e | d d | e1 |
}

```

```

TenorMusic = \relative a {
  c1 | c2 c | c1 |
  d1 | g,2 g | g g | g1 |
}

```

```

BassMusic = \relative c {
  c1 | e2 e | f1 |
  d1 | b2 c | g' g | c,1 |
}

```

```

global = {

```



```

\time 2/2
}

dot = \markup {
  \raise #0.7 \musicglyph #"dots.dot"
}

tick = \markup {
  \raise #1 \fontsize #-5 \musicglyph #"scripts.rvarcomma"
}

% Use markup to center the chant on the page
\markup {
  \fill-line {
    \score { % centered
      <<
        \new ChoirStaff <<
          \new Staff <<
            \global
            \clef "treble"
            \new Voice = "Soprano" <<
              \voiceOne
              \SopranoMusic
            >>
            \new Voice = "Alto" <<
              \voiceTwo
              \AltoMusic
            >>
          >>
        \new Staff <<
          \clef "bass"
          \global
          \new Voice = "Tenor" <<
            \voiceOne
            \TenorMusic
          >>
          \new Voice = "Bass" <<
            \voiceTwo
            \BassMusic
          >>
        >>
      >>
    }
  }
  \layout {
    \context {
      \Score
      \override SpacingSpanner
        #'base-shortest-duration = #(ly:make-moment 1 2)
    }
    \context {
      \Staff
      \remove "Time_signature_engraver"
    }
  }
}

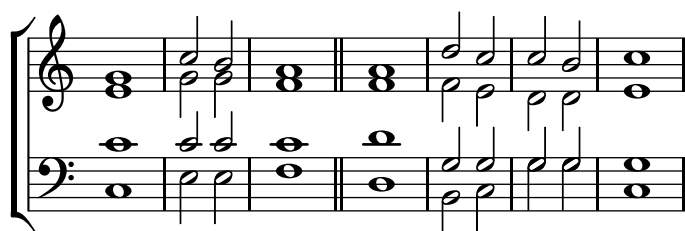
```

```

    }
  }
} % End score
}
} % End markup

\markup {
  \fill-line {
    \column {
      \left-align {
        \null \null \null
        \line {
          \fontsize #5 0
          \fontsize #3 come
          let us \bold sing | unto \dot the | Lord : let
        }
        \line {
          us heartily
          \concat { re \bold joice }
          in the | strength of | our
        }
        \line {
          sal | vation.
        }
        \null
        \line {
          \hspace #2.5 8. Today if ye will hear his voice *
        }
        \line {
          \concat { \bold hard en }
          \tick not your \tick hearts : as in the pro-
        }
        \line {
          vocation * and as in the \bold day of tempt- \tick
        }
        \line {
          -ation \tick in the \tick wilderness.
        }
      }
    }
  }
}
}
}

```



**O** come let us **sing** | unto • the | Lord : let  
us heartily **rejoice** in the | strength of | our  
sal | vation.

8. Today if ye will hear his voice \*  
**harden** ' not your ' hearts : as in the pro-  
vocation \* and as in the **day** of tempt- '  
-ation ' in the ' wilderness.

## Changing stanza fonts

Fonts can be changed independently for each stanza, including the font used for printing the stanza number.

```
\new Voice {
  \time 3/4
  g2 e4
  a2 f4
  g2.
}
\addlyrics {
  \set stanza = #"1. "
  Hi, my name is Bert.
}
\addlyrics {
  \override StanzaNumber #'font-name = #"DejaVu"
  \set stanza = #"2. "
  \override LyricText #'font-family = #'typewriter
  Oh, ché -- ri, je t'aime
}
```



1. Hi, my name is Bert.  
2. Oh, ché-ri, je t'aime

## Chant or psalms notation

This form of notation is used for the chant of the Psalms, where verses aren't always the same length.

```
stemOn = {
  \revert Staff.Stem #'transparent
  \revert Staff.Flag #'transparent
}

stemOff = {
  \override Staff.Stem #'transparent = ##t
  \override Staff.Flag #'transparent = ##t
}
```

```
\score {
  \new Staff \with { \remove "Time_signature_engraver" }
  {
    \key g \minor
    \cadenzaOn
    \stemOff a'\breve bes'4 g'4
    \stemOn a'2 \bar "||"
    \stemOff a'\breve g'4 a'4
    \stemOn f'2 \bar "||"
    \stemOff a'\breve^\markup { \italic flexe }
    \stemOn g'2 \bar "||"
  }
}
```



## Forcing hyphens to be shown

If LilyPond does not think there is space for a hyphen, it will be omitted. The behaviour can be overridden with the `minimum-distance` property of `LyricHyphen`.

```
\relative c'' {
  c32 c c c
  c32 c c c
  c32 c c c
  c32 c c c
}
\addlyrics {
  syl -- lab word word
  \override LyricHyphen #'minimum-distance = #1.0
  syl -- lab word word
  \override LyricHyphen #'minimum-distance = #2.0
  syl -- lab word word
  \revert LyricHyphen #'minimum-distance
  syl -- lab word word
}
```

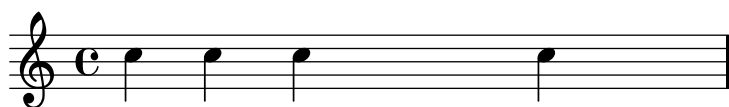


## Formatting lyrics syllables

Markup mode may be used to format individual syllables in lyrics.

```
mel = \relative c'' { c4 c c c }
lyr = \lyricmode {
  Lyrics \markup { \italic can } \markup { \with-color #red contain }
  \markup { \fontsize #8 \bold Markup! }
}
```

```
<<
  \new Voice = melody \mel
  \new Lyrics \lyricsto melody \lyr
>>
```



Lyrics *can* **contain** **Markup!**

## How to put ties between syllables in lyrics

This can be achieved by separating those syllables by tildes.

```
\lyrics {
  wa~o~a
}
```

waoa

## Hymn template

This code shows one way of setting out a hymn tune when each line starts and ends with a partial measure. It also shows how to add the verses as stand-alone text under the music.

```
Timeline = {
  \time 4/4
  \tempo 4=96
  \partial 2
  s2 | s1 | s2 \breathe s2 | s1 | s2 \bar "||" \break
  s2 | s1 | s2 \breathe s2 | s1 | s2 \bar "||"
}
```

```
SopranoMusic = \relative g' {
  g4 g | g g g g | g g g g | g g g g | g2
  g4 g | g g g g | g g g g | g g g g | g2
}
```

```
AltoMusic = \relative c' {
  d4 d | d d d d | d d d d | d d d d | d2
  d4 d | d d d d | d d d d | d d d d | d2
}
```

```
TenorMusic = \relative a {
  b4 b | b b b b | b b b b | b b b b | b2
  b4 b | b b b b | b b b b | b b b b | b2
}
```

```
BassMusic = \relative g {
  g4 g | g g g g | g g g g | g g g g | g2
  g4 g | g g g g | g g g g | g g g g | g2
}
```

```

global = {
  \key g \major
}

\score { % Start score
  <<
    \new PianoStaff << % Start pianostaff
      \new Staff << % Start Staff = RH
        \global
        \clef "treble"
        \new Voice = "Soprano" << % Start Voice = "Soprano"
          \Timeline
          \voiceOne
          \SopranoMusic
        >> % End Voice = "Soprano"
      \new Voice = "Alto" << % Start Voice = "Alto"
        \Timeline
        \voiceTwo
        \AltoMusic
      >> % End Voice = "Alto"
    >> % End Staff = RH
  \new Staff << % Start Staff = LH
    \global
    \clef "bass"
    \new Voice = "Tenor" << % Start Voice = "Tenor"
      \Timeline
      \voiceOne
      \TenorMusic
    >> % End Voice = "Tenor"
  \new Voice = "Bass" << % Start Voice = "Bass"
    \Timeline
    \voiceTwo
    \BassMusic
  >> % End Voice = "Bass"
  >> % End Staff = LH
  >> % End pianostaff
  >>
} % End score

\markup {
  \fill-line {
    ""
    {
      \column {
        \left-align {
          "This is line one of the first verse"
          "This is line two of the same"
          "And here's line three of the first verse"
          "And the last line of the same"
        }
      }
    }
  }
}

```

```

    ""
  }
}

\paper { % Start paper block
  indent = 0      % don't indent first system
  line-width = 130 % shorten line length to suit music
} % End paper block

```



This is line one of the first verse  
 This is line two of the same  
 And here's line three of the first verse  
 And the last line of the same

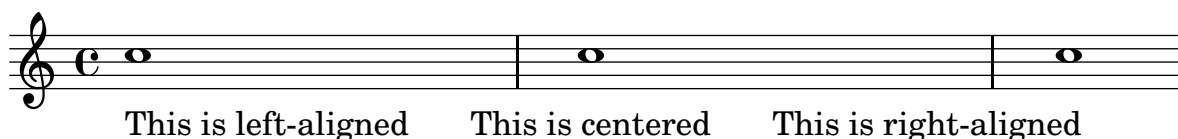
## Lyrics alignment

Horizontal alignment for lyrics can be set by overriding the `self-alignment-X` property of the `LyricText` object. #-1 is left, #0 is center and #1 is right; however, you can use `#LEFT`, `#CENTER` and `#RIGHT` as well.

```

\layout { ragged-right = ##f }
\relative c'' {
  c1
  c1
  c1
}
\addlyrics {
  \once \override LyricText #'self-alignment-X = #LEFT
  "This is left-aligned"
  \once \override LyricText #'self-alignment-X = #CENTER
  "This is centered"
  \once \override LyricText #'self-alignment-X = #1
  "This is right-aligned"
}

```



## Marking notes of spoken parts with a cross on the stem

This example shows how to put crosses on stems. Mark the beginning of a spoken section with the `\speakOn` keyword, and end it with the `\speakOff` keyword.

```
speakOn = {
  \override Stem #'stencil =
    #(lambda (grob)
      (let* ((x-parent (ly:grob-parent grob X))
             (is-rest? (ly:grob-object x-parent 'rest))))
        (if is-rest?
            empty-stencil
            (ly:stencil-combine-at-edge
              (ly:stem::print grob)
              Y
              (- (ly:grob-property grob 'direction))
              (grob-interpret-markup grob
                                     (markup #:center-align #:fontsize -4
                                              #:musicglyph "noteheads.s2cross"))
              -2.3))))
}

speakOff = {
  \revert Stem #'stencil
  \revert Flag #'stencil
}

\score {
  \new Staff {
    \relative c'' {
      a4 b a c
      \speakOn
      g4 f r g
      b4 r d e
      \speakOff
      c4 a g f
    }
  }
}
```



## Obtaining 2.12 lyrics spacing in newer versions

The vertical spacing engine changed for version 2.14. This can cause lyrics to be spaced differently. It is possible to set properties for `Lyric` and `Staff` contexts to get the spacing engine to behave as it did in version 2.12.

```
global = {
  \key d \major
  \time 3/4
}
```



```

sopMusic = \relative c' {
  % VERSE ONE
  fis4 fis fis | \break
  fis4. e8 e4
}

altoMusic = \relative c' {
  % VERSE ONE
  d4 d d |
  d4. b8 b4 |
}

tenorMusic = \relative c' {
  a4 a a |
  b4. g8 g4 |
}

bassMusic = \relative c {
  d4 d d |
  g,4. g8 g4 |
}

words = \lyricmode {
  Great is Thy faith- ful- ness,
}

\score {
  \new ChoirStaff <<
    \new Lyrics = sopranos
    \new Staff = women <<
      \new Voice = "sopranos" {
        \voiceOne
        \global \sopMusic
      }
      \new Voice = "altos" {
        \voiceTwo
        \global \altoMusic
      }
    >>
    \new Lyrics = "altos"
    \new Lyrics = "tenors"
    \new Staff = men <<
      \clef bass
      \new Voice = "tenors" {
        \voiceOne
        \global \tenorMusic
      }
      \new Voice = "basses" {
        \voiceTwo \global \bassMusic
      }
    >>
  }

```

```

\new Lyrics = basses
\context Lyrics = sopranos \lyricsto sopranos \words
\context Lyrics = altos \lyricsto altos \words
\context Lyrics = tenors \lyricsto tenors \words
\context Lyrics = basses \lyricsto basses \words
>>
\layout {
  \context {
    \Lyrics
    \override VerticalAxisGroup #'staff-affinity = ##f
    \override VerticalAxisGroup #'staff-staff-spacing =
      #'((basic-distance . 0)
        (minimum-distance . 2)
        (padding . 2))
  }
  \context {
    \Staff
    \override VerticalAxisGroup #'staff-staff-spacing =
      #'((basic-distance . 0)
        (minimum-distance . 2)
        (padding . 2))
  }
}

```

The image shows a musical score for three voices: Soprano, Alto, and Bass. The music is in 3/4 time and the key of D major (two sharps). The lyrics are "Great is Thy".

The Soprano part (top staff) has notes on the first, second, and fourth lines of the staff, corresponding to the words "Great", "is", and "Thy".

The Alto part (middle staff) has notes on the first, second, and fourth lines of the staff, corresponding to the words "Great", "is", and "Thy".

The Bass part (bottom staff) has notes on the first, second, and fourth lines of the staff, corresponding to the words "Great", "is", and "Thy".

faith- ful- ness,

faith- ful- ness,

faith- ful- ness,

faith- ful- ness,

## Orchestra choir and piano template

This template demonstrates the use of nested `StaffGroup` and `GrandStaff` contexts to subgroup instruments of the same type together, and a way to use `\transpose` so that variables hold music for transposing instruments at concert pitch.

```

#(set-global-staff-size 17)
\paper {
  indent = 3.0\cm % space for instrumentName
  short-indent = 1.5\cm % space for shortInstrumentName
}

fluteMusic = \relative c' { \key g \major g'1 b }
% Pitches as written on a manuscript for Clarinet in A
% are transposed to concert pitch.
clarinetMusic = \transpose c' a
  \relative c'' { \key bes \major bes1 d }
trumpetMusic = \relative c { \key g \major g''1 b }
% Key signature is often omitted for horns
hornMusic = \transpose c' f
  \relative c { d'1 fis }
percussionMusic = \relative c { \key g \major g1 b }
sopranoMusic = \relative c'' { \key g \major g'1 b }
sopranoLyrics = \lyricmode { Lyr -- ics }
altoIMusic = \relative c' { \key g \major g'1 b }
altoIIMusic = \relative c' { \key g \major g'1 b }
altoILyrics = \sopranoLyrics
altoIIILyrics = \lyricmode { Ah -- ah }
tenorMusic = \relative c' { \clef "treble_8" \key g \major g1 b }
tenorLyrics = \sopranoLyrics
pianoRHMus = \relative c { \key g \major g''1 b }
pianoLHMus = \relative c { \clef bass \key g \major g1 b }
violinIMusic = \relative c' { \key g \major g'1 b }
violinIIMusic = \relative c' { \key g \major g'1 b }
violaMusic = \relative c { \clef alto \key g \major g'1 b }
celloMusic = \relative c { \clef bass \key g \major g1 b }
bassMusic = \relative c { \clef "bass_8" \key g \major g,1 b }

\score {
  <<

```

```

\new StaffGroup = "StaffGroup_woodwinds" <<
  \new Staff = "Staff_flute" {
    \set Staff.instrumentName = #"Flute"
    % shortInstrumentName, midiInstrument, etc.
    % may be set here as well
    \fluteMusic
  }
  \new Staff = "Staff_clarinet" {
    \set Staff.instrumentName =
    \markup { \concat { "Clarinet in B" \flat } }
    % Declare that written Middle C in the music
    % to follow sounds a concert B flat, for
    % output using sounded pitches such as MIDI.
    \transposition bes
    % Print music for a B-flat clarinet
    \transpose bes c' \clarinetMusic
  }
>>
\new StaffGroup = "StaffGroup_brass" <<
  \new Staff = "Staff_hornI" {
    \set Staff.instrumentName = #"Horn in F"
    \transposition f
    \transpose f c' \hornMusic
  }
  \new Staff = "Staff_trumpet" {
    \set Staff.instrumentName = #"Trumpet in C"
    \trumpetMusic
  }
>>
\new RhythmicStaff = "RhythmicStaff_percussion" <<
  \set RhythmicStaff.instrumentName = #"Percussion"
  \percussionMusic
>>
\new PianoStaff <<
  \set PianoStaff.instrumentName = #"Piano"
  \new Staff { \pianoRHMusical }
  \new Staff { \pianoLHMusical }
>>
\new ChoirStaff = "ChoirStaff_choir" <<
  \new Staff = "Staff_soprano" {
    \set Staff.instrumentName = #"Soprano"
    \new Voice = "soprano"
    \sopranoMusical
  }
  \new Lyrics \lyricsto "soprano" { \sopranoLyrics }
  \new GrandStaff = "GrandStaff_alto"
  \with { \accepts Lyrics } <<
    \new Staff = "Staff_altoI" {
      \set Staff.instrumentName = #"Alto I"
      \new Voice = "altoI"
      \altoIMusical
    }
  }

```

```

    \new Lyrics \lyricsto "altoI" { \altoILyrics }
    \new Staff = "Staff_altoII" {
      \set Staff.instrumentName = #"Alto II"
      \new Voice = "altoII"
      \altoIIMusic
    }
    \new Lyrics \lyricsto "altoII" { \altoIILyrics }
  >>
  \new Staff = "Staff_tenor" {
    \set Staff.instrumentName = #"Tenor"
    \new Voice = "tenor"
    \tenorMusic
  }
  \new Lyrics \lyricsto "tenor" { \tenorLyrics }
  >>
  \new StaffGroup = "StaffGroup_strings" <<
    \new GrandStaff = "GrandStaff_violins" <<
      \new Staff = "Staff_violinI" {
        \set Staff.instrumentName = #"Violin I"
        \violinIMusic
      }
      \new Staff = "Staff_violinII" {
        \set Staff.instrumentName = #"Violin II"
        \violinIIMusic
      }
    >>
    \new Staff = "Staff_viola" {
      \set Staff.instrumentName = #"Viola"
      \violaMusic
    }
    \new Staff = "Staff_cello" {
      \set Staff.instrumentName = #"Cello"
      \celloMusic
    }
    \new Staff = "Staff_bass" {
      \set Staff.instrumentName = #"Double Bass"
      \bassMusic
    }
  >>
  >>
  \layout { }
}

```

Flute

Clarinet in B $\flat$

Horn in F

Trumpet in C

Percussion

Piano

Soprano

Alto I

Alto II

Tenor

Violin I

Violin II

Viola

Cello

Double Bass

Lyr - ics

Lyr - ics

Ah - ah

Lyr - ics

8

## Piano template with melody and lyrics

Here is a typical song format: one staff with the melody and lyrics, with piano accompaniment underneath.

```
melody = \relative c'' {
  \clef treble
  \key c \major
  \time 4/4
```

```
  a b c d
}
```

```
text = \lyricmode {
  Aaa Bee Cee Dee
}
```

```
upper = \relative c'' {
  \clef treble
  \key c \major
  \time 4/4
```

```

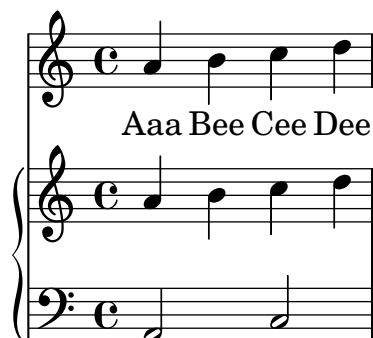
    a4 b c d
}

lower = \relative c {
  \clef bass
  \key c \major
  \time 4/4

  a2 c
}

\score {
  <<
    \new Voice = "mel" { \autoBeamOff \melody }
    \new Lyrics \lyricsto mel \text
    \new PianoStaff <<
      \new Staff = "upper" \upper
      \new Staff = "lower" \lower
    >>
  >>
  \layout {
    \context { \Staff \RemoveEmptyStaves }
  }
  \midi { }
}

```



## Putting lyrics inside the staff

Lyrics can be moved vertically to place them inside the staff. The lyrics are moved with `\override LyricText #'extra-offset = #'(0 . dy)` and there are similar commands to move the extenders and hyphens. The offset needed is established with trial and error.

```

<<
  \new Staff <<
    \new Voice = "voc" \relative c' { \stemDown a bes c8 b c4 }
  >>
  \new Lyrics \with {
    \override LyricText #'extra-offset = #'(0 . 8.6)
    \override LyricExtender #'extra-offset = #'(0 . 8.6)
    \override LyricHyphen #'extra-offset = #'(0 . 8.6)
  } \lyricsto "voc" { La la -- la _ _ la }

```

&gt;&gt;



## SATB Choir template - four staves

SATB choir template (four staves)

```

global = {
  \key c \major
  \time 4/4
  \dynamicUp
}
sopranonotes = \relative c'' {
  c2 \p \< d c d \f
}
sopranowords = \lyricmode { do do do do }
altonotes = \relative c'' {
  c2 \p d c d
}
altowords = \lyricmode { re re re re }
tenornotes = {
  \clef "G_8"
  c2 \mp d c d
}
tenorwords = \lyricmode { mi mi mi mi }
bassnotes = {
  \clef bass
  c2 \mf d c d
}
basswords = \lyricmode { mi mi mi mi }

\score {
  \new ChoirStaff <<
    \new Staff <<
      \new Voice = "soprano" <<
        \global
        \sopranonotes
      >>
      \lyricsto "soprano" \new Lyrics \sopranowords
    >>
    \new Staff <<
      \new Voice = "alto" <<
        \global
        \altonotes
      >>
      \lyricsto "alto" \new Lyrics \altowords
    >>
  >>
  \new Staff <<

```



```

\new Voice = "tenor" <<
  \global
  \tenornotes
>>
\lyricsto "tenor" \new Lyrics \tenorwords
>>
\new Staff <<
  \new Voice = "bass" <<
    \global
    \bassnotes
  >>
  \lyricsto "bass" \new Lyrics \basswords
>>
}

```

*p* *f*  
do do do do  
*p*  
re re re re  
*mp*  
mi mi mi mi  
*mf*  
mi mi mi mi

## Single staff template with notes lyrics and chords

This template allows the preparation of a song with melody, words, and chords.

```

melody = \relative c' {
  \clef treble
  \key c \major
  \time 4/4

  a4 b c d
}

text = \lyricmode {
  Aaa Bee Cee Dee
}

harmonies = \chordmode {
  a2 c
}

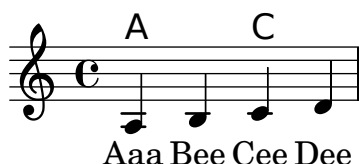
```

```

}

\score {
  <<
    \new ChordNames {
      \set chordChanges = ##t
      \harmonies
    }
    \new Voice = "one" { \autoBeamOff \melody }
    \new Lyrics \lyricsto "one" \text
  >>
  \layout { }
  \midi { }
}

```



## Single staff template with notes lyrics chords and frets

Here is a simple lead sheet template with melody, lyrics, chords and fret diagrams.

```

verseI = \lyricmode {
  \set stanza = #"1."
  This is the first verse
}

verseII = \lyricmode {
  \set stanza = #"2."
  This is the second verse.
}

theChords = \chordmode {
  % insert chords for chordnames and fretboards here
  c2 g4 c
}

staffMelody = \relative c' {
  \key c \major
  \clef treble
  % Type notes for melody here
  c4 d8 e f4 g
  \bar "|"
}

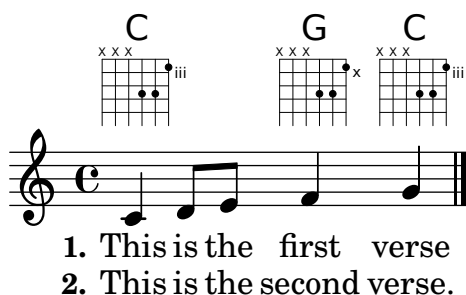
\score {
  <<
    \context ChordNames { \theChords }
    \context FretBoards { \theChords }
    \new Staff {

```

```

    \context Voice = "voiceMelody" { \staffMelody }
  }
  \new Lyrics = "lyricsI" {
    \lyricsto "voiceMelody" \verseI
  }
  \new Lyrics = "lyricsII" {
    \lyricsto "voiceMelody" \verseII
  }
  >>
  \layout { }
  \midi { }
}

```



1. This is the first verse  
2. This is the second verse.

## Single staff template with notes and lyrics

This small template demonstrates a simple melody with lyrics. Cut and paste, add notes, then words for the lyrics. This example turns off automatic beaming, which is common for vocal parts. To use automatic beaming, change or comment out the relevant line.

```

melody = \relative c' {
  \clef treble
  \key c \major
  \time 4/4

  a4 b c d
}

text = \lyricmode {
  Aaa Bee Cee Dee
}

\score{
  <<
    \new Voice = "one" {
      \autoBeamOff
      \melody
    }
    \new Lyrics \lyricsto "one" \text
  >>
  \layout { }
  \midi { }
}

```



## Skips in lyric mode (2)

Although `s` skips cannot be used in `\lyricmode` (it is taken to be a literal “s”, not a space), double quotes (“”) or underscores ( \_ ) are available. So for example:

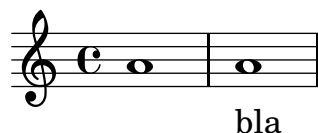
```
<<
  \relative c'' { a4 b c d }
  \new Lyrics \lyricmode { a4 "" _ gap }
>>
```



## Skips in lyric mode

The `s` syntax for skips is only available in note mode and chord mode. In other situations, for example, when entering lyrics, using the `\skip` command is recommended.

```
<<
  \relative c'' { a1 | a }
  \new Lyrics \lyricmode { \skip 1 bla1 }
>>
```



## Using arpeggioBracket to make divisi more visible

The `arpeggioBracket` can be used to indicate the division of voices where there are no stems to provide the information. This is often seen in choral music.

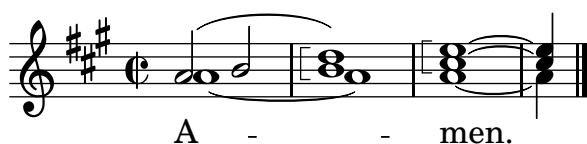
```
\include "english.ly"
```

```
\score {
  \relative c'' {
    \key a \major
    \time 2/2
    <<
      \new Voice = "upper"
      <<
        { \voiceOne \arpeggioBracket
          a2( b2
            <b d>1\arpeggio)
            <cs e>\arpeggio ~
            <cs e>4
          }
        \addlyrics { \lyricmode { A -- men. } }
      >>
    \new Voice = "lower"
```

```

    { \voiceTwo
      a1 ~
      a
      a ~
      a4 \bar "|."
    }
  >>
}
\layout { ragged-right = ##t }
}

```



## Vertically aligning ossia and lyrics

This snippet demonstrates the use of the context properties `alignBelowContext` and `alignAboveContext` to control the positioning of lyrics and ossia.

```

\paper {
  ragged-right = ##t
}

\relative c' <<
  \new Staff = "1" { c4 c s2 }
  \new Staff = "2" { c4 c s2 }
  \new Staff = "3" { c4 c s2 }
  { \skip 2
    <<
      \lyrics {
        \set alignBelowContext = #"1"
        lyrics4 below
      }
      \new Staff \with {
        alignAboveContext = #"3"
        fontSize = #-2
        \override StaffSymbol #'staff-space = #(magstep -2)
        \remove "Time_signature_engraver"
      } {
        \times 4/6 {
          \override TextScript #'padding = #3
          c8[~"ossia above" d e d e f]
        }
      }
    }
  >>
}
>>

```



## Vertically centered common lyrics

In a vocal piece where there are several (two, four or more) lines of lyrics, and common lyrics for all voices at some point, these common lyrics may be vertically centered regardingly, as shown in the following example:

```
\include "english.ly"
leftbrace = \markup { \override #'(font-encoding . fetaBraces) \lookup #"brace240" }
rightbrace = \markup { \rotate #180 \leftbrace }

dropLyrics =
{
  \override LyricText #'extra-offset = #'(0 . -5)
  \override LyricHyphen #'extra-offset = #'(0 . -5)
  \override LyricExtender #'extra-offset = #'(0 . -5)
}

raiseLyrics =
{
  \revert LyricText #'extra-offset
  \revert LyricHyphen #'extra-offset
  \revert LyricExtender #'extra-offset
}

skipFour = \repeat unfold 4 {\skip 8 }

lyricsA = \lyricmode { The first verse has \dropLyrics the com -- mon
-- words \raiseLyrics used in all four. }
lyricsB = \lyricmode { In stan -- za two, \skipFour al -- so ap -- pear. }
lyricsC = \lyricmode { By the third verse, \skipFour are get -- ting dull. }
lyricsD = \lyricmode { Last stan -- za, and \skipFour get used once more. }

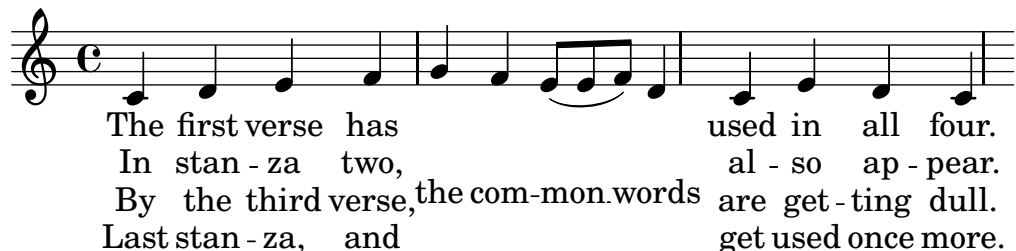
melody = \relative c' { c4 d e f g f e8( e f) d4 c e d c }

\score
{
  <<
    \new Voice = m \melody
    \new Lyrics \lyricsto m \lyricsA
    \new Lyrics \lyricsto m \lyricsB
    \new Lyrics \lyricsto m \lyricsC
```

```

\new Lyrics \lyricsto m \lyricsD
>>
}

```



The first verse has used in all four.  
 In stan - za two, al - so ap - pear.  
 By the third verse, the com-mon words are get - ting dull.  
 Last stan - za, and get used once more.

## Vocal ensemble template with automatic piano reduction

This template adds an automatic piano reduction to the standard SATB vocal score demonstrated in “Vocal ensemble template”. This demonstrates one of the strengths of LilyPond – you can use a music definition more than once. If any changes are made to the vocal notes (say, `tenorMusic`), then the changes will also apply to the piano reduction.

```

\paper {
  top-system-spacing #'basic-distance = #10
  score-system-spacing #'basic-distance = #20
  system-system-spacing #'basic-distance = #20
  last-bottom-spacing #'basic-distance = #10
}

global = {
  \key c \major
  \time 4/4
}

sopMusic = \relative c'' {
  c4 c c8[( b)] c4
}
sopWords = \lyricmode {
  hi hi hi hi
}

altoMusic = \relative c' {
  e4 f d e
}
altoWords = \lyricmode {
  ha ha ha ha
}

tenorMusic = \relative c' {
  g4 a f g
}
tenorWords = \lyricmode {
  hu hu hu hu
}

bassMusic = \relative c {

```

```

    c4 c g c
}
bassWords = \lyricmode {
    ho ho ho ho
}

\score {
  <<
    \new ChoirStaff <<
      \new Lyrics = "sopranos" \with {
        % This is needed for lyrics above a staff
        \override VerticalAxisGroup #'staff-affinity = #DOWN
      }
      \new Staff = "women" <<
        \new Voice = "sopranos" { \voiceOne << \global \sopMusic >> }
        \new Voice = "altos" { \voiceTwo << \global \altoMusic >> }
      >>
      \new Lyrics = "altos"
      \new Lyrics = "tenors" \with {
        % This is needed for lyrics above a staff
        \override VerticalAxisGroup #'staff-affinity = #DOWN
      }
    >>

    \new Staff = "men" <<
      \clef bass
      \new Voice = "tenors" { \voiceOne << \global \tenorMusic >> }
      \new Voice = "basses" { \voiceTwo << \global \bassMusic >> }
    >>
    \new Lyrics = "basses"
    \context Lyrics = "sopranos" \lyricsto "sopranos" \sopWords
    \context Lyrics = "altos" \lyricsto "altos" \altoWords
    \context Lyrics = "tenors" \lyricsto "tenors" \tenorWords
    \context Lyrics = "basses" \lyricsto "basses" \bassWords
  >>
  \new PianoStaff <<
    \new Staff <<
      \set Staff.printPartCombineTexts = ##f
      \partcombine
      << \global \sopMusic >>
      << \global \altoMusic >>
    >>
    \new Staff <<
      \clef bass
      \set Staff.printPartCombineTexts = ##f
      \partcombine
      << \global \tenorMusic >>
      << \global \bassMusic >>
    >>
  >>
}

```



hi hi hi hi

ha ha ha ha

hu hu hu hu

ho ho ho ho

### Vocal ensemble template with lyrics aligned below and above the staves

This template is basically the same as the simple “Vocal ensemble” template, with the exception that here all the lyrics lines are placed using `alignAboveContext` and `alignBelowContext`.

```
global = {
  \key c \major
  \time 4/4
}

sopMusic = \relative c' {
  c4 c c8[( b)] c4
}
sopWords = \lyricmode {
  hi hi hi hi
}

altoMusic = \relative c' {
  e4 f d e
}
altoWords = \lyricmode {
  ha ha ha ha
}

tenorMusic = \relative c' {
  g4 a f g
}
tenorWords = \lyricmode {
  hu hu hu hu
}

bassMusic = \relative c {
  c4 c g c
}
bassWords = \lyricmode {
```

```

    ho ho ho ho
}

\score {
  \new ChoirStaff <<
    \new Staff = "women" <<
      \new Voice = "sopranos" { \voiceOne << \global \sopMusic >> }
      \new Voice = "altos" { \voiceTwo << \global \altoMusic >> }
    >>
    \new Lyrics \with { alignAboveContext = #"women" }
      \lyricsto "sopranos" \sopWords
    \new Lyrics \with { alignBelowContext = #"women" }
      \lyricsto "altos" \altoWords
    % we could remove the line about this with the line below, since
    % we want the alto lyrics to be below the alto Voice anyway.
    % \new Lyrics \lyricsto "altos" \altoWords

    \new Staff = "men" <<
      \clef bass
      \new Voice = "tenors" { \voiceOne << \global \tenorMusic >> }
      \new Voice = "basses" { \voiceTwo << \global \bassMusic >> }
    >>
    \new Lyrics \with { alignAboveContext = #"men" }
      \lyricsto "tenors" \tenorWords
    \new Lyrics \with { alignBelowContext = #"men" }
      \lyricsto "basses" \bassWords
    % again, we could replace the line above this with the line below.
    % \new Lyrics \lyricsto "basses" \bassWords
  >>
}

```



## Vocal ensemble template with verse and refrain

This template creates a score which starts with a solo verse and continues into a refrain for two voices. It also demonstrates the use of spacer rests within the `\global` variable to define meter changes (and other elements common to all parts) throughout the entire score.

```

global = {
  \key g \major

  % verse

```

```

\time 3/4
s2.*2
\break

% refrain
\time 2/4
s2*2
\bar "|."
}

SoloNotes = \relative g' {
  \clef "treble"

  % verse
  g4 g g |
  b4 b b |

  % refrain
  R2*2 |
}

SoloLyrics = \lyricmode {
  One two three |
  four five six |
}

SopranoNotes = \relative c'' {
  \clef "treble"

  % verse
  R2.*2 |

  % refrain
  c4 c |
  g4 g |
}

SopranoLyrics = \lyricmode {
  la la |
  la la |
}

BassNotes = \relative c {
  \clef "bass"

  % verse
  R2.*2 |

  % refrain
  c4 e |
  d4 d |
}

```

```

BassLyrics = \lyricmode {
  dum dum |
  dum dum |
}

\score {
  <<
    \new Voice = "SoloVoice" << \global \SoloNotes >>
    \new Lyrics \lyricsto "SoloVoice" \SoloLyrics

    \new ChoirStaff <<
      \new Voice = "SopranoVoice" << \global \SopranoNotes >>
      \new Lyrics \lyricsto "SopranoVoice" \SopranoLyrics

      \new Voice = "BassVoice" << \global \BassNotes >>
      \new Lyrics \lyricsto "BassVoice" \BassLyrics
    >>
  >>
  \layout {
    ragged-right = ##t
    \context { \Staff
      % these lines prevent empty staves from being printed
      \RemoveEmptyStaves
      \override VerticalAxisGroup #'remove-first = ##t
    }
  }
}

```



## Vocal ensemble template

Here is a standard four-part SATB vocal score. With larger ensembles, it is often useful to include a section which is included in all parts. For example, the time signature and key signature are almost always the same for all parts. Like in the “Hymn” template, the four voices are regrouped on only two staves.

```

\paper {
  top-system-spacing #'basic-distance = #10
  score-system-spacing #'basic-distance = #20
}

```

```

    system-system-spacing #'basic-distance = #20
    last-bottom-spacing #'basic-distance = #10
}

global = {
  \key c \major
  \time 4/4
}

sopMusic = \relative c'' {
  c4 c c8[( b)] c4
}
sopWords = \lyricmode {
  hi hi hi hi
}

altoMusic = \relative c' {
  e4 f d e
}
altoWords = \lyricmode {
  ha ha ha ha
}

tenorMusic = \relative c' {
  g4 a f g
}
tenorWords = \lyricmode {
  hu hu hu hu
}

bassMusic = \relative c {
  c4 c g c
}
bassWords = \lyricmode {
  ho ho ho ho
}

\score {
  \new ChoirStaff <<
    \new Lyrics = "sopranos" \with {
      % this is needed for lyrics above a staff
      \override VerticalAxisGroup #'staff-affinity = #DOWN
    }
    \new Staff = "women" <<
      \new Voice = "sopranos" {
        \voiceOne
        << \global \sopMusic >>
      }
      \new Voice = "altos" {
        \voiceTwo
        << \global \altoMusic >>
      }
    >>
  >>
}

```

```

>>
\new Lyrics = "altos"
\new Lyrics = "tenors" \with {
  % this is needed for lyrics above a staff
  \override VerticalAxisGroup #'staff-affinity = #DOWN
}
\new Staff = "men" <<
  \clef bass
  \new Voice = "tenors" {
    \voiceOne
    << \global \tenorMusic >>
  }
  \new Voice = "basses" {
    \voiceTwo << \global \bassMusic >>
  }
>>
\new Lyrics = "basses"
\context Lyrics = "sopranos" \lyricsto "sopranos" \sopWords
\context Lyrics = "altos" \lyricsto "altos" \altoWords
\context Lyrics = "tenors" \lyricsto "tenors" \tenorWords
\context Lyrics = "basses" \lyricsto "basses" \bassWords
>>
}

```

The image shows a musical score for a vocal ensemble. It consists of two staves, a treble staff and a bass staff, both in common time (C). The lyrics are arranged in four lines, each corresponding to a specific vocal part. The first line, 'hi hi hi hi', is written above the treble staff. The second line, 'ha ha ha ha', is written below the treble staff. The third line, 'hu hu hu hu', is written below the bass staff. The fourth line, 'ho ho ho ho', is written below the bass staff. The notes are simple quarter notes, and the lyrics are aligned with the notes.

## Chords

Section “Chord notation” in *Notation Reference*

### Adding a figured bass above or below the notes

When writing a figured bass, you can place the figures above or below the bass notes, by defining the `BassFigureAlignmentPositioning` #'direction property (exclusively in a `Staff` context). Choices are `#UP` (or `#1`), `#CENTER` (or `#0`) and `#DOWN` (or `#-1`).

This property can be changed as many times as you wish. Use `\once \override` if you don't want the override to apply to the whole score.

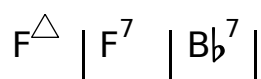
```
bass = {
  \clef bass
  g4 b, c d
  e d8 c d2
}
continuo = \figuremode {
  <_>4 <6>4 <5/>4
  \override Staff.BassFigureAlignmentPositioning #'direction = #UP
  %\bassFigureStaffAlignmentUp
  <_+>4 <6>
  \set Staff.useBassFigureExtenders = ##t
  \override Staff.BassFigureAlignmentPositioning #'direction = #DOWN
  %\bassFigureStaffAlignmentDown
  <4>4. <4>8 <_+>4
}
\score {
  <<
    \new Staff = bassStaff \bass
    \context Staff = bassStaff \continuo
  >>
}
```



### Adding bar lines to ChordNames context

To add bar line indications in the `ChordNames` context, add the `Bar_engraver`.

```
\new ChordNames \with {
  \override BarLine #'bar-extent = #'(-2 . 2)
  \consists "Bar_engraver"
}
\chordmode {
  f1:maj7 f:7 bes:7
}
```



## Avoiding collisions with chord fingerings

Fingerings and string numbers applied to individual notes will automatically avoid beams and stems, but this is not true by default for fingerings and string numbers applied to the individual notes of chords. The following example shows how this default behavior can be overridden.

```
\relative c' {
  \set fingeringOrientations = #'(up)
  \set stringNumberOrientations = #'(up)
  \set strokeFingerOrientations = #'(up)

  % Default behavior
  r8
  <f c'-5>8
  <f c'\5>8
  <f c'-\rightHandFinger #2 >8

  % Corrected to avoid collisions
  r8
  \override Fingering #'add-stem-support = ##t
  <f c'-5>8
  \override StringNumber #'add-stem-support = ##t
  <f c'\5>8
  \override StrokeFinger #'add-stem-support = ##t
  <f c'-\rightHandFinger #2 >8
}
```



## 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)
```



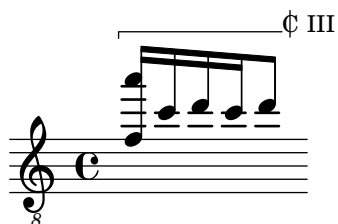
```

        (cons (make-music 'TextSpanEvent 'span-direction -1)
              (ly:music-property first-element 'articulations)))
      (set! (ly:music-property last-element 'articulations)
            (cons (make-music 'TextSpanEvent 'span-direction 1)
                  (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
% \once \override TextSpanner #'bound-details #'left #'text = \markup { "B" #str }
$music
#})

%% %%%%%%%%% Cut here ----- End 'bbarred.ly'
%% Copy and change the last line for full barred. Rename in 'fbarred.ly'
%% %%%%%%%%%

%% Syntax: \bbarre #"text" { notes } - text = any number of box
\relative c'{ \clef "G_8" \stemUp \bbarre #"III" { <f a'>16[ c' d c d8] } }

```



## Changing chord separator

The separator between different parts of a chord name can be set to any markup.

```

\chords {
  c:7sus4
  \set chordNameSeparator
    = \markup { \typewriter | }
  c:7sus4
}

```

$C^7$  sus4  $C^7|$  sus4

## Changing the chord names to German or semi-German notation

The english naming of chords (default) can be changed to german (`\germanChords` replaces B and Bes with H and B) or semi-german (`\semiGermanChords` replaces B and Bes with H and Bb).

```
music = \chordmode {
  c1/c | cis/cis
  b1/b | bis/bis | bes/bes
}

%% The following is only here to print the names of the
%% chords styles; it can be removed if you do not need to
%% print them.

\layout {
  \context {
    \ChordNames
    \consists "Instrument_name_engraver"
  }
}

<<
\new ChordNames {
  \set ChordNames.instrumentName = #"default"
  \music
}
\new ChordNames {
  \set ChordNames.instrumentName = #"german"
  \germanChords \music }
\new ChordNames {
  \set ChordNames.instrumentName = #"semi-german"
  \semiGermanChords \music }
\context Voice { \music }
>>
```

default	C/C	C#/C#	B/B	B#/B#	Bb/Bb
german	C/c	C#/cis	H/h	H#/his	B/b
semi-german	C/c	C#/cis	H/h	H#/his	B <sup>b</sup> /b

```

<6\+> <5+> <6 4-> r
\set figuredBassPlusDirection = #RIGHT
<6\+> <5+> <6 4-> r
\set figuredBassAlterationDirection = #LEFT
<6\+> <5+> <6 4-> r
}

```

**+6 #5 6**      **+6 5# 6**      **6+ 5# 6**      **6+ #5 6**  
<sub>♭4</sub>      <sub>4♭</sub>      <sub>4♭</sub>      <sub>♭4</sub>

## Chord name exceptions

The property `chordNameExceptions` can be used to store a list of special notations for specific chords.

```

% modify maj9 and 6(add9)
% Exception music is chords with markups
chExceptionMusic = {
  <c e g b d'>1-\markup { \super "maj9" }
  <c e g a d'>1-\markup { \super "6(add9)" }
}

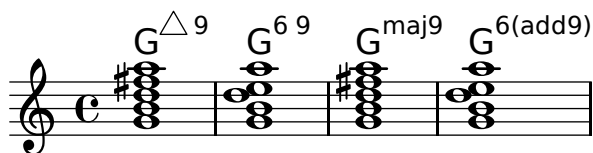
% Convert music to list and prepend to existing exceptions.
chExceptions = #( append
  ( sequential-music-to-chord-exceptions chExceptionMusic #t)
  ignatzekExceptions)

theMusic = \chordmode {
  g1:maj9 g1:6.9
  \set chordNameExceptions = #chExceptions
  g1:maj9 g1:6.9
}

\layout {
  ragged-right = ##t
}

<< \context ChordNames \theMusic
    \context Voice \theMusic
>>

```



## chord name major7

The layout of the major 7 can be tuned with `majorSevenSymbol`.

```

\chords {
  c:7+
  \set majorSevenSymbol = \markup { j7 }
  c:7+
}

```

}

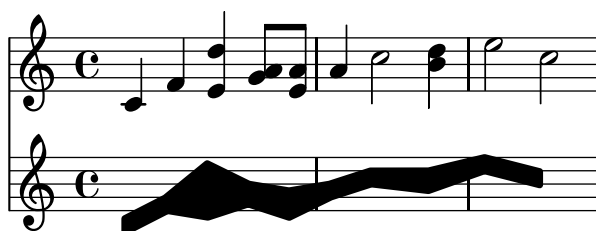
$$C^{\triangle} C^{j7}$$

## Clusters

Clusters are a device to denote that a complete range of notes is to be played.

```
fragment = \relative c' {
  c4 f <e d'>4
  <g a>8 <e a> a4 c2 <d b>4
  e2 c
}

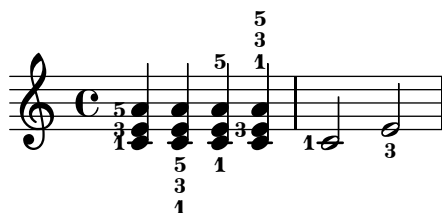
<<
  \new Staff \fragment
  \new Staff \makeClusters \fragment
>>
```



## 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 <> even if it is a single note.

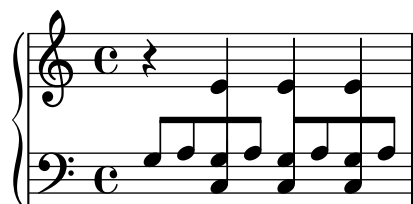
```
\relative c' {
  \set fingeringOrientations = #'(left)
  <c-1 e-3 a-5>4
  \set fingeringOrientations = #'(down)
  <c-1 e-3 a-5>4
  \set fingeringOrientations = #'(down right up)
  <c-1 e-3 a-5>4
  \set fingeringOrientations = #'(up)
  <c-1 e-3 a-5>4
  \set fingeringOrientations = #'(left)
  <c-1>2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



## Cross-staff chords - beaming problems workaround

Sometimes it is better to use stems from the upper staff for creating cross-staff chords, because no problems with automatic beam collision avoidance then arise. If the stems from the lower staff were used in the following example, it would be necessary to change the automatic beam collision avoidance settings so that it doesn't detect collisions between staves using `\override Staff.Beam #'collision-voice-only = ##t`

```
\new PianoStaff <<
  \new Staff = up
    \relative c' {
      <<
        { r4
          \override Stem #'cross-staff = ##t
          \override Stem #'length = #19 % this is in half-spaces,
            % so it makes stems 9.5 staffspaces long
          \override Stem #'Y-offset = #-6 % stems are normally lengthened
            % upwards, so here we must lower the stem by the amount
            % equal to the lengthening - in this case (19 - 7) / 2
            % (7 is default stem length)
          e e e }
        { s4
          \change Staff = "bottom"
          \override NoteColumn #'ignore-collision = ##t
          c, c c
        }
      >>
    }
  \new Staff = bottom
    \relative c' {
      \clef bass
      \voiceOne
      g8 a g a g a g a
    }
>>
```



## Displaying complex chords

Here is a way to display a chord where the same note is played twice with different accidentals.

```
fixA = {
  \once \override Stem #'length = #9
}
fixB = {
  \once \override NoteHead #'X-offset = #1.7
  \once \override Stem #'rotation = #'(45 0 0)
  \once \override Stem #'extra-offset = #'(-0.2 . -0.2)
  \once \override Flag #'style = #'no-flag
```

```

\once \override Accidental #'extra-offset = #'(4 . 0)
}

\relative c' {
  << { \fixA <b d!>8 } \ { \voiceThree \fixB dis } >> s
}

```



## Manually break figured bass extenders for only some numbers

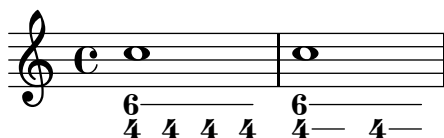
Figured bass often uses extenders to indicate continuation of the corresponding step. However, in this case lilypond is in greedy-mode and uses extenders whenever possible. To break individual extenders, one can simply use a modifier `\!` to a number, which breaks any extender attributed to that number right before the number.

```

bassfigures = \figuremode {
  \set useBassFigureExtenders = ##t
  <6 4>4 <6 4\!> <6 4\!> <6 4\!> | <6\! 4\!> <6 4> <6 4\!> <6 4>
}

<<
  \new Staff \relative c'' { c1 c1 }
  \new FiguredBass \bassfigures
>>

```



## Showing chords at changes

Chord names can be displayed only at the start of lines and when the chord changes.

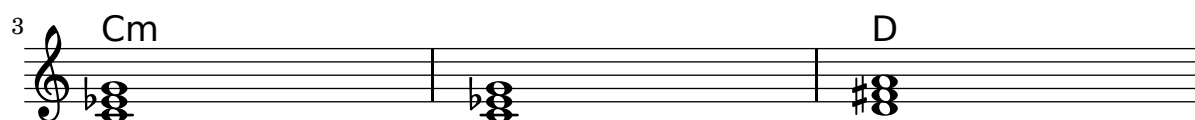
```

harmonies = \chordmode {
  c1:m c:m \break c:m c:m d
}

<<
  \new ChordNames {
    \set chordChanges = ##t
    \harmonies
  }
  \new Staff {
    \relative c' { \harmonies }
  }
>>

```

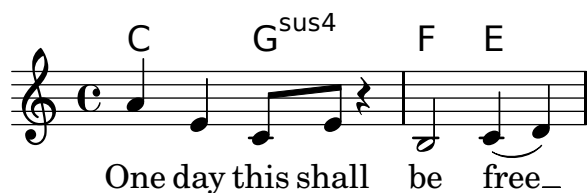




## Simple lead sheet

When put together, chord names, a melody, and lyrics form a lead sheet:

```
<<
\chords { c2 g:sus4 f e }
\relative c'' {
  a4 e c8 e r4
  b2 c4( d)
}
\addlyrics { One day this shall be free __ }
>>
```



## Single staff template with notes lyrics and chords

This template allows the preparation of a song with melody, words, and chords.

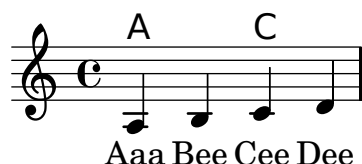
```
melody = \relative c' {
  \clef treble
  \key c \major
  \time 4/4

  a4 b c d
}

text = \lyricmode {
  Aaa Bee Cee Dee
}

harmonies = \chordmode {
  a2 c
}

\score {
  <<
    \new ChordNames {
      \set chordChanges = ##t
      \harmonies
    }
    \new Voice = "one" { \autoBeamOff \melody }
    \new Lyrics \lyricsto "one" \text
  >>
  \layout { }
  \midi { }
}
```



## Single staff template with notes lyrics chords and frets

Here is a simple lead sheet template with melody, lyrics, chords and fret diagrams.

```

verseI = \lyricmode {
  \set stanza = #"1."
  This is the first verse
}

verseII = \lyricmode {
  \set stanza = #"2."
  This is the second verse.
}

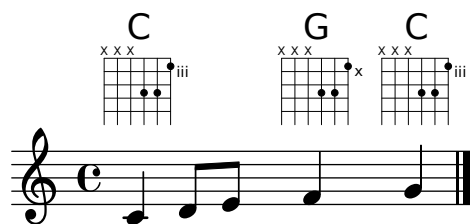
theChords = \chordmode {
  % insert chords for chordnames and fretboards here
  c2 g4 c
}

staffMelody = \relative c' {
  \key c \major
  \clef treble
  % Type notes for melody here
  c4 d8 e f4 g
  \bar "|"
}

\score {
  <<
    \context ChordNames { \theChords }
    \context FretBoards { \theChords }
    \new Staff {
      \context Voice = "voiceMelody" { \staffMelody }
    }
    \new Lyrics = "lyricsI" {
      \lyricsto "voiceMelody" \verseI
    }
    \new Lyrics = "lyricsII" {
      \lyricsto "voiceMelody" \verseII
    }
  >>
  \layout { }
  \midi { }
}

```





1. This is the first verse
2. This is the second verse.

## Single staff template with notes and chords

Want to prepare a lead sheet with a melody and chords? Look no further!

```
melody = \relative c' {
  \clef treble
  \key c \major
  \time 4/4

  f4 e8[ c] d4 g
  a2 ~ a
}

harmonies = \chordmode {
  c4:m f:min7 g:maj c:aug
  d2:dim b:sus
}

\score {
  <<
    \new ChordNames {
      \set chordChanges = ##t
      \harmonies
    }
    \new Staff \melody
  >>
  \layout{ }
  \midi { }
}
```



## Vertically centering paired figured bass extenders

Where figured bass extender lines are being used by setting `useBassFigureExtenders` to true, pairs of congruent figured bass extender lines are vertically centered if `figuredBassCenterContinuations` is set to true.

```
<<
  \relative c' {
    c8 c b b a a c16 c b b
    c8 c b b a a c16 c b b
    c8 c b b a a c c b b
  }
}
```

```

\figures {
  \set useBassFigureExtenders = ##t
  <6+ 4 3>4 <6 4 3>8 r
  <6+ 4 3>4 <6 4 3>8 <4 3+>16 r
  \set figuredBassCenterContinuations = ##t
  <6+ 4 3>4 <6 4 3>8 r
  <6+ 4 3>4 <6 4 3>8 <4 3+>16 r
  \set figuredBassCenterContinuations = ##f
  <6+ 4 3>4 <6 4 3>8 r
  <6+ 4 3>4 <6 4 3>8 <4 3+>8
}
>>

```

The image displays two staves of musical notation. The first staff contains four measures of music. Below the notes, there is figured bass notation:  $\#6$ ,  $4$ ,  $3$ ,  $6$ ,  $\#6$ ,  $4$ ,  $3$ ,  $6$ ,  $\#3$ ,  $\#6$ ,  $4$ ,  $3$ ,  $6$ ,  $\#6$ ,  $4$ ,  $3$ ,  $6$ ,  $\#3$ . The second staff contains two measures of music, also with figured bass notation:  $\#6$ ,  $4$ ,  $3$ ,  $6$ ,  $\#6$ ,  $4$ ,  $3$ ,  $6$ ,  $\#3$ .

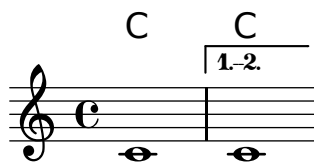
## Volta below chords

By adding the `Volta_engraver` to the relevant staff, volte can be put under chords.

```

\score {
  <<
    \chords {
      c1
      c1
    }
    \new Staff \with {
      \consists "Volta_engraver"
    }
    {
      \repeat volta 2 { c'1 }
      \alternative { c' }
    }
  >>
  \layout {
    \context {
      \Score
      \remove "Volta_engraver"
    }
  }
}

```



# Keyboards

Section “Keyboard and other multi-staff instruments” in *Notation Reference*

## Accordion-discant symbols

Accordion discant-specific symbols are added using `\markup`. The vertical placement of the symbols can be tweaked by changing the `\raise` arguments.

```
discant = \markup {
  \musicglyph #"accordion.discant"
}
dot = \markup {
  \musicglyph #"accordion.dot"
}

\layout { ragged-right = ##t }

% 16 voets register
accBasson = ^\markup {
  \combine
  \discant
  \raise #0.5 \dot
}

% een korig 8 en 16 voets register
accBandon = ^\markup {
  \combine
  \discant
  \combine
  \raise #0.5 \dot
  \raise #1.5 \dot
}

accVCello = ^\markup {
  \combine
  \discant
  \combine
  \raise #0.5 \dot
  \combine
  \raise #1.5 \dot
  \translate #'(1 . 0) \raise #1.5 \dot
}

% 4-8-16 voets register
accHarmon = ^\markup {
  \combine
  \discant
  \combine
  \raise #0.5 \dot
  \combine
  \raise #1.5 \dot
  \raise #2.5 \dot
}
```

```
}
```

```
accTrombon = ^\markup {
  \combine
  \discant
  \combine
  \raise #0.5 \dot
  \combine
  \raise #1.5 \dot
  \combine
  \translate #'(1 . 0) \raise #1.5 \dot
  \translate #'(-1 . 0) \raise #1.5 \dot
}
```

```
% eenkorig 4 en 16 voets register
```

```
accOrgan = ^\markup {
  \combine
  \discant
  \combine
  \raise #0.5 \dot
  \raise #2.5 \dot
}
```

```
accMaster = ^\markup {
  \combine
  \discant
  \combine
  \raise #0.5 \dot
  \combine
  \raise #1.5 \dot
  \combine
  \translate #'(1 . 0) \raise #1.5 \dot
  \combine
  \translate #'(-1 . 0) \raise #1.5 \dot
  \raise #2.5 \dot
}
```

```
accAccord = ^\markup {
  \combine
  \discant
  \combine
  \raise #1.5 \dot
  \combine
  \translate #'(1 . 0) \raise #1.5 \dot
  \combine
  \translate #'(-1 . 0) \raise #1.5 \dot
  \raise #2.5 \dot
}
```

```
accMusette = ^\markup {
  \combine
  \discant
```

```

    \combine
    \raise #1.5 \dot
    \combine
    \translate #'(1 . 0) \raise #1.5 \dot
    \translate #'(-1 . 0) \raise #1.5 \dot
}

```

```

accCeleste = ^\markup {
  \combine
  \discant
  \combine
  \raise #1.5 \dot
  \translate #'(-1 . 0) \raise #1.5 \dot
}

```

```

accOboe = ^\markup {
  \combine
  \discant
  \combine
  \raise #1.5 \dot
  \raise #2.5 \dot
}

```

```

accClarin = ^\markup {
  \combine
  \discant
  \raise #1.5 \dot
}

```

```

accPiccolo = ^\markup {
  \combine
  \discant
  \raise #2.5 \dot
}

```

```

accViolin = ^\markup {
  \combine
  \discant
  \combine
  \raise #1.5 \dot
  \combine
  \translate #'(1 . 0) \raise #1.5 \dot
  \raise #2.5 \dot
}

```

```

\relative c'' {
  c4 d\accBasson e f
  c4 d\accBandon e f
  c4 d\accVCello e f
  c4 d\accHarmon e f
  c4 d\accTrombon e f
  \break
}

```

```

c4 d\accOrgan e f
c4 d\accMaster e f
c4 d\accAccord e f
c4 d\accMusette e f
c4 d\accCeleste e f
\break
c4 d\accOboe e f
c4 d\accClarinet e f
c4 d\accPiccolo e f
c4 d\accViolin e f
}

```

## Changing the text for sustain markings

`Staff.pedalSustainStrings` can be used to set the text used for pedal down and up. Note that the only valid strings are those found in the list of pedal glyphs - the values used in this snippet constitute an exhaustive list.

```
sustainNotes = { c4\sustainOn d e\sustainOff\sustainOn f\sustainOff }
```

```

\relative c' {
  \sustainNotes
  \set Staff.pedalSustainStrings = #("P" "P-" "-")
  \sustainNotes
  \set Staff.pedalSustainStrings = #("d" "de" "e")
  \sustainNotes
  \set Staff.pedalSustainStrings = #("M" "M-" "-")
  \sustainNotes
  \set Staff.pedalSustainStrings = #("Ped" "*Ped" "*")
  \sustainNotes
}

```

## Clusters

Clusters are a device to denote that a complete range of notes is to be played.

```
fragment = \relative c' {
  c4 f <e d'>4
  <g a>8 <e a> a4 c2 <d b>4
  e2 c
}

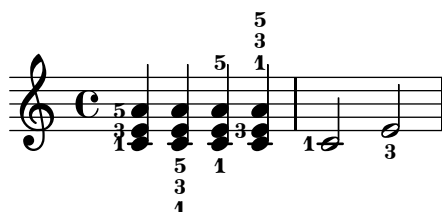
<<
  \new Staff \fragment
  \new Staff \makeClusters \fragment
>>
```



## 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 <> 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
}
```



## Creating slurs across voices

In some situations, it may be necessary to create slurs between notes from different voices.

The solution is to add invisible notes to one of the voices, using `\hideNotes`.



This example is measure 235 of the Ciaccona from Bach's 2nd Partita for solo violin, BWV 1004.

```
\relative c' {
  <<
  {
    d16( a') s a s a[ s a] s a[ s a]
  }
  \\\
  {
    \slurUp
    bes,16[ s e](
    \hideNotes a)
    \unHideNotes f[(
    \hideNotes a)
    \unHideNotes fis](
    \hideNotes a)
    \unHideNotes g[(
    \hideNotes a)
    \unHideNotes gis](
    \hideNotes a)
  }
  >>
}
```



## Cross-staff chords - beaming problems workaround

Sometimes it is better to use stems from the upper staff for creating cross-staff chords, because no problems with automatic beam collision avoidance then arise. If the stems from the lower staff were used in the following example, it would be necessary to change the automatic beam collision avoidance settings so that it doesn't detect collisions between staves using `\override Staff.Beam #'collision-voice-only = ##t`

```
\new PianoStaff <<
  \new Staff = up
  \relative c' {
    <<
    { r4
      \override Stem #'cross-staff = ##t
      \override Stem #'length = #19 % this is in half-spaces,
        % so it makes stems 9.5 staffspaces long
      \override Stem #'Y-offset = #-6 % stems are normally lengthened
        % upwards, so here we must lower the stem by the amount
        % equal to the lengthening - in this case (19 - 7) / 2
        % (7 is default stem length)
      e e e }
    { s4
      \change Staff = "bottom"
      \override NoteColumn #'ignore-collision = ##t
```

```

        c, c c
      }
    >>
  }
  \new Staff = bottom
  \relative c' {
    \clef bass
    \voiceOne
    g8 a g a g a g a
  }
>>

```



## Cross-staff tremolos

Since `\repeat tremolo` expects exactly two musical arguments for chord tremolos, the note or chord which changes staff within a cross-staff tremolo should be placed inside curly braces together with its `\change Staff` command.

```

\new PianoStaff <<
  \new Staff = "up" \relative c'' {
    \key a \major
    \time 3/8
    s4.
  }
  \new Staff = "down" \relative c'' {
    \key a \major
    \time 3/8
    \voiceOne
    \repeat tremolo 6 {
      <a e'>32
      {
        \change Staff = "up"
        \voiceTwo
        <cis a' dis>32
      }
    }
  }
}
>>

```



## Fine-tuning pedal brackets

The appearance of pedal brackets may be altered in different ways.

```
\paper { ragged-right = ##f }
\relative c' {
  c2\sostenutoOn c
  c2\sostenutoOff c
  \once \override Staff.PianoPedalBracket #'shorten-pair = #'(-7 . -2)
  c2\sostenutoOn c
  c2\sostenutoOff c
  \once \override Staff.PianoPedalBracket #'edge-height = #'(0 . 3)
  c2\sostenutoOn c
  c2\sostenutoOff c
}
```



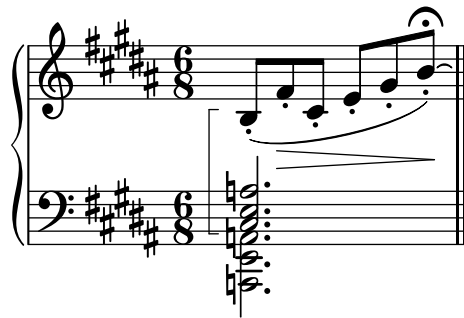
## Indicating cross-staff chords with arpeggio bracket

An arpeggio bracket can indicate that notes on two different staves are to be played with the same hand. In order to do this, the `PianoStaff` must be set to accept cross-staff arpeggios and the arpeggios must be set to the bracket shape in the `PianoStaff` context.

(Debussy, *Les collines d'Anacapri*, m. 65)

```
\new PianoStaff <<
  \set PianoStaff.connectArpeggios = ##t
  \override PianoStaff.Arpeggio #'stencil = #ly:arpeggio::brew-chord-bracket
  \new Staff {
    \relative c' {
      \key b \major
      \time 6/8
      b8-.(\arpeggio fis'-.\> cis-. e-. gis-. b-.)\!\fermata^\laissezVibrer
      \bar "||"
    }
  }
\new Staff {
  \relative c' {
    \clef bass
    \key b \major
    <<
      {
        <a e cis>2.\arpeggio
      }
      \\\
      {
        <a, e a,>2.
      }
    >>
  }
}
```

&gt;&gt;



## 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"

%%%%%%%%%% Some macros %%%%%%%%%%%

sl = {
  \override NoteHead #'style = #'slash
  \override Stem #'transparent = ##t
  \override Flag #'transparent = ##t
}

nsl = {
  \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 = { }
```

```
%%%%%%%%%%%% Keys'n'thangs %%%%%%%%%%%%%%
```

```
global = { \time 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  
  \ns1  
}
```

```

bariHarmony = \transpose c' a \chordmode {
  \jazzChords s1 s d2:maj e:m7
}
bariSax = {
  \global
  \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"
  \clef bass
  <<
    \tbone
  >>
}

% ##### Rhythm Section #####

% ----- Guitar -----
gtr = \relative c'' {
  \Key
  c1
  \sl
  b4 b b b
  \nsl
  c1
}
gtrHarmony = \chordmode {
  \jazzChords
  s1 c2:min7+ d2:maj9
}
guitar = {
  \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
  \global
  \set Staff.midiInstrument = #"acoustic grand"
  <<
    \new Voice = "one" \rhUpper
    \new Voice = "two" \rhLower
  >>
}

PianoLH = {
  \clef bass
  \global
  \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 {
  \Key
  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 = {
  \global
  <<
    \set DrumStaff.instrumentName = #"Drums"
    \new DrumVoice \up
    \new DrumVoice \down
  >>
}

%%%%%%%%%% It All Goes Together Here %%%%%%%%%%%%%%%

\score {
  <<
    \new StaffGroup = "horns" <<
      \new Staff = "trumpet" \trumpet
      \new Staff = "altosax" \altoSax
      \new ChordNames = "barichords" \bariHarmony
      \new Staff = "barisax" \bariSax
      \new Staff = "trombone" \trombone
    >>

    \new StaffGroup = "rhythm" <<
      \new ChordNames = "chords" \gtrHarmony
      \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**  
(tune)

moderato

Swing

Me

Trumpet

Alto Sax

Bari Sax

Trombone

Guitar

Piano

Bass

Drums

$B^{\Delta}$  Solo  $C^{\#}m^7$

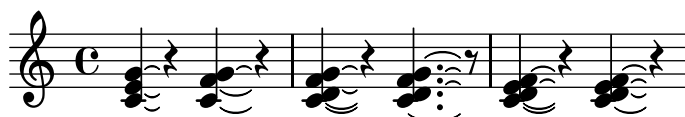
$Cm^{\Delta} D^{\Delta 9}$

## 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

  <c d e f>4\laissezVibrer r
  \override LaissezVibrerTieColumn #'tie-configuration
    = #`((-7 . ,DOWN)
      (-5 . ,DOWN)
      (-3 . ,UP)
      (-1 . ,UP))
  <c d e f>4\laissezVibrer r
}
```



## Piano template (simple)

Here is a simple piano staff with some notes.

```
upper = \relative c'' {
  \clef treble
  \key c \major
  \time 4/4

  a4 b c d
}

lower = \relative c {
  \clef bass
  \key c \major
  \time 4/4

  a2 c
}

\score {
  \new PianoStaff <<
    \set PianoStaff.instrumentName = #"Piano  "
    \new Staff = "upper" \upper
    \new Staff = "lower" \lower
  >>
  \layout { }
  \midi { }
}
```



## Piano template with centered lyrics

Instead of having a full staff for the melody and lyrics, lyrics can be centered between the staves of a piano staff.

```
upper = \relative c'' {
  \clef treble
  \key c \major
  \time 4/4

  a4 b c d
}

lower = \relative c {
  \clef bass
  \key c \major
  \time 4/4
```

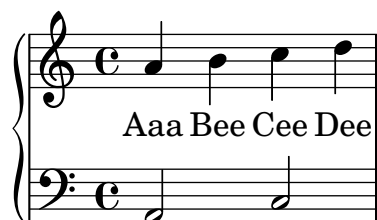
```

    a2 c
}

text = \lyricmode {
  Aaa Bee Cee Dee
}

\score {
  \new GrandStaff <<
    \new Staff = upper { \new Voice = "singer" \upper }
    \new Lyrics \lyricsto "singer" \text
    \new Staff = lower { \lower }
  >>
  \layout {
    \context {
      \GrandStaff
      \accepts "Lyrics"
    }
    \context {
      \Lyrics
      \consists "Bar_engraver"
    }
  }
  \midi { }
}

```



## Piano template with melody and lyrics

Here is a typical song format: one staff with the melody and lyrics, with piano accompaniment underneath.

```

melody = \relative c'' {
  \clef treble
  \key c \major
  \time 4/4

  a b c d
}

text = \lyricmode {
  Aaa Bee Cee Dee
}

upper = \relative c'' {
  \clef treble

```

```

\key c \major
\time 4/4

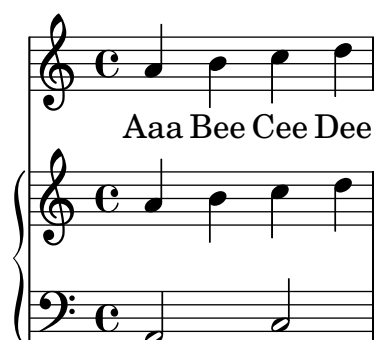
a4 b c d
}

lower = \relative c {
  \clef bass
  \key c \major
  \time 4/4

  a2 c
}

\score {
  <<
    \new Voice = "mel" { \autoBeamOff \melody }
    \new Lyrics \lyricsto mel \text
    \new PianoStaff <<
      \new Staff = "upper" \upper
      \new Staff = "lower" \lower
    >>
  >>
  \layout {
    \context { \Staff \RemoveEmptyStaves }
  }
  \midi { }
}

```



## Using autochange with more than one voice

Using autochange with more than one voice.

```

\score
{
  \new PianoStaff
  <<
    \new Staff = "up" {
      <<
        \set Timing.beamExceptions = #'()
        \set Timing.beatStructure = #'(4)
        \new Voice {

```

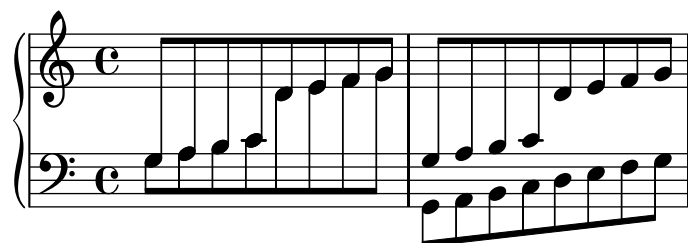
```

\voiceOne
\autochange
\relative c' {
  g8 a b c d e f g
  g,8 a b c d e f g
}
}

\new Voice {
  \voiceTwo
  \autochange
  \relative c' {
    g8 a b c d e f g
    g,,8 a b c d e f g
  }
}
>>
}

\new Staff = "down" {
  \clef bass
}
>>
}

```



## Vocal ensemble template with automatic piano reduction

This template adds an automatic piano reduction to the standard SATB vocal score demonstrated in “Vocal ensemble template”. This demonstrates one of the strengths of LilyPond – you can use a music definition more than once. If any changes are made to the vocal notes (say, `tenorMusic`), then the changes will also apply to the piano reduction.

```

\paper {
  top-system-spacing #'basic-distance = #10
  score-system-spacing #'basic-distance = #20
  system-system-spacing #'basic-distance = #20
  last-bottom-spacing #'basic-distance = #10
}

global = {
  \key c \major
  \time 4/4
}

sopMusic = \relative c'' {

```

```

    c4 c c8[( b)] c4
}
sopWords = \lyricmode {
    hi hi hi hi
}

altoMusic = \relative c' {
    e4 f d e
}
altoWords = \lyricmode {
    ha ha ha ha
}

tenorMusic = \relative c' {
    g4 a f g
}
tenorWords = \lyricmode {
    hu hu hu hu
}

bassMusic = \relative c {
    c4 c g c
}
bassWords = \lyricmode {
    ho ho ho ho
}

\score {
  <<
    \new ChoirStaff <<
      \new Lyrics = "sopranos" \with {
        % This is needed for lyrics above a staff
        \override VerticalAxisGroup #'staff-affinity = #DOWN
      }
      \new Staff = "women" <<
        \new Voice = "sopranos" { \voiceOne << \global \sopMusic >> }
        \new Voice = "altos" { \voiceTwo << \global \altoMusic >> }
      >>
      \new Lyrics = "altos"
      \new Lyrics = "tenors" \with {
        % This is needed for lyrics above a staff
        \override VerticalAxisGroup #'staff-affinity = #DOWN
      }
    >>

    \new Staff = "men" <<
      \clef bass
      \new Voice = "tenors" { \voiceOne << \global \tenorMusic >> }
      \new Voice = "basses" { \voiceTwo << \global \bassMusic >> }
    >>
    \new Lyrics = "basses"
    \context Lyrics = "sopranos" \lyricsto "sopranos" \sopWords
    \context Lyrics = "altos" \lyricsto "altos" \altoWords
  >>
}

```

```

\context Lyrics = "tenors" \lyricsto "tenors" \tenorWords
\context Lyrics = "basses" \lyricsto "basses" \bassWords
>>
\new PianoStaff <<
  \new Staff <<
    \set Staff.printPartCombineTexts = ##f
    \partcombine
    << \global \sopMusic >>
    << \global \altoMusic >>
  >>
  \new Staff <<
    \clef bass
    \set Staff.printPartCombineTexts = ##f
    \partcombine
    << \global \tenorMusic >>
    << \global \bassMusic >>
  >>
>>
>>
}

```

The musical score consists of four staves. The top two staves are for vocal parts (Soprano and Alto) and the bottom two are for piano (Treble and Bass). The music is in common time (C) and features a simple melody with lyrics 'hi hi hi hi', 'ha ha ha ha', 'hu hu hu hu', and 'ho ho ho ho'.



## Percussion

Section “Percussion” in *Notation Reference*

### Adding drum parts

Using the powerful pre-configured tools such as the `\drummode` function and the `DrumStaff` context, inputting drum parts is quite easy: drums are placed at their own staff positions (with a special clef symbol) and have note heads according to the drum. Attaching an extra symbol to the drum or restricting the number of lines is possible.

```
drh = \drummode { cymc4.^"crash" hhc16^"h.h." hh hhc8 hho hhc8 hh16 hh hhc4 r4 r2 }
drl = \drummode { bd4 sn8 bd bd4 << bd ss >> bd8 tommh tommh bd tom1 tom1 bd tomfh16 tomfh
timb = \drummode { timh4 ssh timl8 ssh r timh r4 ssh8 timl r4 cb8 cb }
```

```
\score {
  <<
    \new DrumStaff \with {
      drumStyleTable = #timbales-style
      \override StaffSymbol #'line-count = #2
      \override BarLine #'bar-extent = #'(-1 . 1)
    } <<
      \set Staff.instrumentName = #"timbales"
      \timb
    >>
    \new DrumStaff <<
      \set Staff.instrumentName = #"drums"
      \new DrumVoice { \stemUp \drh }
      \new DrumVoice { \stemDown \drl }
    >>
  >>
  \layout { }
  \midi {
    \tempo 4 = 120
  }
}
```

### Heavily customized polymetric time signatures

Though the polymetric time signature shown was not the most essential item here, it has been included to show the beat of this piece (which is the template of a real Balkan song!).

```
#(define plus (markup #:vcenter "+"))
#(define ((custom-time-signature one two three four five six
                                   seven eight nine ten eleven num) grob)
  (grob-interpret-markup grob
```

```

(markup #:override '(baseline-skip . 0) #:number
  (:line ((#:column (one num)) plus
            (:column (two num)) plus
            (:column (three num)) plus
            (:column (four num)) plus
            (:column (five num)) plus
            (:column (six num)) plus
            (:column (seven num)) plus
            (:column (eight num)) plus
            (:column (nine num)) plus
            (:column (ten num)) plus
            (:column (eleven num))))))

melody = \relative c'' {
  \set Staff.instrumentName = #"Bb Sop."
  \key g \major
  \time #'(3 2 2 3 2 2 2 2 3 2 2) 25/8
  \override Staff.TimeSignature #'stencil =
    #(custom-time-signature "3" "2" "2" "3" "2" "2"
      "2" "2" "3" "2" "2" "8")
  c8 c c d4 c8 c b c b a4 g fis8 e d c b' c d e4-^ fis8 g \break
  c,4. d4 c4 d4. c4 d c2 d4. e4-^ d4
  c4. d4 c4 d4. c4 d c2 d4. e4-^ d4 \break
  c4. d4 c4 d4. c4 d c2 d4. e4-^ d4
  c4. d4 c4 d4. c4 d c2 d4. e4-^ d4 \break
}

drum = \new DrumStaff \drummode {
  \bar "|:" bd4.^ \markup { Drums } sn4 bd \bar ":" sn4.
  bd4 sn \bar ":" bd sn bd4. sn4 bd \bar ":@"
}

{
  \melody
  \drum
}

```

Bb Sop.

2

4

6 Drums

## 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"

%%%%%%%%%%%% Some macros %%%%%%%%%%%%%%

sl = {
  \override NoteHead #'style = #'slash
  \override Stem #'transparent = ##t
  \override Flag #'transparent = ##t
}
nsl = {
  \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 = { }

%%%%%%%%%%%% Keys'n'things %%%%%%%%%%%%%%

global = { \time 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 = {
  \global
  \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"
  \clef bass
  <<
    \tbone
  >>
}

% ##### Rhythm Section #####

% ----- Guitar -----
gtr = \relative c' {
  \Key
  c1
  \sl
  b4 b b b
  \nsl
  c1
}
gtrHarmony = \chordmode {
  \jazzChords
  s1 c2:min7+ d2:maj9
}
guitar = {
  \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
  \global
  \set Staff.midiInstrument = #"acoustic grand"
  <<
    \new Voice = "one" \rhUpper
    \new Voice = "two" \rhLower
  >>
}
PianoLH = {
  \clef bass
  \global
  \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 {
  \Key
  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 = {
  \global
  <<
    \set DrumStaff.instrumentName = #"Drums"
    \new DrumVoice \up
    \new DrumVoice \down
  >>
}

%%%%%%%%%% It All Goes Together Here %%%%%%%%%%%%%%

\score {
  <<
    \new StaffGroup = "horns" <<
      \new Staff = "trumpet" \trumpet
      \new Staff = "altosax" \altoSax
      \new ChordNames = "barichords" \bariHarmony
      \new Staff = "barisax" \bariSax
      \new Staff = "trombone" \trombone
    >>

    \new StaffGroup = "rhythm" <<
      \new ChordNames = "chords" \gtrHarmony
      \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**  
(tune)

Me

moderato  
Swing

Trumpet

Alto Sax

Bari Sax

Trombone

Guitar

Piano

Bass

Drums

B<sup>△</sup> C<sup>#</sup>m<sup>7</sup>  
Solo

Cm<sup>△</sup> D<sup>△</sup>9

**Percussion beaters**

Graphic symbols for percussion instruments are not natively supported; however it is possible to include such symbols, either as an external EPS file or as embedded PostScript code inside a markup, as demonstrated in this example.



```

stick = \markup {
  \with-dimensions #'(0 . 5) #'(0 . 5)
  \postscript #"
    0 6 translate
    0.8 -0.8 scale
    0 0 0 setrgbcolor
    [] 0 setdash
    1 setlinewidth
    0 setlinejoin
    0 setlinecap
    gsave [1 0 0 1 0 0] concat
    gsave [1 0 0 1 -3.5406095 -199.29342] concat
    gsave
    0 0 0 setrgbcolor
    newpath
    7.1434065 200.94354 moveto
    7.2109628 200.90454 7.2785188 200.86554 7.3460747 200.82654 curveto
    8.2056347 202.31535 9.0651946 203.80414 9.9247546 205.29295 curveto
    9.8571989 205.33195 9.7896429 205.37095 9.7220864 205.40996 curveto
    8.8625264 203.92115 8.0029664 202.43233 7.1434065 200.94354 curveto
    closepath
    eofill
    grestore
    gsave
    0 0 0 setrgbcolor
    newpath
    4.9646672 203.10444 moveto
    5.0036707 203.03688 5.0426744 202.96933 5.0816777 202.90176 curveto
    6.5704792 203.76133 8.0592809 204.6209 9.5480824 205.48045 curveto
    9.5090791 205.54801 9.4700754 205.61556 9.4310717 205.68311 curveto
    7.94227 204.82356 6.4534687 203.96399 4.9646672 203.10444 curveto
    closepath
    eofill
    grestore
    gsave
    <<
    /ShadingType 3
    /ColorSpace /DeviceRGB
    /Coords [113.13708 207.87465 0 113.13708 207.87465 16.162441]
    /Extend [true true]
    /Domain [0 1]
    /Function <<
    /FunctionType 3
    /Functions
    [
    <<
    /FunctionType 2
    /Domain [0 1]
    /C0 [1 1 1]
    /C1 [0.72941178 0.72941178 0.72941178]
    /N 1
    >>
  >>

```

```

]
/Domain [0 1]
/Bounds [ ]
/Encode [ 0 1 ]
>>
>>
newpath
7.6422017 200.76488 moveto
7.6505696 201.02554 7.3905363 201.24867 7.1341335 201.20075 curveto
6.8759501 201.16916 6.6949602 200.87978 6.7801462 200.63381 curveto
6.8480773 200.39155 7.1438307 200.25377 7.3728389 200.35861 curveto
7.5332399 200.42458 7.6444521 200.59122 7.6422017 200.76488 curveto
closepath
clip
gsave [0.052859054 0.063089841 -0.020912282 0.017521108 5.7334261 189.76443] concat
shfill
grestore
grestore
0 0 0 setrgbcolor
[] 0 setdash
0.027282091 setlinewidth
0 setlinejoin
0 setlinecap
newpath
7.6422017 200.76488 moveto
7.6505696 201.02554 7.3905363 201.24867 7.1341335 201.20075 curveto
6.8759501 201.16916 6.6949602 200.87978 6.7801462 200.63381 curveto
6.8480773 200.39155 7.1438307 200.25377 7.3728389 200.35861 curveto
7.5332399 200.42458 7.6444521 200.59122 7.6422017 200.76488 curveto
closepath
stroke
gsave
<<
/ShadingType 3
/ColorSpace /DeviceRGB
/Coords [113.13708 207.87465 0 113.13708 207.87465 16.162441]
/Extend [true true]
/Domain [0 1]
/Function <<
/FunctionType 3
/Functions
[
<<
/FunctionType 2
/Domain [0 1]
/C0 [1 1 1]
/C1 [0.72941178 0.72941178 0.72941178]
/N 1
>>
]
/Domain [0 1]
/Bounds [ ]

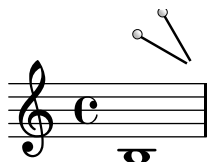
```

```

/Encode [ 0 1 ]
>>
>>
newpath
5.2721217 202.83181 moveto
5.2804896 203.09247 5.0204563 203.3156 4.7640539 203.26768 curveto
4.5058701 203.23609 4.3248803 202.94671 4.4100662 202.70074 curveto
4.4779975 202.45848 4.7737511 202.3207 5.0027593 202.42554 curveto
5.1631598 202.49149 5.2743721 202.65813 5.2721217 202.83181 curveto
closepath
clip
gsave [0.052859054 0.063089841 -0.020912282 0.017521108 3.363346 191.83136] concat
shfill
grestore
grestore
0 0 0 setrgbcolor
[] 0 setdash
0.027282091 setlinewidth
0 setlinejoin
0 setlinecap
newpath
5.2721217 202.83181 moveto
5.2804896 203.09247 5.0204563 203.3156 4.7640539 203.26768 curveto
4.5058701 203.23609 4.3248803 202.94671 4.4100662 202.70074 curveto
4.4779975 202.45848 4.7737511 202.3207 5.0027593 202.42554 curveto
5.1631598 202.49149 5.2743721 202.65813 5.2721217 202.83181 curveto
closepath
stroke
grestore
grestore
"
}

\score {
  b1^\stick
}

```



## Printing music with different time signatures

In the following snippet, two parts have a completely different time signature, yet remain synchronized. The bar lines can no longer be printed at the **Score** level; to allow independent bar lines in each part, the **Default\_barline\_engraver** and **Timing\_translator** are moved from the **Score** context to the **Staff** context.

If bar numbers are required, the **Bar\_number\_engraver** should also be moved, since it relies on properties set by the **Timing\_translator**; a **\with** block can be used to add bar numbers to the relevant staff.

```

\paper {
  indent = #0
  ragged-right = ##t
}

global = { \time 3/4 { s2.*3 } \bar "" \break { s2.*3 } }

\layout {
  \context {
    \Score
    \remove "Timing_translator"
    \remove "Default_bar_line_engraver"
    \remove "Bar_number_engraver"
    \override SpacingSpanner #'uniform-stretching = ##t
    \override SpacingSpanner #'strict-note-spacing = ##t
    proportionalNotationDuration = #(ly:make-moment 1 64)
  }
  \context {
    \Staff
    \consists "Timing_translator"
    \consists "Default_bar_line_engraver"
  }
  \context {
    \Voice
    \remove "Forbid_line_break_engraver"
    tupletFullLength = ##t
  }
}

Bassklarinette = \new Staff \with {
  \consists "Bar_number_engraver"
  barNumberVisibility = #(every-nth-bar-number-visible 2)
  \override BarNumber #'break-visibility = #end-of-line-invisible
} <<

\global {
  \bar "|"
  \clef treble
  \time 3/8
  d''4.

  \bar "|"
  \time 3/4
  r8 des''2( c''8)

  \bar "|"
  \time 7/8
  r4. ees''2 ~

  \bar "|"
  \time 2/4
  \tupletUp
  \times 2/3 { ees''4 r4 d''4 ~ }
}

```

```

\bar "|"
\time 3/8
\tupletUp
\times 3/4 { d''4 r4 }

\bar "|"
\time 2/4
e''2

\bar "|"
\time 3/8
es''4.

\bar "|"
\time 3/4
r8 d''2 r8
\bar "|"
}
>>

Percussion = \new StaffGroup <<
  \new Staff <<
    \global {
      \bar "|"
      \clef percussion
      \time 3/4
      r4 c'2 ~

      \bar "|"
      c'2.

      \bar "|"
      R2.

      \bar "|"
      r2 g'4 ~

      \bar "|"
      g'2. ~

      \bar "|"
      g'2.
    }
  >>
  \new Staff <<
    \global {
      \bar "|"
      \clef percussion
      \time 3/4
      R2.
    }
  >>

```

```

\bar "|"
g'2. ~

\bar "|"
g'2.

\bar "|"
r4 g'2 ~

\bar "|"
g'2 r4

\bar "|"
g'2.
}
>>
>>

\score {
  <<
    \Bassklarinette
    \Percussion
  >>
}

```

Musical score for Percussion and Bass Clarinet. The percussion part is in 3/4 time, featuring a series of eighth and sixteenth notes with various rests and ties. The bass clarinet part is in 3/4 time, featuring a series of eighth and sixteenth notes with various rests and ties.

Musical score for Percussion and Bass Clarinet, continuing from the previous system. The percussion part is in 3/4 time, featuring a series of eighth and sixteenth notes with various rests and ties. The bass clarinet part is in 3/4 time, featuring a series of eighth and sixteenth notes with various rests and ties.

8

The musical score for Percussion consists of three staves. The top staff is in 3/4 time, starting with a treble clef. It contains two measures: the first measure has a quarter rest, and the second measure has a quarter note on the middle line. The bottom two staves are grand staves, each with a percussion clef (two vertical lines). The top grand staff has a half note on the first line, and the bottom grand staff has a half note on the first line. A brace connects the two grand staves at the beginning of the first measure.

## Fretted strings

Section “Fretted string instruments” in *Notation Reference*

### Adding fingerings to a score

Fingering instructions can be entered using a simple syntax.

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

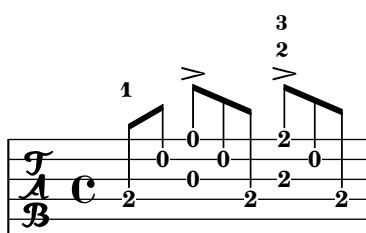


### Adding fingerings to tablatures

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]
  }
}
```

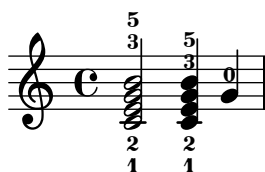




## Allowing fingerings to be printed inside the staff

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)))
        (set! (ly:music-property last-element 'articulations)
              (cons (make-music 'TextSpanEvent 'span-direction 1)
                    (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))
```

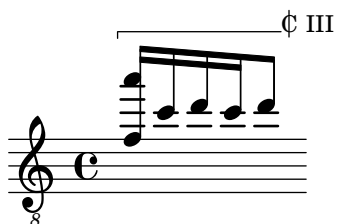
```

        (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
    % \once \override TextSpanner #'bound-details #'left #'text = \markup { "B" #str }
    $music
  #})

%% %%%%%%%%% Cut here ----- End 'bbarred.ly'
%% Copy and change the last line for full barred. Rename in 'fbarred.ly'
%% %%%%%%%%%

%% Syntax: \bbarre #"text" { notes } - text = any number of box
\relative c' { \clef "G_8" \stemUp \bbarre #"III" { <f a'>16[ c' d c d8] } }

```



## 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"
```

```

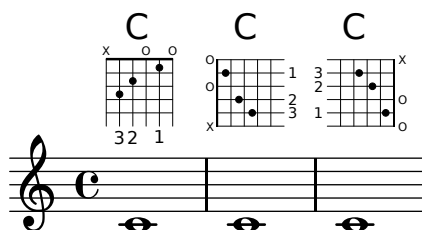
<<
  \chords {
    c1
    c1
    c1
  }
  \new FretBoards {
    \chordmode {
      c1
      \override FretBoard #'(fret-diagram-details orientation) =
        #'landscape
      c1
      \override FretBoard #'(fret-diagram-details orientation) =
        #'opposing-landscape
      c1
    }
  }
  \new Voice {
    c'1
  }

```

```

c'1
c'
}
>>

```



## Chord glissando in tablature

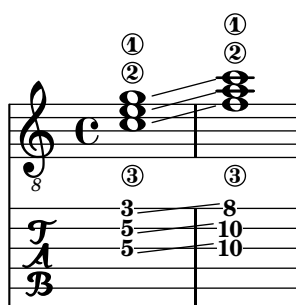
Slides for chords can be indicated in both **Staff** and **TabStaff**. String numbers are necessary for **TabStaff** because automatic string calculations are different for chords and for single notes.

```

myMusic = \relative c' {
  <c\3 e\2 g\1>1 \glissando <f\3 a\2 c\1>
}

\score {
  <<
    \new Staff {
      \clef "treble_8"
      \myMusic
    }
    \new TabStaff {
      \myMusic
    }
  >>
}

```



## 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
}

```

}

&lt;&lt;

\new ChordNames { \myChords }

\new FretBoards { \myChords }

\new Staff { \myChords }

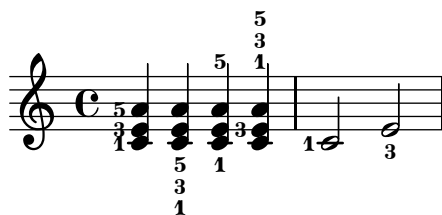
&gt;&gt;

The image shows three musical staves, each with a C major chord diagram above it. The diagrams show the fretboard with fingers 1, 2, and 3 on the strings. The first staff has no fingering numbers. The second staff has a '3' above the first ledger line. The third staff has a '5' above the first ledger line.

## 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 <> 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.

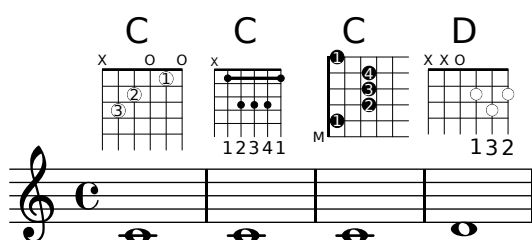
```
\include "predefined-guitar-fretboards.ly"
\storePredefinedDiagram #default-fret-table \chordmode { c' }
      #guitar-tuning
      #"x;1-1-(;3-2;3-3;3-4;1-1-);"

<<
\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 {
    c
    \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
    c'
    \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
    c'
    \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
d
}
}
\new Voice {
  c'1 | 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 guitar, no barre, using defaults
  % terse style
  c'1^\markup { \fret-diagram-terse #"x;3-3;2-2;o;1-1;o;" }

  %% 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)

```

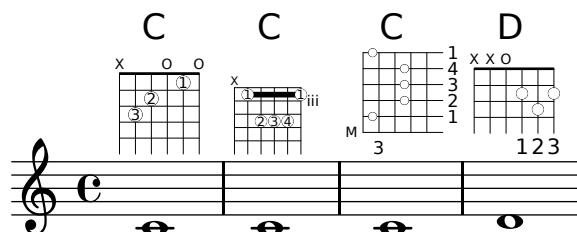
```

        (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 guitar, 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 . (
    (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;"
  }
}
}
}
>>

```



## 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\4 b\1 d\3 fis\2> }
dMajor = { <a\4 d\1 d\3 fis \2> }
aMajSeven = { <a\4 cis\1 e\3 g\2> }
dMajSeven = { <a\4 c\1 d\3 fis\2> }
gMajor = { <b\4 b\1 d\3 g\2> }
```

```
\storePredefinedDiagram #default-fret-table \dSix
                        #cuatroTuning
                        #"o;o;o;o;"
\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;o;1-1;o;"
```

```
% 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
      }
    }

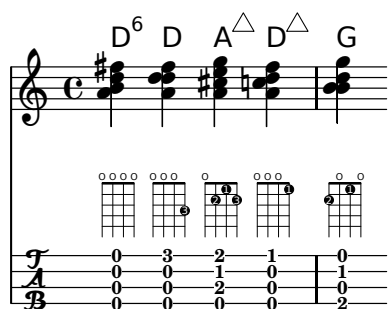
    \new FretBoards {
      \set Staff.stringTunings = #cuatroTuning
%      \override FretBoard
%      #'(fret-diagram-details string-count) = #'4
      \override FretBoard
        #'(fret-diagram-details finger-code) = #'in-dot
      \primeros
    }

    \new TabStaff \relative c'' {
      \set TabStaff.stringTunings = #cuatroTuning
      \primeros
    }

  >>

  \layout {
    \context {
      \Score
      \override SpacingSpanner
        #'base-shortest-duration = #(ly:make-moment 1 16)
    }
  }
  \midi { }
}

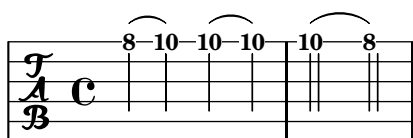
```



## 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)
    }
  }
}
```

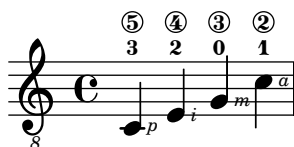


## Fingerings string indications and right-hand fingerings

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, note-heads 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.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%% Cut here ----- Start 'flamenco.ly'
```

```
% Text indicators
```

```
abanico = \markup { \italic Abanico }
```

```
rasgueaso = \markup { \italic Ras. }
```

```
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 #"
```

```
  0.1      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 } } }
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 { \strokeDown } } }

% 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
\headsOff
<a e' a cis e>^\mUp
<a e' a cis e>^\iUp
<a e' a cis e>^\iDown~
\headsOn
<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~
  \headsOn
}
<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
  \headsOn
}

```

```

\times 2/3 {
  <a e' a cis e>8^\pDown
  \headsOff
  <a e' a cis e>^\xUp
  <a e' a cis e>^\iUp
  \headsOn
}

```

```

\times 2/3 {
  <a e' a cis e>8^\pDown
  \headsOff
  <a e' a cis e>^\xUp
  <a e' a cis e>^\iUp
  \headsOn
}

```

```

\times 2/3 {
  <a e' a cis e>8^\pDown
  \headsOff
  <a e' a cis e>^\xUp
  <a e' a cis e>^\iUp
  \headsOn
}

\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 <<
    \context Staff = "part" <<
      \clef G
      \transpose c c'
      {
        \part
      }
    >>
    \context TabStaff {
      \part
    }
  >>
  \layout {
    ragged-right = ##t
  }
}

```

}  
}

The first system of music shows four measures. The first measure has a chord with notes on strings 1, 2, and 3. The second measure has a chord with notes on strings 1, 2, and 3. The third measure has a chord with notes on strings 1, 2, and 3. The fourth measure has a chord with notes on strings 1, 2, and 3. The fret diagrams below show fingerings: 0 0, 2 2, 2 2, 0 0 for the first measure; 0 0, 2 2, 2 2, 0 0 for the second; 0 0, 2 2, 2 2, 0 0 for the third; and 0 0, 2 2, 2 2, 0 0 for the fourth.

The second system of music shows four measures. The first measure has a chord with notes on strings 1, 2, and 3. The second measure has a chord with notes on strings 1, 2, and 3. The third measure has a chord with notes on strings 1, 2, and 3. The fourth measure has a chord with notes on strings 1, 2, and 3. The fret diagrams below show fingerings: 0 0, 2 2, 2 2, 0 0 for the first measure; 0 0, 2 2, 2 2, 0 0 for the second; 0 0, 2 2, 2 2, 0 0 for the third; and 0 0, 2 2, 2 2, 0 0 for the fourth.

## Fret diagrams explained and developed

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

```
<<
```

```
\chords {
  a2 a
  \repeat unfold 3 {
    c c c d d
  }
}

\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 #'(fret-diagram-details . (
      (string-count . 4)
      (dot-color . white)
      (finger-code . in-dot))) {
      \fret-diagram #"4-2-2;3-1-1;2-o;1-o;"
    }
  }
}
```

```

}

%% 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-o;1-o;"
  }
}

%% 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 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^\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 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 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^\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)
    (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 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))
    }
  }
}

```

```

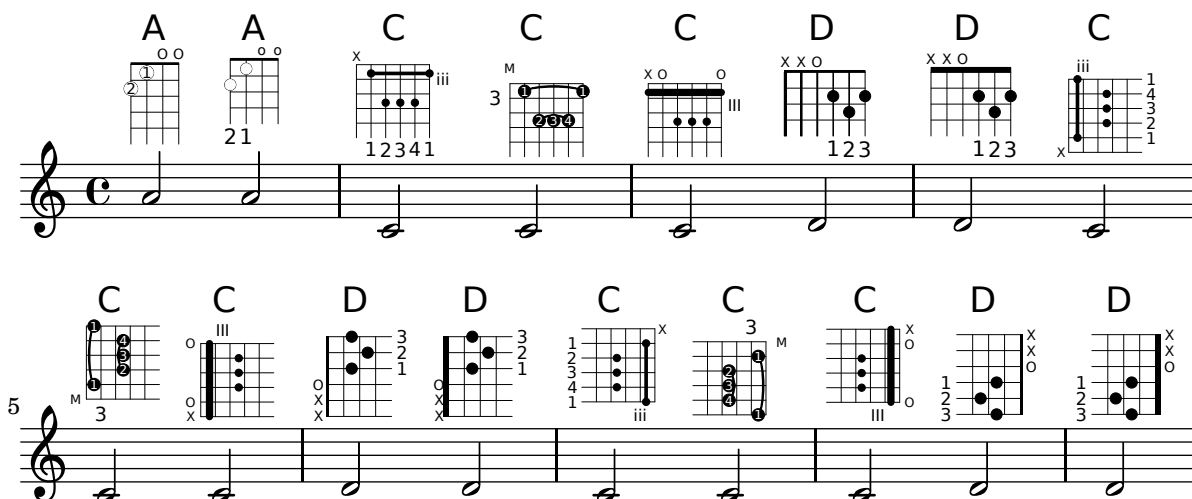
    }
  }

%% 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^\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)
    (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;"
  }
}
}
>>

```



## 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}
```

```
   #guitar-tuning
```

```
   "x;3;5;5;5;5;o;"
```

```
<<
```

```
 \chords {
```

```
   c1 | d1 |
```

```
   c1 | d1 |
```

```
   c1 | d1 |
```

```
 }
```

```
 \new FretBoards {
```

```
   \chordmode {
```

```
     \set predefinedDiagramTable = #default-fret-table
```

```
     c1 | d1 |
```

```

\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 |
}
>>
}
>>

```

The image displays six fretboard diagrams for chords C and D, arranged in two groups of three. Each diagram shows the fretboard with fingerings indicated by numbers 1-3 and 'x' for open strings. Below the diagrams is a musical staff in treble clef with a key signature of one sharp (F#) and a time signature of 8/8. The staff contains six chords corresponding to the diagrams above. The labels below the staff are: 'Default table' (under the first two diagrams), 'New table from empty' (under the next two diagrams), and 'New table from default' (under the last two diagrams).

## 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 g2\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 g2.\3
}

\score {
  <<
    \new Staff {
      \new Voice {
        \clef "treble_8"
        \harmonics
      }
    }
    \new TabStaff {
      \new TabVoice {
        \frettedStrings
      }
    }
  >>
}

```



## Guitar slides

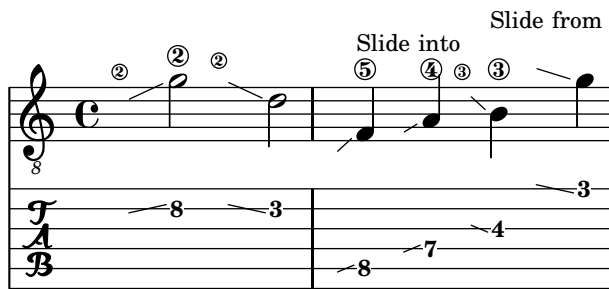
Unlike glissandos, slides may go from an imprecise point of the fretboard to a specific fret. A good way to do that is to add a grace hidden note before the note which is actually played, as demonstrated in the following example.

```
% 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
    }
  >>
}
```



## 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.
    }
  }
}
>>
```

C F G C  
 x 0 0 0 3 2 1 1 3 4 2 1 1 2 1 3 0 0 0 3 2 1  
 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 rhythmic 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;" } b4. a8\break
  % 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"
```

```
%%%%%%%%%% Some macros %%%%%%%%%%
```

```
sl = {
  \override NoteHead #'style = #'slash
  \override Stem #'transparent = ##t
  \override Flag #'transparent = ##t
}
nsl = {
  \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 = { }

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% Keys'n'thangs %%%%%%%%%%%%%%

global = { \time 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
  \ns1

```

```

}
bariHarmony = \transpose c' a \chordmode {
  \jazzChords s1 s d2:maj e:m7
}
bariSax = {
  \global
  \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"
  \clef bass
  <<
    \tbone
  >>
}

% ##### Rhythm Section #####

% ----- Guitar -----
gtr = \relative c'' {
  \Key
  c1
  \sl
  b4 b b b
  \nsl
  c1
}
gtrHarmony = \chordmode {
  \jazzChords
  s1 c2:min7+ d2:maj9
}
guitar = {
  \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
  \global
  \set Staff.midiInstrument = #"acoustic grand"
  <<
    \new Voice = "one" \rhUpper
    \new Voice = "two" \rhLower
  >>
}

PianoLH = {
  \clef bass
  \global
  \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 {
  \Key
  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 = {
  \global
  <<
  \set DrumStaff.instrumentName = #"Drums"
  \new DrumVoice \up
  \new DrumVoice \down
  >>
}

%%%%%%%%%% It All Goes Together Here %%%%%%%%%%%

\score {
  <<
  \new StaffGroup = "horns" <<
    \new Staff = "trumpet" \trumpet
    \new Staff = "altosax" \altoSax
    \new ChordNames = "barichords" \bariHarmony
    \new Staff = "barisax" \bariSax
    \new Staff = "trombone" \trombone
  >>

  \new StaffGroup = "rhythm" <<
    \new ChordNames = "chords" \gtrHarmony
    \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**  
(tune)

moderato

Swing

Me

Trumpet

Alto Sax

Bari Sax

Trombone

Guitar

Piano

Bass

Drums

Chord symbols:  $B^{\Delta}$  Solo,  $C\#m^7$ ,  $Cm^{\Delta}$ ,  $D^{\Delta 9}$

## 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

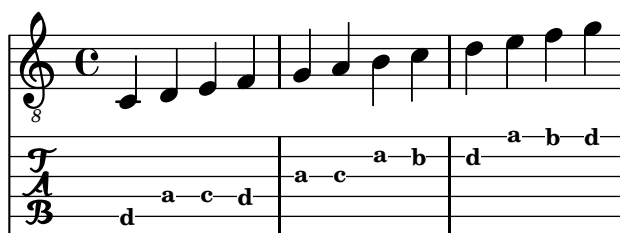
  <c d e f>4\laissezVibrer r
  \override LaissezVibrerTieColumn #'tie-configuration
    = #`((-7 . ,DOWN)
      (-5 . ,DOWN)
      (-3 . ,UP)
      (-1 . ,UP))
  <c d e f>4\laissezVibrer r
}
```

## 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
  }
>>
```



## 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
  \harmonicByRatio #2/3 e,\6
  %\harmonicByFret #19 < e,\6 a,\5 d\4 >
  %\harmonicByRatio #2/3 < e,\6 a,\5 d\4 >
  %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 e,\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
      }
    }
  >>
}

```

The image displays a musical score for open string harmonics on a guitar. It consists of two systems of notation. Each system includes a treble clef staff with a '6' above the notes, indicating the harmonic number, and a bass clef staff showing the fret numbers. The first system shows the first three harmonics: 1st harm. (fret 12), 2nd harm. (fret 7), and 3rd harm. (fret 19). The second system shows the fourth and fifth harmonics: 4th harm. (fret 4) and 5th harm. (fret 16). The notes are diamond-shaped, and the fret numbers are in parentheses.

## 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" <<
```

```

\clef "treble_8"
\context Voice = "upper" \upper
\context Voice = "lower" \lower
>>
\new TabStaff = "guitar tab" <<
\context TabVoice = "upper" \upper
\context TabVoice = "lower" \lower
>>
>>
>>
}

```

The image displays a musical score for guitar. It consists of two staves: a standard musical staff (treble clef) and a guitar tablature staff. The time signature is 12/8, and the key signature has one sharp (F#). The tablature staff shows fret numbers for the six strings. The music includes a series of eighth and sixteenth notes, with a glissando indicated in the upper voice.

## Slides in tablature

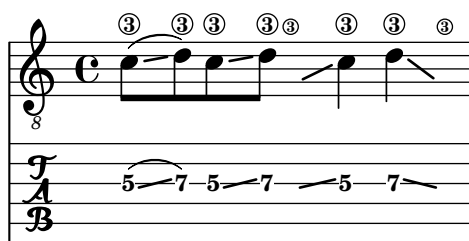
Slides can be typeset in both `Staff` and `TabStaff` contexts:

```

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
    g16\3 }
  \unHideNotes
}

\score {
  <<
    \new Staff { \clef "treble_8" \slides }
    \new TabStaff { \slides }
  >>
  \layout {
    \context {
      \Score
      \override Glissando #'minimum-length = #4
      \override Glissando #'springs-and-rods =
        #ly:spanner::set-spacing-rods
      \override Glissando #'thickness = #2
    }
  }
}

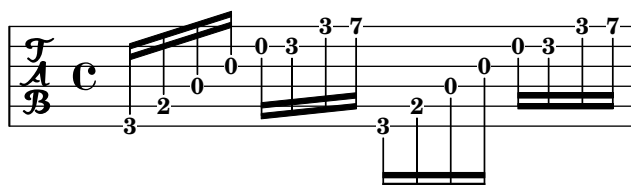
```



## 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?)
  #{
    \override TextSpanner #'style = #'solid
    \override TextSpanner #'font-size = #-5
    \override TextSpanner #'(bound-details left stencil-align-dir-y) = #CENTER
    \override TextSpanner #'(bound-details left text) = \markup { \circle \number #StringNumber }
  })

\relative c {
  \clef "treble_8"
  \stringNumberSpanner "5"
  \textSpannerDown
  a8\startTextSpan
  b c d e f\stopTextSpan
  \stringNumberSpanner "4"
  g\startTextSpan a
  bes4 a g2\stopTextSpan
}
```





## Unfretted strings

Section “Unfretted string instruments” in *Notation Reference*

### Changing \flageolet mark size

To make the \flageolet circle smaller use the following Scheme function.

```
smallFlageolet =
#(let ((m (make-articulation "flageolet")))
  (set! (ly:music-property m 'tweaks)
    (acons 'font-size -3
      (ly:music-property m 'tweaks)))
  m)

\layout { ragged-right = ##f }

\relative c' {
  d4^\flageolet_\markup { default size } d_\flageolet
  c4^\smallFlageolet_\markup { smaller } c_\smallFlageolet
}
```



### Creating slurs across voices

In some situations, it may be necessary to create slurs between notes from different voices.

The solution is to add invisible notes to one of the voices, using \hideNotes.

This example is measure 235 of the Ciaccona from Bach’s 2nd Partita for solo violin, BWV 1004.

```
\relative c' {
  <<
  {
    d16( a') s a s a[ s a] s a[ s a]
  }
  \\\
  {
    \slurUp
    bes,16[ s e](
    \hideNotes a)
    \unHideNotes f[(
    \hideNotes a)
    \unHideNotes fis](
    \hideNotes a)
    \unHideNotes g[(
    \hideNotes a)
    \unHideNotes gis](
    \hideNotes a)
  }
  >>
```

}



## Dotted harmonics

Artificial harmonics using `\harmonic` do not show dots. To override this behavior, set the context property `harmonicDots`.

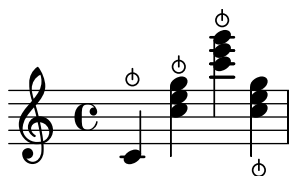
```
\relative c' {} {
  \time 3/4
  \key f \major
  \set harmonicDots = ##t
  <bes f'\harmonic>2. ~
  <bes f'\harmonic>4. <a e'\harmonic>8( <gis dis'\harmonic> <g d'\harmonic>)
  <fis cis'\harmonic>2.
  <bes f'\harmonic>2.
}
```



## Snap-pizzicato or Bartok pizzicato

A snap-pizzicato (also known as “Bartok pizzicato”) is a “strong pizzicato where the string is plucked vertically by snapping and rebounds off the fingerboard of the instrument” (Wikipedia). It is denoted by a circle with a vertical line going from the center upwards outside the circle.

```
\relative c' {} {
  c4\snappizzicato
  <c' e g>4\snappizzicato
  <c' e g>4^\snappizzicato
  <c, e g>4_\snappizzicato
}
```



## String quartet template (simple)

This template demonstrates a simple string quartet. It also uses a `\global` section for time and key signatures

```
global= {
  \time 4/4
  \key c \major
}
```

```
violinOne = \new Voice \relative c' {  
  \set Staff.instrumentName = #"Violin 1 "  
  
  c2 d  
  e1  
  
  \bar "|."  
}  
  
violinTwo = \new Voice \relative c' {  
  \set Staff.instrumentName = #"Violin 2 "  
  
  g2 f  
  e1  
  
  \bar "|."  
}  
  
viola = \new Voice \relative c' {  
  \set Staff.instrumentName = #"Viola "  
  \clef alto  
  
  e2 d  
  c1  
  
  \bar "|."  
}  
  
cello = \new Voice \relative c' {  
  \set Staff.instrumentName = #"Cello "  
  \clef bass  
  
  c2 b  
  a1  
  
  \bar "|."  
}  
  
\score {  
  \new StaffGroup <<  
    \new Staff << \global \violinOne >>  
    \new Staff << \global \violinTwo >>  
    \new Staff << \global \viola >>  
    \new Staff << \global \cello >>  
  >>  
  \layout { }  
  \midi { }  
}
```

## String quartet template with separate parts

The “String quartet template” snippet produces a nice string quartet, but what if you needed to print parts? This new template demonstrates how to use the `\tag` feature to easily split a piece into individual parts.

You need to split this template into separate files; the filenames are contained in comments at the beginning of each file. `piece.ly` contains all the music definitions. The other files – `score.ly`, `vn1.ly`, `vn2.ly`, `vla.ly`, and `vlc.ly` – produce the appropriate part.

Do not forget to remove specified comments when using separate files!

```

%% piece.ly
%% (This is the global definitions file)

global= {
  \time 4/4
  \key c \major
}

Violinone = \new Voice { \relative c' {
  \set Staff.instrumentName = #"Violin 1 "

  c2 d e1

  \bar "|" } } %*****
Violintwo = \new Voice { \relative c' {
  \set Staff.instrumentName = #"Violin 2 "

  g2 f e1

  \bar "|" } } %*****
Viola = \new Voice { \relative c' {
  \set Staff.instrumentName = #"Viola "
  \clef alto

  e2 d c1

  \bar "|" } } %*****
Cello = \new Voice { \relative c' {
  \set Staff.instrumentName = #"Cello "
  \clef bass

```

```

c2 b a1

\bar "|" ."} } %*****

music = {
  <<
    \tag #'score \tag #'vn1 \new Staff { << \global \Violinone >> }
    \tag #'score \tag #'vn2 \new Staff { << \global \Violintwo>> }
    \tag #'score \tag #'vla \new Staff { << \global \Viola>> }
    \tag #'score \tag #'vlc \new Staff { << \global \Cello>> }
  >>
}

%%% These are the other files you need to save on your computer

%%%%% score.ly
%%%%% (This is the main file)

%%% uncomment the line below when using a separate file
%\include "piece.ly"
#(set-global-staff-size 14)
\score {
  \new StaffGroup \keepWithTag #'score \music
  \layout { }
  \midi { }
}

%{ Uncomment this block when using separate files

%%%%% vn1.ly
%%%%% (This is the Violin 1 part file)

\include "piece.ly"
\score {
  \keepWithTag #'vn1 \music
  \layout { }
}

%%%%% vn2.ly
%%%%% (This is the Violin 2 part file)

\include "piece.ly"
\score {
  \keepWithTag #'vn2 \music
  \layout { }
}

%%%%% vla.ly
%%%%% (This is the Viola part file)

```

```
\include "piece.ly"
\score {
  \keepWithTag #'vla \music
  \layout { }
}
```

```
%%%% vlc.ly
%%%% (This is the Cello part file)
```

```
\include "piece.ly"
\score {
  \keepWithTag #'vlc \music
  \layout { }
}
```


```
%}
```

Violin 1

Violin 2

Viola

Cello



## Winds

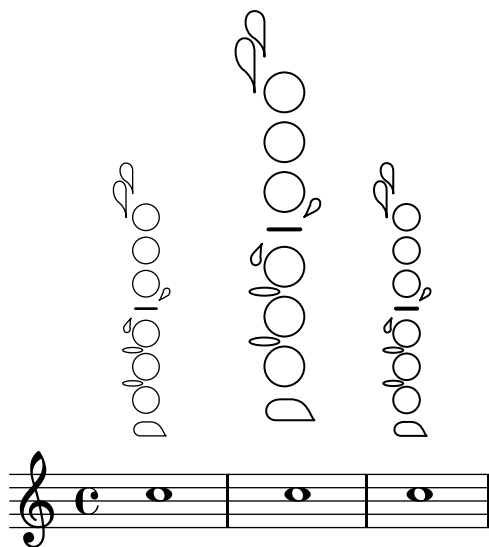
Section “Wind instruments” in *Notation Reference*

### Changing the size of woodwind diagrams

The size and thickness of woodwind diagrams can be changed.

```
\relative c'' {
  \textLengthOn
  c1^\markup
    \woodwind-diagram
    #'piccolo
    #'()

  c^\markup
    \override #'(size . 1.5) {
      \woodwind-diagram
      #'piccolo
      #'()
    }
  c^\markup
    \override #'(thickness . 0.15) {
      \woodwind-diagram
      #'piccolo
      #'()
    }
}
```



### Fingering symbols for wind instruments

Special symbols can be achieved by combining existing glyphs, which is useful for wind instruments.

```
centermarkup = {
  \once \override TextScript #'self-alignment-X = #CENTER
  \once \override TextScript #'X-offset = #(ly:make-simple-closure
    `(+,
```

```

      ,(ly:make-simple-closure (list
        ly:self-alignment-interface::centered-on-x-parent))
      ,(ly:make-simple-closure (list
        ly:self-alignment-interface::x-aligned-on-self))))
    }
  \score
  {\relative c'
    {
      g\open
      \once \override TextScript #'staff-padding = #-1.0 \centermarkup
      g^\markup{\combine \musicglyph #"scripts.open" \musicglyph
        #"scripts.tenuto"}
      \centermarkup g^\markup{\combine \musicglyph #"scripts.open"
        \musicglyph #"scripts.stopped"}
      g\stopped
    }
  }
}

```



## Flute slap notation

It is possible to indicate special articulation techniques such as a flute “tongue slap” by replacing the note head with the appropriate glyph.

```

slap =
#(define-music-function (parser location music) (ly:music?)
#{
  \override NoteHead #'stencil =
  #(lambda (grob)
    (grob-interpret-markup grob
      (markup #:musicglyph "scripts.sforzato")))
  \override NoteHead #'stem-attachment =
  #(lambda (grob)
    (let* ((thickness (ly:staff-symbol-line-thickness grob))
      (stem (ly:grob-object grob 'stem))
      (dir (ly:grob-property stem 'direction UP)))
      (cons 1 (+ (if (= dir DOWN)
        0.5
        0)
        (/ thickness 2))))))
  $music
  \revert NoteHead #'stencil
  \revert NoteHead #'stem-attachment
#})

\relative c' {
  c4 \slap c d r
  \slap { g4 a } b r
}

```



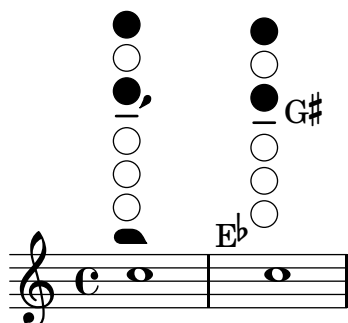


## Graphical and text woodwind diagrams

In many cases, the keys other than the central column can be displayed by key name as well as by graphical means.

```
\relative c'' {
  \textLengthOn
  c1^\markup
    \woodwind-diagram
      #'piccolo
      #'((cc . (one three))
        (lh . (gis))
        (rh . (ees)))

  c^\markup
    \override #'(graphical . #f) {
      \woodwind-diagram
        #'piccolo
        #'((cc . (one three))
          (lh . (gis))
          (rh . (ees)))
    }
}
```



## Recorder fingering chart

The following example demonstrates how fingering charts for wind instruments can be realized.

% range chart for paetzold contrabass recorder

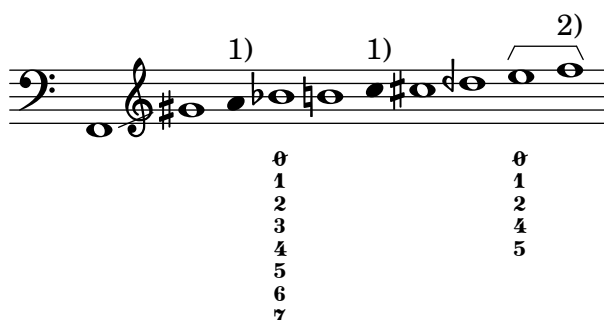
```
centermarkup = {
  \once \override TextScript #'self-alignment-X = #CENTER
  \once \override TextScript #'X-offset = #(ly:make-simple-closure
    `(+
      , (ly:make-simple-closure (list
        ly:self-alignment-interface::centered-on-x-parent))
      , (ly:make-simple-closure (list
        ly:self-alignment-interface::x-aligned-on-self))))
}

\score {
  \new Staff \with {
```

```

\remove "Time_signature_engraver"
\override Stem #'stencil = ##f
\override Flag #'stencil = ##f
\consists "Horizontal_bracket_engraver"
}
{
\clef bass
\set Score.timing = ##f
f,1*1/4 \glissando
\clef violin
gis'1*1/4
\stemDown a'4^\markup{1)}
\centermarkup
\once \override TextScript #'padding = #2
bes'1*1/4_\markup{\override #'(baseline-skip . 1.7) \column
  { \fontsize #-5 \slashed-digit #0 \finger 1 \finger 2 \finger 3 \finger 4
\finger 5 \finger 6 \finger 7} }
b'1*1/4
c''4^\markup{1)}
\centermarkup
\once \override TextScript #'padding = #2
cis''1*1/4
deh''1*1/4
\centermarkup
\once \override TextScript #'padding = #2
\once \override Staff.HorizontalBracket #'direction = #UP
e''1*1/4_\markup{\override #'(baseline-skip . 1.7) \column
  { \fontsize #-5 \slashed-digit #0 \finger 1 \finger 2 \finger 4
\finger 5} }\startGroup
f''1*1/4^\markup{2)}\stopGroup
}
}

```



## Woodwind diagrams key lists

The snippet below produces a list of all possible keys and key settings for woodwind diagrams as defined in 'scm/define-woodwind-diagrams.scm'. The list will be displayed in the log file, but not in the music. If output to the console is wanted, omit the (current-error-port) from the commands.

```

#(print-keys-verbose 'piccolo (current-error-port))
#(print-keys-verbose 'flute (current-error-port))
#(print-keys-verbose 'flute-b-extension (current-error-port))

```

```

#(print-keys-verbose 'tin-whistle (current-error-port))
#(print-keys-verbose 'oboe (current-error-port))
#(print-keys-verbose 'clarinet (current-error-port))
#(print-keys-verbose 'bass-clarinet (current-error-port))
#(print-keys-verbose 'low-bass-clarinet (current-error-port))
#(print-keys-verbose 'saxophone (current-error-port))
#(print-keys-verbose 'soprano-saxophone (current-error-port))
#(print-keys-verbose 'alto-saxophone (current-error-port))
#(print-keys-verbose 'tenor-saxophone (current-error-port))
#(print-keys-verbose 'baritone-saxophone (current-error-port))
#(print-keys-verbose 'bassoon (current-error-port))
#(print-keys-verbose 'contrabassoon (current-error-port))

```

## Woodwind diagrams listing

The following music shows all of the woodwind diagrams currently defined in LilyPond.

```

\relative c' {
  \textLengthOn
  c1~
  \markup {
    \center-column {
      'piccolo
      " "
      \woodwind-diagram
      #'piccolo
      #'()
    }
  }
}

c1~
\markup {
  \center-column {
    'flute
    " "
    \woodwind-diagram
    #'flute
    #'()
  }
}

c1~\markup {
  \center-column {
    'oboe
    " "
    \woodwind-diagram
    #'oboe
    #'()
  }
}

c1~\markup {
  \center-column {
    'clarinet

```

```

        " "
        \woodwind-diagram
        #'clarinet
        #'()
    }
}

c1^\markup {
  \center-column {
    'bass-clarinet
    " "
    \woodwind-diagram
    #'bass-clarinet
    #'()
  }
}

c1^\markup {
  \center-column {
    'saxophone
    " "
    \woodwind-diagram
    #'saxophone
    #'()
  }
}

c1^\markup {
  \center-column {
    'bassoon
    " "
    \woodwind-diagram
    #'bassoon
    #'()
  }
}

c1^\markup {
  \center-column {
    'contrabassoon
    " "
    \woodwind-diagram
    #'contrabassoon
    #'()
  }
}
}

```

'piccolo      'flute      'oboe      'clarinet      'bass-clarinet

'saxophone      'bassoon      'contrabassoon

6

## Ancient notation

Section “Ancient notation” in *Notation Reference*

### Adding a figured bass above or below the notes

When writing a figured bass, you can place the figures above or below the bass notes, by defining the `BassFigureAlignmentPositioning` `#'direction` property (exclusively in a `Staff` context). Choices are `#UP` (or `#1`), `#CENTER` (or `#0`) and `#DOWN` (or `#-1`).

This property can be changed as many times as you wish. Use `\once \override` if you don't want the override to apply to the whole score.

```
bass = {
  \clef bass
  g4 b, c d
  e d8 c d2
}
continuo = \figuremode {
  <_>4 <6>4 <5/>4
  \override Staff.BassFigureAlignmentPositioning #'direction = #UP
  %\bassFigureStaffAlignmentUp
  <_+>4 <6>
  \set Staff.useBassFigureExtenders = ##t
  \override Staff.BassFigureAlignmentPositioning #'direction = #DOWN
  %\bassFigureStaffAlignmentDown
  <4>4. <4>8 <_+>4
}
\score {
  <<
    \new Staff = bassStaff \bass
    \context Staff = bassStaff \continuo
  >>
}
```



### Ancient fonts

Shown here are many (all?) of the symbols that are included in LilyPond's support for ancient notation.

```
upperStaff = \new VaticanaStaff = "upperStaff" <<
  \context VaticanaVoice <<
    \transpose c c {

      \override NoteHead #'style = #'vaticana.punctum
      \key es \major
      \clef "vaticana-fa2"
      c1 des e f ges

      \override NoteHead #'style = #'vaticana.inclinatum
```

```

a! b ces'
\bar "|"
% \break % 1 (8*1)

\override NoteHead #'style = #'vaticana.quilisma
b! des'! ges! fes!
\breath
\clef "vaticana-fa1"
\override NoteHead #'style = #'vaticana.plica
es d
\override NoteHead #'style = #'vaticana.reverse.plica
c d
\bar "|"
% \break %2 (8*1)

\override NoteHead #'style = #'vaticana.punctum.cavum
es f
\override NoteHead #'style = #'vaticana.lpes
g as
\override NoteHead #'style = #'vaticana.upes
bes as
\override NoteHead #'style = #'vaticana.vupes
g f
\override NoteHead #'style = #'vaticana.linea.punctum
\once \override Staff.BarLine #'bar-extent = #'(-1 . 1) \bar "|"
% \break % 3 (8*1)

es d
\override NoteHead #'style = #'vaticana.epiphonus
c d
\override NoteHead #'style = #'vaticana.cephalicus
es f

\override Staff.KeySignature #'glyph-name-alist = #alteration-medicaea-glyph-name-alist
\override Staff.Accidental #'glyph-name-alist = #alteration-medicaea-glyph-name-alist
\override Staff.Custos #'style = #'medicaea
\override NoteHead #'style = #'medicaea.punctum
\clef "medicaea-fa2"
ces des
\bar "|"
% \break % 4 (8*1)

e! f! ges
\clef "medicaea-do2"
\override NoteHead #'style = #'medicaea.inclinatum
a! b! ces'
\override NoteHead #'style = #'medicaea.virga
b! a!
\bar "|"
% \break % 5 (8*1)

ges fes

```

```

\clef "medicaea-fa1"
\override NoteHead #'style = #'medicaea.rvirga
e des ces

\override Staff.KeySignature #'glyph-name-alist = #alteration-hufnagel-glyph-name-alist
\override Staff.Accidental #'glyph-name-alist = #alteration-hufnagel-glyph-name-alist
\override Staff.Custos #'style = #'hufnagel
\override NoteHead #'style = #'hufnagel.punctum
\clef "hufnagel-fa2"
ces des es
\bar "|"
% \break % 6 (8*1)

fes ges
\clef "hufnagel-do2"
\override NoteHead #'style = #'hufnagel.lpes
as! bes! ces'
\override NoteHead #'style = #'hufnagel.virga
bes! as!
\bar "|"
% \break % 7 (8*1)

ges! fes!
\clef "hufnagel-do-fa"
\override NoteHead #'style = #'hufnagel.punctum
es! des ces des! es! fes!
\bar "||"
% \break % 8 (8*1)

s32*1
% \break % 12 (32*1)
}
>>
>>

lowerStaff = \new MensuralStaff = "lowerStaff" <<
\context MensuralVoice <<
\transpose c c {

\key a \major
cis'1 d'\breve gis'\breve e'\breve \[ e'\longa fis'\longa \]
\set Staff.forceClef = ##t
\clef "neomensural-c2"
cis1
\bar "|"
% \break % 2 (16*1)

\[ g\breve dis''\longa \]
b\breve \[ a\longa d\longa \]
\clef "petrucci-c2"
% \break % 4 (16*1)

```



```

fis1 ces1
\clef "petrucci-c2"
r\longa
\set Staff.forceClef = ##t
\clef "mensural-c2"
r\breve
\bar "|"
% \break % 5 (8*1)

r2
\clef "mensural-g"
r4 r8 r16 r16
\override NoteHead #'style = #'mensural
\override Rest #'style = #'mensural
\clef "petrucci-f"
c8 b, c16 b, c32 b, c64 b, c64 b,
d8 e d16 e d32 e d64 e d64 e
r\longa
\set Staff.forceClef = ##t
\clef "petrucci-f"
r\breve
\bar "|"
% \break % 6 (8*1)

r\breve
\clef "mensural-f"
r2 r4 r8 r16 r16

\set Staff.forceClef = ##t
\clef "mensural-f"
e\breve f g a1
\clef "mensural-g"
% \break % 7 (8*1)

\[ bes'!\longa a'!\longa c'!\longa \]
e'1 d' c' d' \bar "|"
\bar "|"
% \break % 9 (16*1)

bes'!\longa fis'!1 as'!1 ges'!\longa % lig
\set Staff.forceClef = ##t
\clef "mensural-g"
e'2 d' c' \bar "|"
% \break % 11 (16*1)

\set Staff.forceClef = ##t
\clef "petrucci-g"
c'2 d' e' f'
\clef "petrucci-g"
g' as'! bes'! cis'!
bes'! as'! gis'! fis'!
\set Staff.forceClef = ##t

```

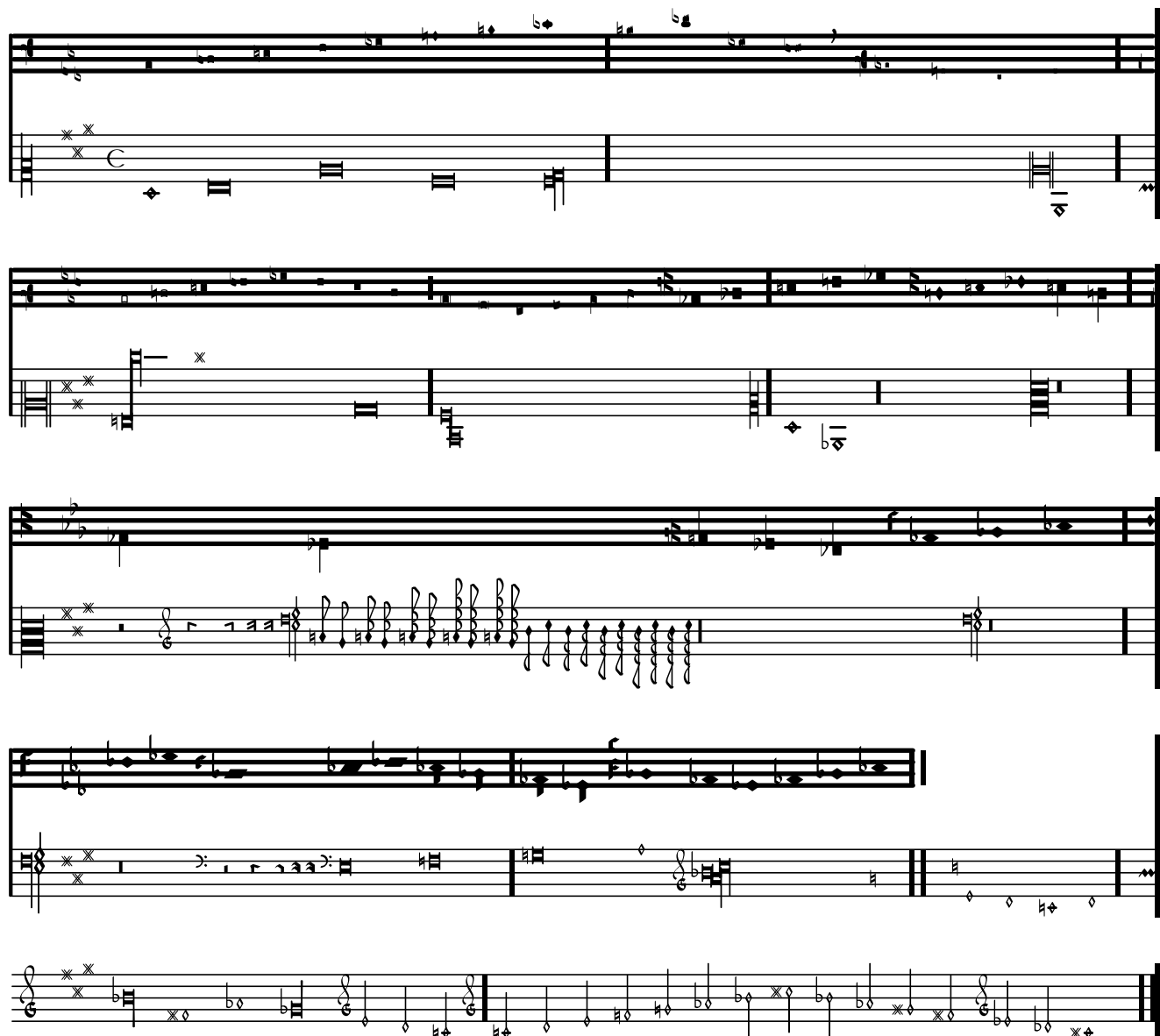
```

        \clef "mensural-g"
        es'! des'! cis'!1 \bar "||"
        % \break % 12 (8*1)
    }
    >>
>>

\paper {
  line-thickness = #(/ staff-space 5.0)
}

\score {
  <<
    \upperStaff
    \lowerStaff
  >>
  \layout {
    indent = 0.0
    line-width = 17.25\cm
    \context {
      \Score
      timing = ##f
    }
    \context {
      \MensuralVoice
      \override NoteHead #'style = #'neomensural
      \override Rest #'style = #'neomensural
      \override Flag #'style = #'mensural
      \override Stem #'thickness = #1.0
    }
    \context {
      \MensuralStaff
      \revert BarLine #'transparent
      \override KeySignature #'glyph-name-alist = #alteration-mensural-glyph-name-alist
      clefGlyph = #"clefs.petrucchi.c2"
    }
    \context {
      \VaticanaStaff
      \revert BarLine #'transparent
      \override StaffSymbol #'thickness = #2.0
      \override KeySignature #'glyph-name-alist = #alteration-vaticana-glyph-name-alist
      \override Custos #'neutral-position = #4
    }
  }
}

```



## Ancient notation template – modern transcription of gregorian music

This example demonstrates how to do modern transcription of Gregorian music. Gregorian music has no measure, no stems; it uses only half and quarter note heads, and special marks, indicating rests of different length.

```
\include "gregorian.ly"
```

```
chant = \relative c' {
  \set Score.timing = ##f
  f4 a2 \divisioMinima
  g4 b a2 f2 \divisioMaior
  g4( f) f( g) a2 \finalis
}
```

```
verba = \lyricmode {
  Lo -- rem ip -- sum do -- lor sit a -- met
}
```

```
\score {
```

```

\new Staff <<
  \new Voice = "melody" \chant
  \new Lyrics = "one" \lyricsto melody \verba
>>
\layout {
  \context {
    \Staff
    \remove "Time_signature_engraver"
    \remove "Bar_engraver"
    \override Stem #'transparent = ##t
    \override Flag #'transparent = ##t
  }
  \context {
    \Voice
    \override Stem #'length = #0
  }
  \context {
    \Score
    barAlways = ##t
  }
}
}

```



## Ancient notation template – modern transcription of mensural music

When transcribing mensural music, an incipit at the beginning of the piece is useful to indicate the original key and tempo. While today musicians are used to bar lines in order to faster recognize rhythmic patterns, bar lines were not yet invented during the period of mensural music; in fact, the meter often changed after every few notes. As a compromise, bar lines are often printed between the staves rather than on the staves.

```

global = {
  \set Score.skipBars = ##t

  % incipit
  \once \override Score.SystemStartBracket #'transparent = ##t
  % Set tight spacing
  \override Score.SpacingSpanner #'spacing-increment = #1.0
  \key f \major
  \time 2/2
  \once \override Staff.TimeSignature #'style = #'neomensural
  \override Voice.NoteHead #'style = #'neomensural
  \override Voice.Rest #'style = #'neomensural
  \set Staff.printKeyCancellation = ##f
  \cadenzaOn % turn off bar lines
  \skip 1*10
  \once \override Staff.BarLine #'transparent = ##f
}

```

```

\bar "||"
\skip 1*1 % need this extra \skip such that clef change comes
          % after bar line
\bar ""

% main
\cadenzaOff % turn bar lines on again
\once \override Staff.Clef #'full-size-change = ##t
\set Staff.forceClef = ##t
\key g \major
\time 4/4
\override Voice.NoteHead #'style = #'default
\override Voice.Rest #'style = #'default

% Setting printKeyCancellation back to #t must not
% occur in the first bar after the incipit. Dto. for forceClef.
% Therefore, we need an extra \skip.
\skip 1*1
\set Staff.printKeyCancellation = ##t
\set Staff.forceClef = ##f

\skip 1*7 % the actual music

% let finis bar go through all staves
\override Staff.BarLine #'transparent = ##f

% finis bar
\bar "|."
}

discantusNotes = {
  \transpose c' c'' {
    \set Staff.instrumentName = #"Discantus  "

    % incipit
    \clef "neomensural-c1"
    c'1. s2 % two bars
    \skip 1*8 % eight bars
    \skip 1*1 % one bar

    % main
    \clef "treble"
    d'2. d'4 |
    b e' d'2 |
    c'4 e'4.( d'8 c' b |
    a4) b a2 |
    b4.( c'8 d'4) c'4 |
    \once \override NoteHead #'transparent = ##t c'1 |
    b\breve |
  }
}

```

```

discantusLyrics = \lyricmode {
  % incipit
  IV-

  % main
  Ju -- bi -- |
  la -- te De -- |
  o, om --
  nis ter -- |
  ra, __ om- |
  "... " |
  -us. |
}

altusNotes = {
  \transpose c' c' {
    \set Staff.instrumentName = #"Altus  "

    % incipit
    \clef "neomensural-c3"
    r1          % one bar
    f1. s2      % two bars
    \skip 1*7 % seven bars
    \skip 1*1 % one bar

    % main
    \clef "treble"
    r2 g2. e4 fis g | % two bars
    a2 g4 e |
    fis g4.( fis16 e fis4) |
    g1 |
    \once \override NoteHead #'transparent = ##t g1 |
    g\breve |
  }
}

altusLyrics = \lyricmode {
  % incipit
  IV-

  % main
  Ju -- bi -- la -- te | % two bars
  De -- o, om -- |
  nis ter -- ra, |
  "... " |
  -us. |
}

tenorNotes = {
  \transpose c' c' {
    \set Staff.instrumentName = #"Tenor  "

```

```

% incipit
\clef "neomensural-c4"
r\longa    % four bars
r\breve    % two bars
r1         % one bar
c'1. s2    % two bars
\skip 1*1 % one bar
\skip 1*1 % one bar

% main
\clef "treble_8"
R1 |
R1 |
R1 |
r2 d'2. d'4 b e' | % two bars
\once \override NoteHead #'transparent = ##t e'1 |
d'\breve |
}
}

tenorLyrics = \lyricmode {
% incipit
IV-

% main
Ju -- bi -- la -- te | % two bars
"... " |
-us. |
}

bassusNotes = {
\transpose c' c' {
\set Staff.instrumentName = #"Bassus  "

% incipit
\clef "bass"
r\maxima % eight bars
f1. s2   % two bars
\skip 1*1 % one bar

% main
\clef "bass"
R1 |
R1 |
R1 |
R1 |
g2. e4 |
\once \override NoteHead #'transparent = ##t e1 |
g\breve |
}
}

```

```

bassusLyrics = \lyricmode {
  % incipit
  IV-

  % main
  Ju -- bi- |
  "... " |
  -us. |
}

\score {
  \new StaffGroup = choirStaff <<
    \new Voice =
      "discantusNotes" << \global \discantusNotes >>
    \new Lyrics =
      "discantusLyrics" \lyricsto discantusNotes { \discantusLyrics }
    \new Voice =
      "altusNotes" << \global \altusNotes >>
    \new Lyrics =
      "altusLyrics" \lyricsto altusNotes { \altusLyrics }
    \new Voice =
      "tenorNotes" << \global \tenorNotes >>
    \new Lyrics =
      "tenorLyrics" \lyricsto tenorNotes { \tenorLyrics }
    \new Voice =
      "bassusNotes" << \global \bassusNotes >>
    \new Lyrics =
      "bassusLyrics" \lyricsto bassusNotes { \bassusLyrics }
  >>
  \layout {
    \context {
      \Score

      % no bars in staves
      \override BarLine #'transparent = ##t

      % incipit should not start with a start delimiter
      \remove "System_start_delimiter_engraver"
    }
    \context {
      \Voice

      % no slurs
      \override Slur #'transparent = ##t

      % The command below can be commented out in
      % short scores, but especially for large scores you
      % will typically yield better line breaking and improve
      % overall spacing if you do not comment the command out.

      \remove "Forbid_line_break_engraver"
    }
  }
}

```



}  
}



Discantus  
IV-  
Ju - bi - la - te De -

Altus  
IV-  
Ju - bi - la - te

Tenor  
IV-  
8

Bassus  
IV-  
8

3  
o, om - nis ter - ra, om - ... -us.  
De - o, om - nis ter - ra, ... -us.  
8  
Ju - bi - la - te ... -us.  
Ju - bi - ... -us.

## Ancient time signatures

Time signatures may also be engraved in an old style.

```
{
  \override Staff.TimeSignature #'style = #'neomensural
  s1
}
```



## Chant or psalms notation

This form of notation is used for the chant of the Psalms, where verses aren't always the same length.

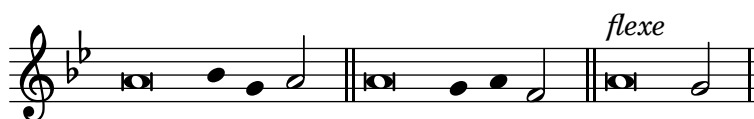
```

stemOn = {
  \revert Staff.Stem #'transparent
  \revert Staff.Flag #'transparent
}

stemOff = {
  \override Staff.Stem #'transparent = ##t
  \override Staff.Flag #'transparent = ##t
}

\score {
  \new Staff \with { \remove "Time_signature_engraver" }
  {
    \key g \minor
    \cadenzaOn
    \stemOff a'\breve bes'4 g'4
    \stemOn a'2 \bar "||"
    \stemOff a'\breve g'4 a'4
    \stemOn f'2 \bar "||"
    \stemOff a'\breve^\markup { \italic flexe }
    \stemOn g'2 \bar "||"
  }
}

```



## Custodes

Custodes may be engraved in various styles.

```

\layout { ragged-right = ##t }

\new Staff \with { \consists "Custos_engraver" } \relative c' {
  \override Staff.Custos #'neutral-position = #4

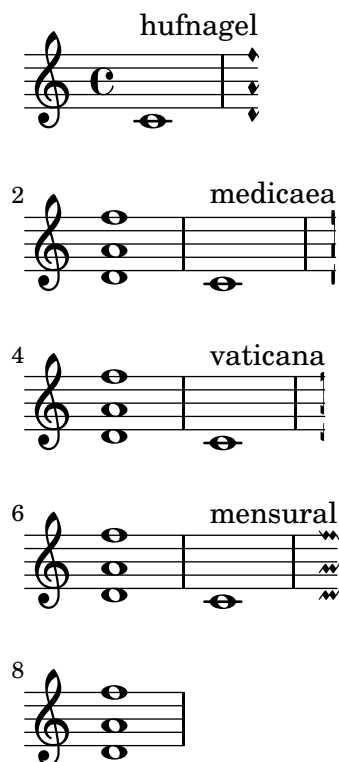
  \override Staff.Custos #'style = #'hufnagel
  c1~"hufnagel" \break
  <d a' f'>1

  \override Staff.Custos #'style = #'medicaea
  c1~"medicaea" \break
  <d a' f'>1

  \override Staff.Custos #'style = #'vaticana
  c1~"vaticana" \break
  <d a' f'>1

  \override Staff.Custos #'style = #'mensural
  c1~"mensural" \break
  <d a' f'>1
}

```



## Incipit

Incipits can be added using the instrument name `grob`, but keeping separate the instrument name definition and the incipit definition.

```
incipit =
#(define-music-function (parser location incipit-music) (ly:music?)
  #{
    \once \override Staff.InstrumentName #'self-alignment-X = #RIGHT
    \once \override Staff.InstrumentName #'self-alignment-Y = #UP
    \once \override Staff.InstrumentName #'Y-offset =
      #(lambda (grob)
        (+ 4 (system-start-text::calc-y-offset grob)))
    \once \override Staff.InstrumentName #'padding = #0.3
    \once \override Staff.InstrumentName #'stencil =
      #(lambda (grob)
        (let* ((instrument-name (ly:grob-property grob 'long-text)))
          (set! (ly:grob-property grob 'long-text)
            #{ \markup
              \score
                {
                  { \context MensuralStaff \with {
                      instrumentName = #instrument-name
                      \override VerticalAxisGroup
                        #'Y-extent = #'(-4 . 4)
                    } $incipit-music
                }
              \layout { $(ly:grob-layout grob)
                line-width = \indent
                indent =
                  % primitive-eval is probably easiest for
                  % escaping lexical closure and evaluating
                  % everything respective to (current-module).
```

```

                                #(primitive-eval
                                  '(or (false-if-exception (- indent (* mm incipit-width
                                                                (* 0.5 indent))))
                                ragged-right = ##f
                                ragged-last = ##f
                                system-count = #1 }
                                }
                                #})
                                (system-start-text::print grob)))
#})

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

global = {
  \set Score.skipBars = ##t
  \key g \major
  \time 4/4

  % the actual music
  \skip 1*8

  % let finis bar go through all staves
  \override Staff.BarLine #'transparent = ##f

  % finis bar
  \bar "|."
}

discantusIncipit = <<
  \new MensuralVoice = "discantusIncipit" <<
    \repeat unfold 9 { s1 \noBreak }
    {
      \clef "neomensural-c1"
      \key f \major
      \time 2/2
      c'1.
    }
  >>
  \new Lyrics \lyricsto discantusIncipit { IV- }
>>

discantusNotes = {
  \transpose c' c'' {
    \clef "treble"
    d'2. d'4 |
    b e' d'2 |
    c'4 e'4.( d'8 c' b |
    a4) b a2 |
    b4.( c'8 d'4) c'4 |
    \once \override NoteHead #'transparent = ##t
    c'1 |
    b\breve |

```

```

    }
}

discantusLyrics = \lyricmode {
  Ju -- bi -- |
  la -- te De -- |
  o, om --
  nis ter -- |
  ra, __ om- |
  "... " |
  -us. |
}

altusIncipit = <<
  \new MensuralVoice = "altusIncipit" <<
    \repeat unfold 9 { s1 \noBreak }
    {
      \clef "neomensural-c3"
      \key f \major
      \time 2/2
      r1 f'1.
    }
  >>
  \new Lyrics \lyricsto altusIncipit { IV- }
>>

altusNotes = {
  \transpose c' c'' {
    \clef "treble"
    % two measures
    r2 g2. e4 fis g |
    a2 g4 e |
    fis g4.( fis16 e fis4) |
    g1 |
    \once \override NoteHead #'transparent = ##t
    g1 |
    g\breve |
  }
}

altusLyrics = \lyricmode {
  % two measures
  Ju -- bi -- la -- te |
  De -- o, om -- |
  nis ter -- ra, |
  "... " |
  -us. |
}

tenorIncipit = <<
  \new MensuralVoice = "tenorIncipit" <<
    \repeat unfold 9 { s1 \noBreak }

```

```

{
  \clef "neomensural-c4"
  \key f \major
  \time 2/2
  r\longa
  r\breve
  r1 c'1.
}
>>
\new Lyrics \lyricsto tenorIncipit { IV- }
>>

tenorNotes = {
  \transpose c' c' {
    \clef "treble_8"
    R1 |
    R1 |
    R1 |
    % two measures
    r2 d'2. d'4 b e' |
    \once \override NoteHead #'transparent = ##t
    e'1 |
    d'\breve |
  }
}

tenorLyrics = \lyricmode {
  % two measures
  Ju -- bi -- la -- te |
  "... " |
  -us.
}

bassusIncipit = <<
  \new MensuralVoice = "bassusIncipit" <<
    \repeat unfold 9 { s1 \noBreak }
    {
      \clef "bass"
      \key f \major
      \time 2/2
      %% incipit
      r\maxima
      f1.
    }
  >>
  \new Lyrics \lyricsto bassusIncipit { IV- }
  >>

bassusNotes = {
  \transpose c' c' {
    \clef "bass"
    R1 |

```

```

R1 |
R1 |
R1 |
g2. e4 |
\once \override NoteHead #'transparent = ##t
e1 |
g\breve |
}
}

bassusLyrics = \lyricmode {
  Ju -- bi- |
  "... " |
  -us.
}

\score {
  <<
    \new StaffGroup = choirStaff <<
      \new Voice = "discantusNotes" <<
        \global
        \set Staff.instrumentName = #"Discantus"
        \incipit \discantusIncipit
        \discantusNotes
      >>
      \new Lyrics = "discantusLyrics" \lyricsto discantusNotes { \discantusLyrics }
      \new Voice = "altusNotes" <<
        \global
        \set Staff.instrumentName = #"Altus"
        \incipit \altusIncipit
        \altusNotes
      >>
      \new Lyrics = "altusLyrics" \lyricsto altusNotes { \altusLyrics }
      \new Voice = "tenorNotes" <<
        \global
        \set Staff.instrumentName = #"Tenor"
        \incipit \tenorIncipit
        \tenorNotes
      >>
      \new Lyrics = "tenorLyrics" \lyricsto tenorNotes { \tenorLyrics }
      \new Voice = "bassusNotes" <<
        \global
        \set Staff.instrumentName = #"Bassus"
        \incipit \bassusIncipit
        \bassusNotes
      >>
      \new Lyrics = "bassusLyrics" \lyricsto bassusNotes { \bassusLyrics }
    >>
  >>
  \layout {
    \context {
      \Score

```

```

%% no bar lines in staves or lyrics
\override BarLine #'transparent = ##t
}
%% the next two instructions keep the lyrics between the bar lines
\context {
  \Lyrics
  \consists "Bar_engraver"
  \consists "Separating_line_group_engraver"
}
\context {
  \Voice
  %% no slurs
  \override Slur #'transparent = ##t
  %% Comment in the below "\remove" command to allow line
  %% breaking also at those bar lines where a note overlaps
  %% into the next measure. The command is commented out in this
  %% short example score, but especially for large scores, you
  %% will typically yield better line breaking and thus improve
  %% overall spacing if you comment in the following command.
  %%\remove "Forbid_line_break_engraver"
}
indent = 6\cm
incipit-width = 4\cm
}
}

```

The image displays a musical score for a four-part setting of the text "Jubilate Deo". The parts are labeled on the left: Discantus, Altus, Tenor, and Bassus. Each part has a staff with a key signature of one sharp (F#) and a common time signature (C). The Discantus part begins with a double bar line and the Roman numeral "IV-". The Altus part also begins with a double bar line and "IV-". The Tenor part begins with a double bar line and "IV-". The Bassus part begins with a double bar line and "IV-". The main body of the score is enclosed in a large bracket on the right. The lyrics are: "Ju - bi - la - te De -" for the Discantus, "Ju" for the Altus, "bi - la - te" for the Tenor, and "IV-" for the Bassus. The Discantus part has a final measure with a double bar line. The Altus part has a final measure with a double bar line. The Tenor part has a final measure with a double bar line. The Bassus part has a final measure with a double bar line.



## Mensurstriche layout (bar lines between the staves)

The mensurstriche-layout where the bar lines do not show on the staves but between staves can be achieved with a `StaffGroup` instead of a `ChoirStaff`. The bar line on staves is blanked out by setting the `transparent` property.

```
global = {
  \override Staff.BarLine #'transparent = ##t
  s1 s
  % the final bar line is not interrupted
  \revert Staff.BarLine #'transparent
  \bar "|."
}

\new StaffGroup \relative c'' {
  <<
    \new Staff { << \global { c1 c } >> }
    \new Staff { << \global { c c } >> }
  >>
}
```

## Rest styles

Rests may be used in various styles.

```
\layout {
  indent = 0
  \context {
    \Staff
    \remove "Time_signature_engraver"
  }
}
```

```
\new Staff \relative c {
```

```

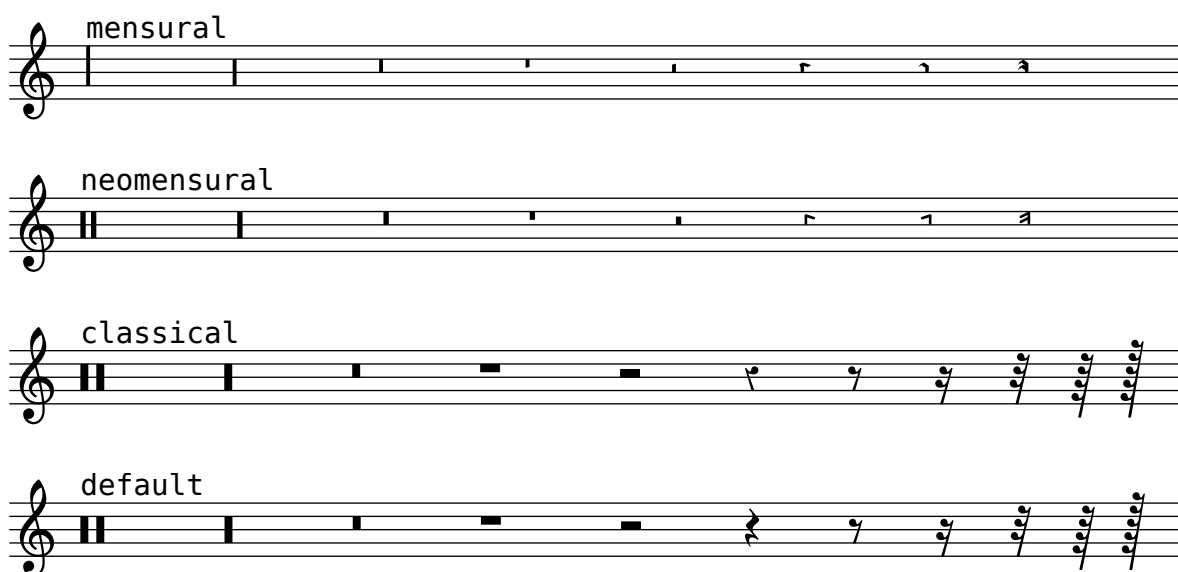
\cadenzaOn
\override Staff.Rest #'style = #'mensural
r\maxima^markup \typewriter { mensural }
r\longa r\breve r1 r2 r4 r8 r16 s32 s64 s128 s128
\bar ""

\override Staff.Rest #'style = #'neomensural
r\maxima^markup \typewriter { neomensural }
r\longa r\breve r1 r2 r4 r8 r16 s32 s64 s128 s128
\bar ""

\override Staff.Rest #'style = #'classical
r\maxima^markup \typewriter { classical }
r\longa r\breve r1 r2 r4 r8 r16 r32 r64 r128 s128
\bar ""

\override Staff.Rest #'style = #'default
r\maxima^markup \typewriter { default }
r\longa r\breve r1 r2 r4 r8 r16 r32 r64 r128 s128
}

```



## Transcription of Ancient music with incipit

As a workaround to get real incipits which are independent from the main score these are included as a markup into the field normally used for the instrument name. As for now lyrics can only be added as a direct markup. It doesn't unfortunately conform with the spacing of the main lyrics.

```

global = {
  \set Score.skipBars = ##t
  \key g \major
  \time 4/4
  %make the staff lines invisible on staves
  \override Staff.BarLine #'transparent = ##t
  \skip 1*8 % the actual music
  % let finis bar go through all staves
}

```

```

\override Staff.BarLine #'transparent = ##f
% finis bar
\bar "|."
}

discantusNotes = {
  \transpose c' c'' {
    \clef treble
    d'2. d'4 |
    b e' d'2 |
    c'4 e'4.( d'8 c' b |
    a4) b a2 |
    b4.( c'8 d'4) c'4 |
    \once \override NoteHead #'transparent = ##t c'1 |
    b\breve |
  }
}

discantusLyrics = \lyricmode {
  Ju -- bi -- |
  la -- te De -- |
  o, om --
  nis ter -- |
  ra, __ om- |
  "... " |
  -us. |
}

altusNotes = {
  \transpose c' c'' {
    \clef treble
    r2 g2. e4 fis g | % two bars
    a2 g4 e |
    fis g4.( fis16 e fis4) |
    g1 |
    \once \override NoteHead #'transparent = ##t g1 |
    g\breve |
  }
}

altusLyrics = \lyricmode {
  Ju -- bi -- la -- te | % two bars
  De -- o, om -- |
  nis ter -- ra, |
  "... " |
  -us. |
}

tenorNotes = {
  \transpose c' c' {
    \clef "treble_8"
    R1 |
  }
}

```

```

    R1 |
    R1 |
    r2 d'2. d'4 b e' | % two bars
    \once \override NoteHead #'transparent = ##t e'1 |
    d'\breve |
  }
}

tenorLyrics = \lyricmode {
  Ju -- bi -- la -- te | % two bars
  "... " |
  -us.
}

bassusNotes = {
  \transpose c' c' {
    \clef bass
    R1 |
    R1 |
    R1 |
    R1 |
    g2. e4 |
    \once \override NoteHead #'transparent = ##t e1 |
    g\breve |
  }
}

bassusLyrics = \lyricmode {
  Ju -- bi- |
  "... " |
  -us.
}

incipitDiscantus = \markup {
  \score {
    {
      \set Staff.instrumentName = #"Discantus "
      \override NoteHead #'style = #'neomensural
      \override Rest #'style = #'neomensural
      \override Staff.TimeSignature #'style = #'neomensural
      \cadenzaOn
      \clef "neomensural-c1"
      \key f \major
      \time 2/2
      c''1._"IV-" s2 %two bars
      \skip 1*8 % eight bars
    }
    \layout {
      \context {
        \Voice
        \remove "Ligature_bracket_engraver"
        \consists "Mensural_ligature_engraver"
      }
    }
  }
}

```

```

    }
    line-width = 4.5\cm
  }
}

incipitAltus = \markup {
  \score {
    {
      \set Staff.instrumentName = #"Altus "
      \override NoteHead #'style = #'neomensural
      \override Rest #'style = #'neomensural
      \override Staff.TimeSignature #'style = #'neomensural
      \cadenzaOn
      \clef "neomensural-c3"
      \key f \major
      \time 2/2
      r1          % one bar
      f'1._"IV-" s2  % two bars
      \skip 1*7 % seven bars
    }
    \layout {
      \context {
        \Voice
        \remove "Ligature_bracket_engraver"
        \consists "Mensural_ligature_engraver"
      }
      line-width = 4.5\cm
    }
  }
}

incipitTenor = \markup {
  \score {
    {
      \set Staff.instrumentName = #"Tenor "
      \override NoteHead #'style = #'neomensural
      \override Rest #'style = #'neomensural
      \override Staff.TimeSignature #'style = #'neomensural
      \cadenzaOn
      \clef "neomensural-c4"
      \key f \major
      \time 2/2
      r\longa    % four bars
      r\breve    % two bars
      r1         % one bar
      c'1._"IV-" s2  % two bars
      \skip 1    % one bar
    }
    \layout {
      \context {
        \Voice

```

```

        \remove "Ligature_bracket_engraver"
        \consists "Mensural_ligature_engraver"
    }
    line-width = 4.5\cm
}
}
}

incipitBassus = \markup {
  \score {
    {
      \set Staff.instrumentName = #"Bassus "
      \override NoteHead #'style = #'neomensural
      \override Rest #'style = #'neomensural
      \override Staff.TimeSignature #'style = #'neomensural
      \cadenzaOn
      \clef "bass"
      \key f \major
      \time 2/2
      % incipit
      r\maxima % eight bars
      f1._"IV-" s2 % two bars
    }
    \layout {
      \context {
        \Voice
        \remove "Ligature_bracket_engraver"
        \consists "Mensural_ligature_engraver"
      }
      line-width = 4.5\cm
    }
  }
}

```

%StaffGroup is used instead of ChoirStaff to get bar lines between systems

```

\score {
  <<
  \new StaffGroup = choirStaff <<
  \new Voice = "discantusNotes" <<
    \global
    \set Staff.instrumentName = \incipitDiscantus
    \discantusNotes
  >>
  \new Lyrics = "discantusLyrics" \lyricsto discantusNotes { \discantusLyrics }

  \new Voice = "altusNotes" <<
    \global
    \set Staff.instrumentName = \incipitAltus
    \altusNotes
  >>
  \new Lyrics = "altusLyrics" \lyricsto altusNotes { \altusLyrics }
}

```

```

\new Voice = "tenorNotes" <<
  \global
  \set Staff.instrumentName = \incipitTenor
  \tenorNotes
>>
\new Lyrics = "tenorLyrics" \lyricsto tenorNotes { \tenorLyrics }

\new Voice = "bassusNotes" <<
  \global
  \set Staff.instrumentName = \incipitBassus
  \bassusNotes
>>
>>
\new Lyrics = "bassusLyrics" \lyricsto bassusNotes { \bassusLyrics }
%Keep the bass lyrics outside of the staff group to avoid bar lines
%between the lyrics.
>>

\layout {
  \context {
    \Score
    % no bars in staves
    \override BarLine #'transparent = ##t
  }
  % the next three instructions keep the lyrics between the bar lines
  \context {
    \Lyrics
    \consists "Bar_engraver"
    \override BarLine #'transparent = ##t
  }
  \context {
    \StaffGroup
    \consists "Separating_line_group_engraver"
  }
  \context {
    \Voice
    % no slurs
    \override Slur #'transparent = ##t
    % Comment in the below "\remove" command to allow line
    % breaking also at those barlines where a note overlaps
    % into the next bar. The command is commented out in this
    % short example score, but especially for large scores, you
    % will typically yield better line breaking and thus improve
    % overall spacing if you comment in the following command.
    %\remove "Forbid_line_break_engraver"
  }
  indent = 5\cm
}
}

```

Discantus

Altus

Tenor

Bassus

4

Ju - bi - la - te De - o, om -

Ju - bi - la - te De - o, om -

8

- nis ter - ra, om - ... -us.

nis ter - ra, ... -us.

8

Ju - bi - la - te ... -us.

Ju - bi - ... -us.

## Vertical line as a baroque articulation mark

This short vertical line placed above the note is commonly used in baroque music. Its meaning can vary, but generally indicates notes that should be played with more “weight”. The following example demonstrates how to achieve such a notation.

```
upline =
#(let ((m (make-articulation "stopped")))
  (set! (ly:music-property m 'tweaks)
    (acons 'font-size 3
      (acons 'stencil (lambda (grob)
        (grob-interpret-markup
          grob
          (make-draw-line-markup '(0 . 1))))
        (ly:music-property m 'tweaks))))
  m)
```

```
\relative c' {
  a'4^\upline a( c d')_\upline
}
```





## World music

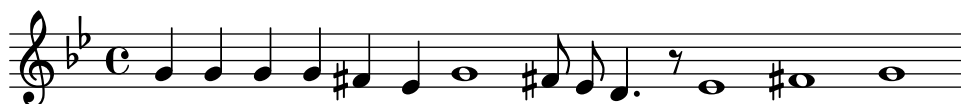
Section “World music” in *Notation Reference*

### Arabic improvisation

For improvisations or taqasim which are temporarily free, the time signature can be omitted and `\cadenzaOn` can be used. Adjusting the accidental style might be required, since the absence of bar lines will cause the accidental to be marked only once. Here is an example of what could be the start of a hijaz improvisation:

```
\include "arabic.ly"
```

```
\relative sol' {
  \key re \kurd
  \accidentalStyle "forget"
  \cadenzaOn
  sol4 sol sol sol fad mib sol1 fad8 mib re4. r8 mib1 fad sol
}
```



### Makam example

Makam is a type of melody from Turkey using 1/9th-tone microtonal alterations. Consult the initialization file ‘ly/makam.ly’ for details of pitch names and alterations.

```
% Initialize makam settings
```

```
\include "makam.ly"
```

```
\relative c' {
  \set Staff.keySignature = #`((6 . ,(- KOMA)) (3 . ,BAKIYE))
  c4 cc db fk
  gbm4 gfc gfb efk
  fk4 db cc c
}
```

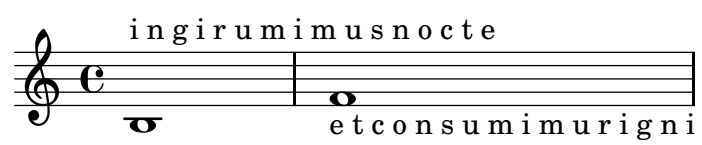


### Printing text from right to left

It is possible to print text from right to left in a markup object, as demonstrated here.

```
{
  b1~\markup {
    \line { i n g i r u m i m u s n o c t e }
  }
  f'~\markup {
    \override #'(text-direction . -1)
    \line { i n g i r u m i m u s n o c t e }
  }
}
```

}



## Contexts and engravers

Section “Changing defaults” in *Notation Reference*

Section “Contexts and engravers” in *Learning Manual*

### Adding a figured bass above or below the notes

When writing a figured bass, you can place the figures above or below the bass notes, by defining the `BassFigureAlignmentPositioning` #'direction property (exclusively in a `Staff` context). Choices are `#UP` (or `#1`), `#CENTER` (or `#0`) and `#DOWN` (or `#-1`).

This property can be changed as many times as you wish. Use `\once \override` if you don't want the override to apply to the whole score.

```
bass = {
  \clef bass
  g4 b, c d
  e d8 c d2
}
continuo = \figuremode {
  <_>4 <6>4 <5/>4
  \override Staff.BassFigureAlignmentPositioning #'direction = #UP
  %\bassFigureStaffAlignmentUp
  <_+ >4 <6>
  \set Staff.useBassFigureExtenders = ##t
  \override Staff.BassFigureAlignmentPositioning #'direction = #DOWN
  %\bassFigureStaffAlignmentDown
  <4>4. <4>8 <_+>4
}
\score {
  <<
    \new Staff = bassStaff \bass
    \context Staff = bassStaff \continuo
  >>
}
```



### Adding an extra staff at a line break

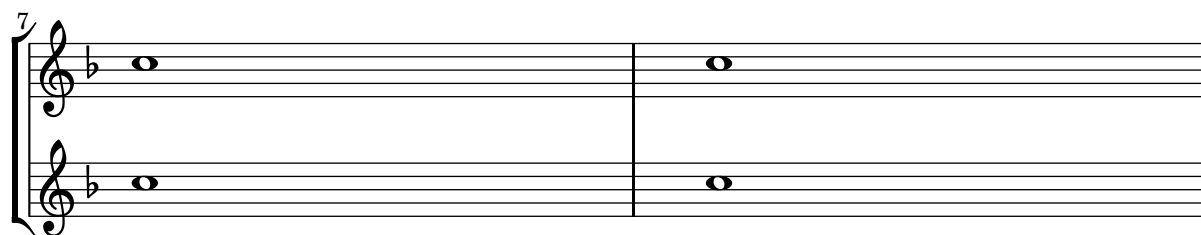
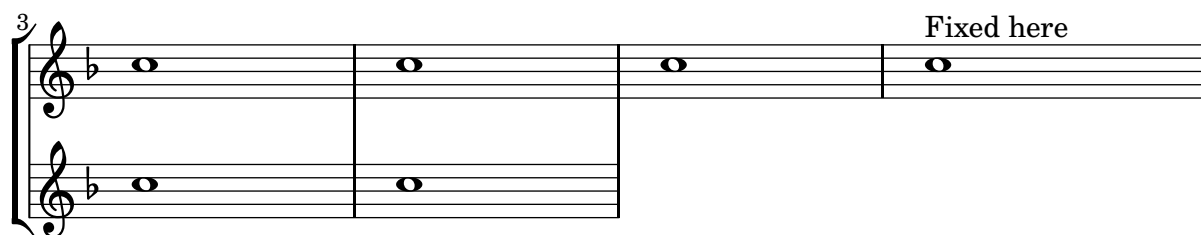
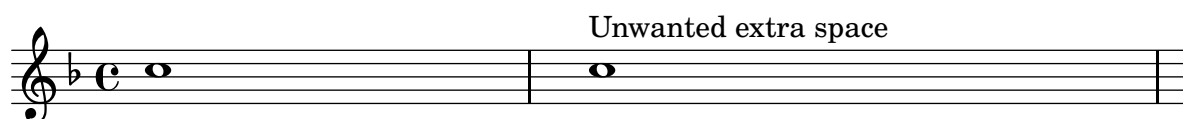
When adding a new staff at a line break, some extra space is unfortunately added at the end of the line before the break (to fit in a key signature change, which will never be printed anyway). The workaround is to add a setting of `Staff.explicitKeySignatureVisibility` as is shown in the example.

```
\score {
  \new StaffGroup \relative c'' {
    \new Staff
    \key f \major
    c1 c^"Unwanted extra space" \break
    << { c1 | c }
  }
}
```

```

\new Staff {
  \key f \major
  \once \override Staff.TimeSignature #'stencil = ##f
  c1 | c
}
>>
c1 | c^"Fixed here" \break
<< { c1 | c }
\new Staff {
  \once \set Staff.explicitKeySignatureVisibility = #end-of-line-invisible
  \key f \major
  \once \override Staff.TimeSignature #'stencil = ##f
  c1 | c
}
>>
}
}

```



## Adding an extra staff

An extra staff can be added (possibly temporarily) after the start of a piece.

```

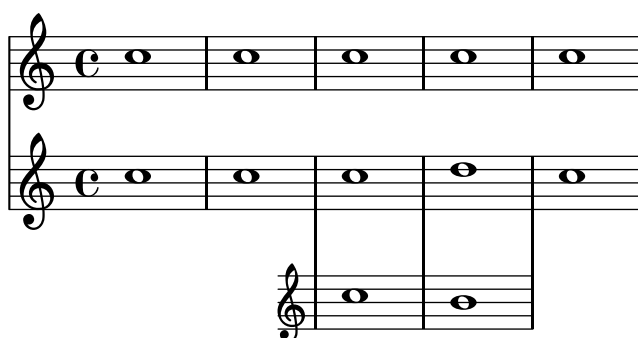
\score {
  <<
    \new Staff \relative c'' {
      c1 | c | c | c | c
    }
    \new StaffGroup \relative c'' {
      \new Staff {
        c1 | c
        <<
          {
            c1 | d

```

```

    }
    \new Staff {
      \once \override Staff.TimeSignature #'stencil = ##f
      c1 | b
    }
  >>
  c1
}
}
>>
}

```



## Centering markup on note heads automatically

For technical reasons, text scripts attached to note heads cannot easily be centered on a note head's width, unlike articulations.

Instead of using trial-and-error offset tweaks, this snippet uses a Scheme engraver to reset the horizontal parent of each markup to a `NoteColumn`. This also allows text to follow note heads which have been shifted via `force-hshift`.

```

#(define (Text_align_engraver ctx)
  (let ((scripts '())
        (note-column #f))
    (make-engraver
      (acknowledgers
        ((note-column-interface trans grob source)
         ;; cache NoteColumn in this Voice context
         (set! note-column grob))
        ((text-script-interface trans grob source)
         ;; whenever a TextScript is acknowledged,
         ;; add it to `scripts' list
         (set! scripts (cons grob scripts))))
      ((stop-translation-timestep trans)
       ;; if any TextScript grobs exist,
       ;; set NoteColumn as X-parent
       (for-each (lambda (script)
                    (set! (ly:grob-parent script X) note-column))
                  scripts)
       ;; clear scripts ready for next timestep
       (set! scripts '())))))

\layout {

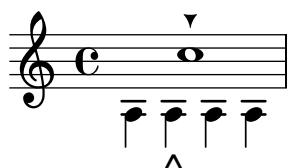
```

```

\context {
  \Voice
  \consists #Text_align_engraver
  \override TextScript #'X-offset =
    #ly:self-alignment-interface::aligned-on-x-parent
  \override TextScript #'self-alignment-X = #CENTER
}
}

\new Staff <<
  \relative c'' {
    \override NoteColumn #'force-hshift = #3
    c1-\markup { \arrow-head #Y #DOWN ##t }
  }
  \\\
  \relative c' {
    a4 a-\markup { \huge ^ } a a
  }
>>

```



## Changing MIDI output to one channel per voice

When outputting MIDI, the default behavior is for each staff to represent one MIDI channel, with all the voices on a staff amalgamated. This minimizes the risk of running out of MIDI channels, since there are only 16 available per MIDI port, and most devices support only one port.

However, by moving the `Staff_performer` to the `Voice` context, each voice on a staff can have its own MIDI channel, as is demonstrated by the following example: despite being on the same staff, two MIDI channels are created, each with a different `midiInstrument`.

```

\score {
  \new Staff <<
    \new Voice \relative c''' {
      \set midiInstrument = #"flute"
      \voiceOne
      \key g \major
      \time 2/2
      r2 g-"Flute" ~
      g fis ~
      fis4 g8 fis e2 ~
      e4 d8 cis d2
    }
    \new Voice \relative c'' {
      \set midiInstrument = #"clarinet"
      \voiceTwo
      b1-"Clarinet"
      a2. b8 a
    }
  >>
}

```

```

        g2. fis8 e
        fis2 r
    }
>>
\layout { }
\midi {
  \context {
    \Staff
    \remove "Staff_performer"
  }
  \context {
    \Voice
    \consists "Staff_performer"
  }
  \tempo 2 = 72
}
}

```



## Changing time signatures inside a polymetric section using `\scaleDurations`

```

\layout {
  \context {
    \Score
    \remove "Timing_translator"
    \remove "Default_bar_line_engraver"
  }
  \context {
    \Staff
    \consists "Timing_translator"
    \consists "Default_bar_line_engraver"
  }
}

<<
\new Staff {
  \scaleDurations 8/5 {
    \time 6/8
    \set Timing.measureLength = #(ly:make-moment 6 5)
    b8 b b b b b
    \time 2/4
    \set Timing.measureLength = #(ly:make-moment 4 5)
    b4 b
  }
}
\new Staff {
  \clef bass

```

```

\time 2/4
c2 d e f
}
>>

```



## Chant or psalms notation

This form of notation is used for the chant of the Psalms, where verses aren't always the same length.

```

stemOn = {
  \revert Staff.Stem #'transparent
  \revert Staff.Flag #'transparent
}

stemOff = {
  \override Staff.Stem #'transparent = ##t
  \override Staff.Flag #'transparent = ##t
}

\score {
  \new Staff \with { \remove "Time_signature_engraver" }
  {
    \key g \minor
    \cadenzaOn
    \stemOff a'\breve bes'4 g'4
    \stemOn a'2 \bar "||"
    \stemOff a'\breve g'4 a'4
    \stemOn f'2 \bar "||"
    \stemOff a'\breve~\markup{ \italic flexe }
    \stemOn g'2 \bar "||"
  }
}

```



## Creating blank staves

To create blank staves, generate empty measures then remove the `Bar_number_engraver` from the `Score` context, and the `Time_signature_engraver`, `Clef_engraver` and `Bar_engraver` from the `Staff` context.

```

#(set-global-staff-size 20)

```

```

\score {

```



```

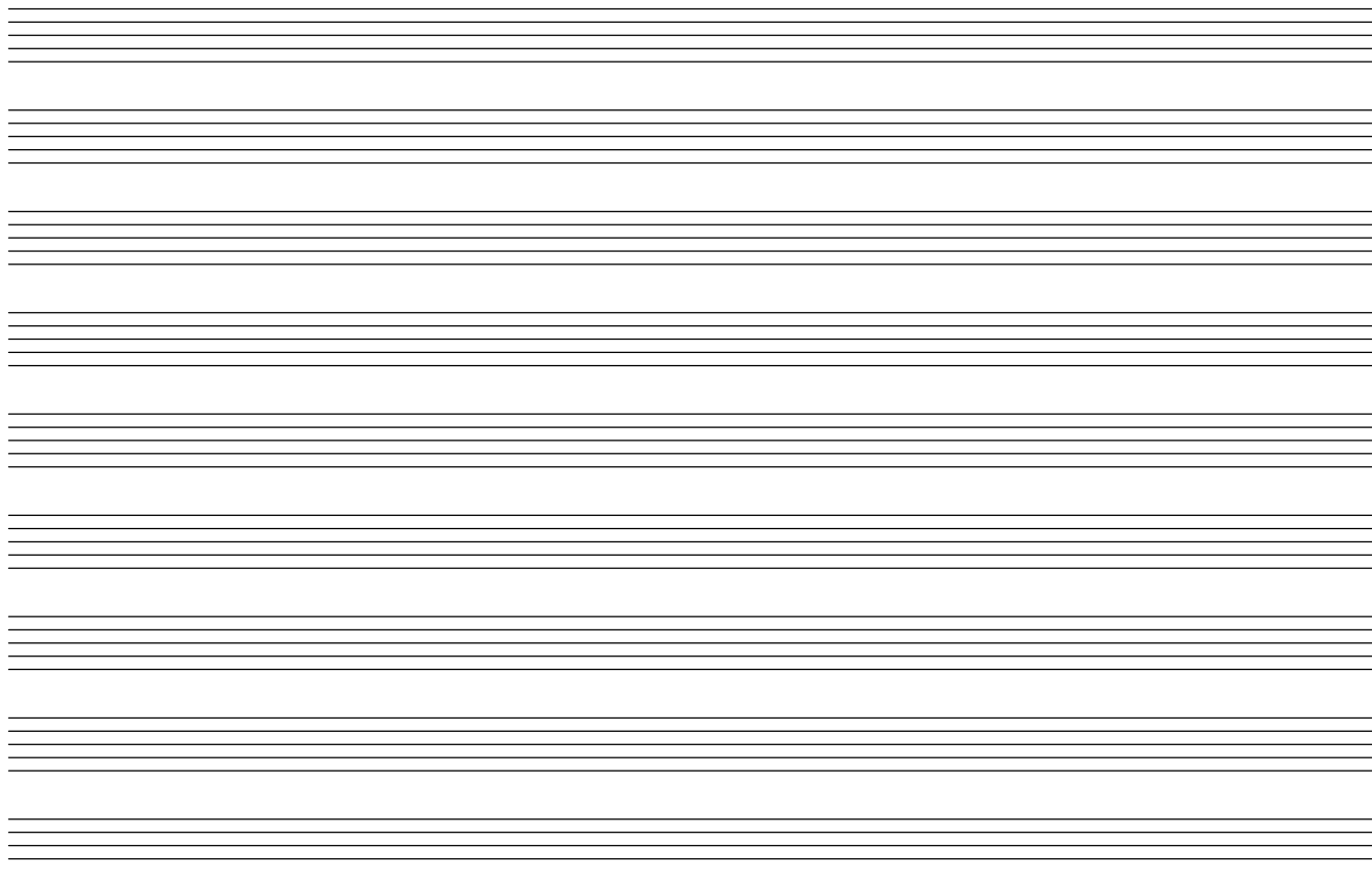
{
  \repeat unfold 12 { s1 \break }
}
\layout {
  indent = 0\in
  \context {
    \Staff
    \remove "Time_signature_engraver"
    \remove "Clef_engraver"
    \remove "Bar_engraver"
  }
  \context {
    \Score
    \remove "Bar_number_engraver"
  }
}
}

```

```

\paper {
  #(set-paper-size "letter")
  ragged-last-bottom = ##f
  line-width = 7.5\in
  left-margin = 0.5\in
  bottom-margin = 0.25\in
  top-margin = 0.25\in
}

```

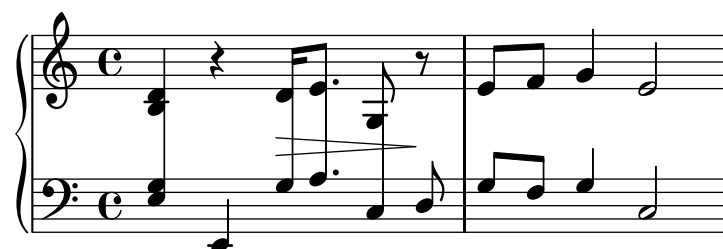


## Cross staff stems

This snippet shows the use of the `Span_stem_engraver` and `\crossStaff` to connect stems across staves automatically. The stem length need not be specified, as the variable distance between noteheads and staves is calculated automatically.

```
\layout {
  \context {
    \PianoStaff
    \consists #Span_stem_engraver
  }
}

{
  \new PianoStaff <<
    \new Staff {
      <b d'>4 r d'16\> e'8. g8 r\!
      e'8 f' g'4 e'2
    }
    \new Staff {
      \clef bass
      \voiceOne
      \autoBeamOff
      \crossStaff { <e g>4 e, g16 a8. c8} d
      \autoBeamOn
      g8 f g4 c2
    }
  >>
}
```



## Defining an engraver in Scheme: ambitus engraver

This example demonstrates how the ambitus engraver may be defined on the user side, with a Scheme engraver.

This is basically a rewrite in Scheme of the code from ‘`lily/ambitus-engraver.cc`’.

```
 #(use-modules (oop goops))
```

```

%%%
%%% Grob utilities
%%%
%%% These are literal rewrites of some C++ methods used by the ambitus engraver.

#(define (ly:separation-item::add-conditional-item grob grob-item)
  "Add @var{grob-item} to the array of conditional elements of @var{grob}.
Rewrite of @code{Separation_item::add_conditional_item} from @file{lily/separation-item.cc}
  (ly:pointer-group-interface::add-grob grob 'conditional-elements grob-item))

#(define (ly:accidental-placement::accidental-pitch accidental-grob)
  "Get the pitch from the grob cause of @var{accidental-grob}.
Rewrite of @code{accidental_pitch} from @file{lily/accidental-placement.cc}."
  (ly:event-property (ly:grob-property (ly:grob-parent accidental-grob Y) 'cause)
    'pitch))

#(define (ly:accidental-placement::add-accidental grob accidental-grob)
  "Add @var{accidental-grob}, an @code{Accidental} grob, to the
list of the accidental grobs of @var{grob}, an @code{AccidentalPlacement}
grob.
Rewrite of @code{Accidental_placement::add_accidental} from @file{lily/accidental-placement}
  (let ((pitch (ly:accidental-placement::accidental-pitch accidental-grob)))
    (set! (ly:grob-parent accidental-grob X) grob)
    (set! (ly:grob-property accidental-grob 'X-offset)
      ly:grob::x-parent-positioning)
    (let* ((accidentals (ly:grob-object grob 'accidental-grobs))
      (handle (assq (ly:pitch-notename pitch) accidentals))
      (entry (if handle (cdr handle) '())))
      (set! (ly:grob-object grob 'accidental-grobs)
        (assq-set! accidentals
          (ly:pitch-notename pitch)
          (cons accidental-grob entry))))))

%%%
%%% Ambitus data structure
%%%

%%% The <ambitus> class holds the various grobs that are created
%%% to print an ambitus:
%%% - ambitus-group: the grob that groups all the components of an ambitus
%%% (Ambitus grob);
%%% - ambitus-line: the vertical line between the upper and lower ambitus
%%% notes (AmbitusLine grob);
%%% - ambitus-up-note and ambitus-down-note: the note head and accidental
%%% for the lower and upper note of the ambitus (see <ambitus-note> class
%%% below).
%%% The other slots define the key and clef context of the engraver:
%%% - start-c0: position of middle c at the beginning of the piece. It
%%% is used to place the ambitus notes according to their pitch;
%%% - start-key-sig: the key signature at the beginning of the piece. It
%%% is used to determine if accidentals shall be printed next to ambitus
%%% notes.
```

```

#(define-class <ambitus> ()
  (ambitus-group #:accessor ambitus-group)
  (ambitus-line #:accessor ambitus-line)
  (ambitus-up-note #:getter ambitus-up-note
    #:init-form (make <ambitus-note>))
  (ambitus-down-note #:getter ambitus-down-note
    #:init-form (make <ambitus-note>))
  (start-c0 #:accessor ambitus-start-c0
    #:init-value #f)
  (start-key-sig #:accessor ambitus-start-key-sig
    #:init-value '()))

%%% Accessor for the lower and upper note data of an ambitus
#(define-method (ambitus-note (ambitus <ambitus>) direction)
  "If @var{direction} is @code{UP}, then return the upper ambitus note
of @var{ambitus}, otherwise return the lower ambitus note."
  (if (= direction UP)
      (ambitus-up-note ambitus)
      (ambitus-down-note ambitus)))

%%% The <ambitus-note> class holds the grobs that are specific to ambitus
%%% (lower and upper) notes:
%%% - head: an AmbitusNoteHead grob;
%%% - accidental: an AmbitusAccidental grob, to be possibly printed next
%%% to the ambitus note head.
%%% Moreover:
%%% - pitch is the absolute pitch of the note
%%% - cause is the note event that causes this ambitus note, i.e. the lower
%%% or upper note of the considered music sequence.

#(define-class <ambitus-note> ()
  (head #:accessor ambitus-note-head
    #:init-value #f)
  (accidental #:accessor ambitus-note-accidental
    #:init-value #f)
  (cause #:accessor ambitus-note-cause
    #:init-value #f)
  (pitch #:accessor ambitus-note-pitch
    #:init-value #f))

%%%
%%% Ambitus engraving logics
%%%
%%% Rewrite of the code from @file{lily/ambitus-engraver.cc}.

#(define (make-ambitus translator)
  "Build an ambitus object: initialize all the grobs and their relations.

The Ambitus grob contain all other grobs:
  Ambitus
  |- AmbitusLine

```

```

|- AmbitusNoteHead   for upper note
|- AmbitusAccidental for upper note
|- AmbitusNoteHead   for lower note
|- AmbitusAccidental for lower note

```

The parent of an accidental is the corresponding note head, and the accidental is set as the 'accidental-grob of the note head so that is printed by the function that prints notes."

```

;; make the ambitus object
(let ((ambitus (make <ambitus>)))
  ;; build the Ambitus grob, which will contain all other grobs
  (set! (ambitus-group ambitus) (ly:engraver-make-grob translator 'Ambitus '()))
  ;; build the AmbitusLine grob (line between lower and upper note)
  (set! (ambitus-line ambitus) (ly:engraver-make-grob translator 'AmbitusLine '()))
  ;; build the upper and lower AmbitusNoteHead and AmbitusAccidental
  (for-each (lambda (direction)
    (let ((head (ly:engraver-make-grob translator 'AmbitusNoteHead '()))
          (accidental (ly:engraver-make-grob translator 'AmbitusAccidental '()))
          (group (ambitus-group ambitus)))
      ;; The parent of the AmbitusAccidental grob is the
      ;; AmbitusNoteHead grob
      (set! (ly:grob-parent accidental Y) head)
      ;; The AmbitusAccidental grob is set as the accidental-grob
      ;; object of the AmbitusNoteHead. This is later used by the
      ;; function that prints notes.
      (set! (ly:grob-object head 'accidental-grob) accidental)
      ;; both the note head and the accidental grobs are added
      ;; to the main ambitus grob.
      (ly:axis-group-interface::add-element group head)
      (ly:axis-group-interface::add-element group accidental)
      ;; the note head and the accidental grobs are added to the
      ;; ambitus object
      (set! (ambitus-note-head (ambitus-note ambitus direction))
            head)
      (set! (ambitus-note-accidental (ambitus-note ambitus direction))
            accidental)))
    (list DOWN UP))
  ;; The parent of the ambitus line is the lower ambitus note head
  (set! (ly:grob-parent (ambitus-line ambitus) X)
        (ambitus-note-head (ambitus-note ambitus DOWN)))
  ;; the ambitus line is added to the ambitus main grob
  (ly:axis-group-interface::add-element (ambitus-group ambitus) (ambitus-line ambitus))
  ambitus))

#(define-method (initialize-ambitus-state (ambitus <ambitus>) translator)
  "Initialize the state of @var{ambitus}, by getting the starting
  position of middle C and key signature from @var{translator}'s context."
  (if (not (ambitus-start-c0 ambitus))
    (begin
      (set! (ambitus-start-c0 ambitus)
            (ly:context-property (ly:translator-context translator)
                                'middleCPosition)

```

```

    0))
    (set! (ambitus-start-key-sig ambitus)
      (ly:context-property (ly:translator-context translator)
        'keySignature))))))

#(define-method (update-ambitus-notes (ambitus <ambitus>) note-grob)
  "Update the upper and lower ambitus pithes of @var{ambitus}, using
  @var{note-grob}."
  ;; Get the event that caused the note-grob creation
  ;; and check that it is a note-event.
  (let ((note-event (ly:grob-property note-grob 'cause)))
    (if (ly:in-event-class? note-event 'note-event)
      ;; get the pitch from the note event
      (let ((pitch (ly:event-property note-event 'pitch)))
        ;; if this pitch is lower than the current ambitus lower
        ;; note pitch (or it has not been initialized yet),
        ;; then this pitch is the new ambitus lower pitch,
        ;; and conversely for upper pitch.
        (for-each (lambda (direction pitch-compare)
                      (if (or (not (ambitus-note-pitch (ambitus-note ambitus direction)))
                              (pitch-compare pitch
                                (ambitus-note-pitch (ambitus-note ambitus direction))
                                pitch)
                          (begin
                            (set! (ambitus-note-pitch (ambitus-note ambitus direction))
                              pitch)
                            (set! (ambitus-note-cause (ambitus-note ambitus direction))
                              note-event))))))
                    (list DOWN UP)
                    (list ly:pitch<? (lambda (p1 p2)
                                      (ly:pitch<? p2 p1)))))))

#(define-method (typeset-ambitus (ambitus <ambitus>) translator)
  "Typeset the ambitus:
  - place the lower and upper ambitus notes according to their pitch and
    the position of the middle C;
  - typeset or delete the note accidentals, according to the key signature.
    An accidental, if it is to be printed, is added to an AccidentalPlacement
    grob (a grob dedicated to the placement of accidentals near a chord);
  - both note heads are added to the ambitus line grob, so that a line should
    be printed between them."
  ;; check if there are lower and upper pitches
  (if (and (ambitus-note-pitch (ambitus-note ambitus UP))
            (ambitus-note-pitch (ambitus-note ambitus DOWN)))
      ;; make an AccidentalPlacement grob, for placement of note accidentals
      (let ((accidental-placement (ly:engraver-make-grob
                                    translator
                                    'AccidentalPlacement
                                    (ambitus-note-accidental (ambitus-note ambitus DOWN)))))
        ;; For lower and upper ambitus notes:
        (for-each (lambda (direction)
                      (let ((pitch (ambitus-note-pitch (ambitus-note ambitus direction))))
                        ;; set the cause and the staff position of the ambitus note

```

```

;; according to the associated pitch
(set! (ly:grob-property (ambitus-note-head (ambitus-note ambitus direction)
      'cause)
      (ambitus-note-cause (ambitus-note ambitus direction))))■
(set! (ly:grob-property (ambitus-note-head (ambitus-note ambitus direction)
      'staff-position)
      (+ (ambitus-start-c0 ambitus)
         (ly:pitch-steps pitch)))
;; determine if an accidental shall be printed for this note,■
;; according to the key signature
(let* ((handle (or (assoc (cons (ly:pitch-octave pitch)
                                (ly:pitch-notename pitch))
                        (ambitus-start-key-sig ambitus))
                   (assoc (ly:pitch-notename pitch)
                        (ambitus-start-key-sig ambitus))))■
      (sig-alter (if handle (cdr handle) 0)))
      (cond ((= (ly:pitch-alteration pitch) sig-alter)
              ;; the note alteration is in the key signature
              ;; => it does not have to be printed
              (ly:grob-suicide!
               (ambitus-note-accidental (ambitus-note ambitus direction)))
              (set! (ly:grob-object (ambitus-note-head (ambitus-note ambitus direction)
                  'accidental-grob)
                  '()))
              (else
               ;; otherwise, the accidental shall be printed
               (set! (ly:grob-property (ambitus-note-accidental
                                       (ambitus-note ambitus direction))■
                                       'alteration)
                     (ly:pitch-alteration pitch))))))
;; add the AccidentalPlacement grob to the
;; conditional items of the AmbitusNoteHead
(ly:separation-item::add-conditional-item
 (ambitus-note-head (ambitus-note ambitus direction))
 accidental-placement)
;; add the AmbitusAccidental to the list of the
;; AccidentalPlacement grob accidentals
(ly:accidental-placement::add-accidental
 accidental-placement
 (ambitus-note-accidental (ambitus-note ambitus direction)))■
;; add the AmbitusNoteHead grob to the AmbitusLine grob
(ly:pointer-group-interface::add-grob
 (ambitus-line ambitus)
 'note-heads
 (ambitus-note-head (ambitus-note ambitus direction))))
(list DOWN UP))
;; add the AccidentalPlacement grob to the main Ambitus grob
(ly:axis-group-interface::add-element (ambitus-group ambitus) accidental-placement)
;; no notes ==> suicide the grobs
(begin
  (for-each (lambda (direction)
              (ly:grob-suicide! (ambitus-note-accidental (ambitus-note ambitus direction)

```

```

        (ly:grob-suicide! (ambitus-note-head (ambitus-note ambitus direction)))
        (list DOWN UP))
    (ly:grob-suicide! ambitus-line))))

%%%
%%% Ambitus engraver definition
%%%
#(define ambitus-engraver
  (lambda (context)
    (let ((ambitus #f))
      ;; when music is processed: make the ambitus object, if not already built
      (make-engraver
        ((process-music translator)
          (if (not ambitus)
              (set! ambitus (make-ambitus translator))))
        ;; set the ambitus clef and key signature state
        ((stop-translation-timestep translator)
          (if ambitus
              (initialize-ambitus-state ambitus translator)))
        ;; when a note-head grob is built, update the ambitus notes
        (acknowledgers
          ((note-head-interface engraver grob source-engraver)
            (if ambitus
                (update-ambitus-notes ambitus grob))))
        ;; finally, typeset the ambitus according to its upper and lower notes
        ;; (if any).
        ((finalize translator)
          (if ambitus
              (typeset-ambitus ambitus translator)))))))

%%%
%%% Example
%%%

\score {
  \new StaffGroup <<
    \new Staff { c'4 des' e' fis' gis' }
    \new Staff { \clef "bass" c4 des ~ des ees b, }
  >>
  \layout { \context { \Staff \consists #ambitus-engraver } }
}

```





## Engravers one-by-one

The notation problem, creating a certain symbol, is handled by plugins. Each plugin is called an Engraver. In this example, engravers are switched on one by one, in the following order:

- note heads,
- staff symbol,
- clef,
- stem,
- beams, slurs, accents,
- accidentals, bar lines, time signature and key signature.

Engravers are grouped. For example, note heads, slurs, beams etc. form a **Voice** context. Engravers for key signature, accidentals, bar line, etc. form a **Staff** context.

```
%% sample music
topVoice = \relative c' {
  \key d \major
  es8([ g] a[ fis])
  b4
  b16[-. b-. b-. cis-.]
  d4->
}

botVoice = \relative c' {
  \key d \major
  c8([ f] b[ a])
  es4
  es16[-. es-. es-. fis-.]
  b4->
}

hoom = \relative c {
  \key d \major
  \clef bass
  g8-. r
  r4
  fis8-.
  r8
  r4
  b'4->
}

pah = \relative c' {
  r8 b-.
  r4
  r8 g8-.
  r16 g-. r8
  \clef treble
  fis'4->
}

%
% setup for Request->Element conversion. Guru-only
```

```

%

MyStaff = \context {
  \type "Engraver_group"
  \name Staff

  \description "Handles clefs, bar lines, keys, accidentals. It can contain
@code{Voice} contexts."

  \consists "Output_property_engraver"

  \consists "Font_size_engraver"

  \consists "Volta_engraver"
  \consists "Separating_line_group_engraver"
  \consists "Dot_column_engraver"

  \consists "Ottava_spanner_engraver"
  \consists "Rest_collision_engraver"
  \consists "Piano_pedal_engraver"
  \consists "Piano_pedal_align_engraver"
  \consists "Instrument_name_engraver"
  \consists "Grob_pq_engraver"
  \consists "Forbid_line_break_engraver"
  \consists "Axis_group_engraver"

  \consists "Pitch_squash_engraver"

  localKeySignature = #'()

  % explicitly set instrumentName, so we don't get
  % weird effects when doing instrument names for
  % piano staves

  instrumentName = #'()
  shortInstrumentName = #'()

  \accepts "Voice"
}

MyVoice = \context {
  \type "Engraver_group"
  \name Voice

  \description "
    Corresponds to a voice on a staff. This context handles the
    conversion of dynamic signs, stems, beams, super- and subscripts,
    slurs, ties, and rests.

    You have to instantiate this explicitly if you want to have
    multiple voices on the same staff."

```

```

localKeySignature = #'()
\consists "Font_size_engraver"

% must come before all
\consists "Output_property_engraver"
\consists "Arpeggio_engraver"
\consists "Multi_measure_rest_engraver"
\consists "Text_spanner_engraver"
\consists "Grob_pq_engraver"
\consists "Note_head_line_engraver"
\consists "Glissando_engraver"
\consists "Ligature_bracket_engraver"
\consists "Breathing_sign_engraver"
% \consists "Rest_engraver"
\consists "Grace_beam_engraver"
\consists "New_fingering_engraver"
\consists "Chord_tremolo_engraver"
\consists "Percent_repeat_engraver"
\consists "Slash_repeat_engraver"

%{
  Must come before text_engraver, but after note_column engraver.
%}
\consists "Text_engraver"
\consists "Dynamic_engraver"
\consists "Fingering_engraver"

\consists "Script_column_engraver"
\consists "Rhythmic_column_engraver"
\consists "Cluster_spanner_engraver"
\consists "Tie_engraver"
\consists "Tie_engraver"
\consists "Tuplet_engraver"
\consists "Note_heads_engraver"
\consists "Rest_engraver"
}

\score {
  \topVoice
  \layout {
    \context { \MyStaff }
    \context { \MyVoice }
  }
}

MyStaff = \context {
  \MyStaff
  \consists "Staff_symbol_engraver"
}

```

```
\score {
  \topVoice
  \layout {
    \context { \MyStaff }
    \context { \MyVoice }
  }
}

MyStaff = \context {
  \MyStaff
  \consists "Clef_engraver"
  \remove "Pitch_squash_engraver"
}

\score {
  \topVoice
  \layout {
    \context { \MyStaff }
    \context { \MyVoice }
  }
}

MyVoice = \context {
  \MyVoice
  \consists "Stem_engraver"
}

\score {
  \topVoice
  \layout {
    \context { \MyStaff }
    \context { \MyVoice }
  }
}

MyVoice = \context {
  \MyVoice
  \consists "Beam_engraver"
}

\score {
  \topVoice
  \layout {
    \context { \MyStaff }
    \context { \MyVoice }
  }
}

MyVoice = \context {
  \MyVoice
  \consists "Phrasing_slur_engraver"
```

```

\consists "Slur_engraver"
\consists "Script_engraver"
}

\score {
  \topVoice
  \layout {
    \context { \MyStaff }
    \context { \MyVoice }
  }
}

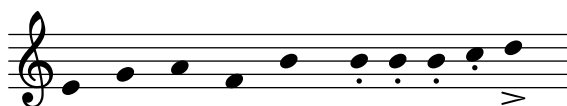
MyStaff = \context {
  \MyStaff
  \consists "Bar_engraver"
  \consists "Time_signature_engraver"
}

\score {
  \topVoice
  \layout {
    \context { \MyStaff }
    \context { \MyVoice }
  }
}

MyStaff = \context {
  \MyStaff
  \consists "Accidental_engraver"
  \consists "Key_engraver"
}

\score {
  \topVoice
  \layout {
    \context { \MyStaff }
    \context { \MyVoice }
  }
}

```

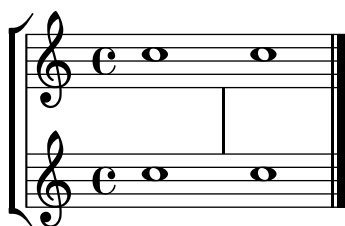




## Mensurstriche layout (bar lines between the staves)

The mensurstriche-layout where the bar lines do not show on the staves but between staves can be achieved with a `StaffGroup` instead of a `ChoirStaff`. The bar line on staves is blanked out by setting the `transparent` property.

```
global = {
  \override Staff.BarLine #'transparent = ##t
  s1 s
  % the final bar line is not interrupted
  \revert Staff.BarLine #'transparent
  \bar "|."
}
\new StaffGroup \relative c'' {
  <<
    \new Staff { << \global { c1 c } >> }
    \new Staff { << \global { c c } >> }
  >>
}
```

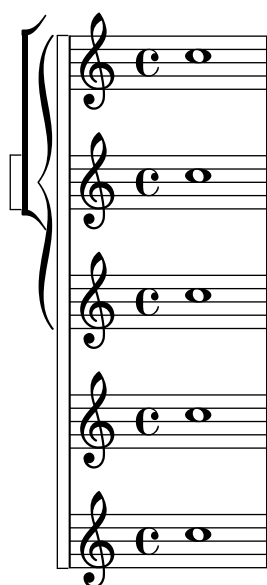


## Nesting staves

The property `systemStartDelimiterHierarchy` can be used to make more complex nested staff groups. The command `\set StaffGroup.systemStartDelimiterHierarchy` takes an alphabetical list of the number of staves produced. Before each staff a system start delimiter can be given. It has to be enclosed in brackets and takes as much staves as the brackets enclose. Elements in the list can be omitted, but the first bracket takes always the complete number of staves. The possibilities are `SystemStartBar`, `SystemStartBracket`, `SystemStartBrace`, and `SystemStartSquare`.

```
\new StaffGroup
\relative c'' <<
  \set StaffGroup.systemStartDelimiterHierarchy
    = #'(SystemStartSquare (SystemStartBrace (SystemStartBracket a
                                              (SystemStartSquare b) ) c ) d)

  \new Staff { c1 }
  \new Staff { c1 }
  \new Staff { c1 }
  \new Staff { c1 }
  \new Staff { c1 }
>>
```



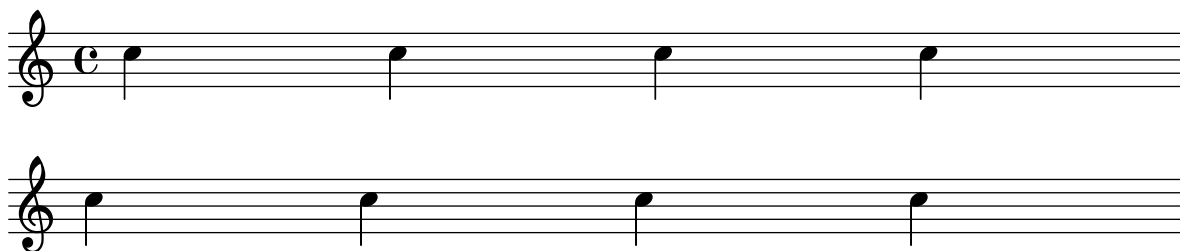
## Removing bar numbers from a score

Bar numbers can be removed entirely by removing the `Bar_number_engraver` from the `Score` context.

```
\layout {
  \context {
    \Score
    \remove "Bar_number_engraver"
  }
}
```

```
\relative c'' {
  c4 c c c \break
  c4 c c c
```

}



## Use square bracket at the start of a staff group

The system start delimiter `SystemStartSquare` can be used by setting it explicitly in a `StaffGroup` or `ChoirStaff` context.

```
\score {
  \new StaffGroup { <<
    \set StaffGroup.systemStartDelimiter = #'SystemStartSquare
    \new Staff { c'4 d' e' f' }
    \new Staff { c'4 d' e' f' }
  >> }
}
```



## Vocal ensemble template with lyrics aligned below and above the staves

This template is basically the same as the simple “Vocal ensemble” template, with the exception that here all the lyrics lines are placed using `alignAboveContext` and `alignBelowContext`.

```
global = {
  \key c \major
  \time 4/4
}

sopMusic = \relative c'' {
  c4 c c8[( b)] c4
}
sopWords = \lyricmode {
  hi hi hi hi
}

altoMusic = \relative c' {
  e4 f d e
}
altoWords = \lyricmode {
  ha ha ha ha
}
```



```

tenorMusic = \relative c' {
  g4 a f g
}
tenorWords = \lyricmode {
  hu hu hu hu
}

bassMusic = \relative c {
  c4 c g c
}
bassWords = \lyricmode {
  ho ho ho ho
}

\score {
  \new ChoirStaff <<
    \new Staff = "women" <<
      \new Voice = "sopranos" { \voiceOne << \global \sopMusic >> }
      \new Voice = "altos" { \voiceTwo << \global \altoMusic >> }
    >>
    \new Lyrics \with { alignAboveContext = #"women" }
      \lyricsto "sopranos" \sopWords
    \new Lyrics \with { alignBelowContext = #"women" }
      \lyricsto "altos" \altoWords
    % we could remove the line about this with the line below, since
    % we want the alto lyrics to be below the alto Voice anyway.
    % \new Lyrics \lyricsto "altos" \altoWords

    \new Staff = "men" <<
      \clef bass
      \new Voice = "tenors" { \voiceOne << \global \tenorMusic >> }
      \new Voice = "basses" { \voiceTwo << \global \bassMusic >> }
    >>
    \new Lyrics \with { alignAboveContext = #"men" }
      \lyricsto "tenors" \tenorWords
    \new Lyrics \with { alignBelowContext = #"men" }
      \lyricsto "basses" \bassWords
    % again, we could replace the line above this with the line below.
    % \new Lyrics \lyricsto "basses" \bassWords
  >>
}

```



## Vocal ensemble template with verse and refrain

This template creates a score which starts with a solo verse and continues into a refrain for two voices. It also demonstrates the use of spacer rests within the `\global` variable to define meter changes (and other elements common to all parts) throughout the entire score.

```
global = {
  \key g \major

  % verse
  \time 3/4
  s2.*2
  \break

  % refrain
  \time 2/4
  s2*2
  \bar "|."
}

SoloNotes = \relative g' {
  \clef "treble"

  % verse
  g4 g g |
  b4 b b |

  % refrain
  R2*2 |
}

SoloLyrics = \lyricmode {
  One two three |
  four five six |
}

SopranoNotes = \relative c'' {
  \clef "treble"

  % verse
  R2.*2 |

  % refrain
```

```

    c4 c |
    g4 g |
}

SopranoLyrics = \lyricmode {
    la la |
    la la |
}

BassNotes = \relative c {
    \clef "bass"

    % verse
    R2.*2 |

    % refrain
    c4 e |
    d4 d |
}

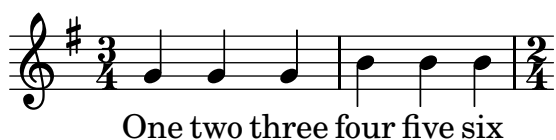
BassLyrics = \lyricmode {
    dum dum |
    dum dum |
}

\score {
  <<
    \new Voice = "SoloVoice" << \global \SoloNotes >>
    \new Lyrics \lyricsto "SoloVoice" \SoloLyrics

    \new ChoirStaff <<
      \new Voice = "SopranoVoice" << \global \SopranoNotes >>
      \new Lyrics \lyricsto "SopranoVoice" \SopranoLyrics

      \new Voice = "BassVoice" << \global \BassNotes >>
      \new Lyrics \lyricsto "BassVoice" \BassLyrics
    >>
  >>
  \layout {
    ragged-right = ##t
    \context { \Staff
      % these lines prevent empty staves from being printed
      \RemoveEmptyStaves
      \override VerticalAxisGroup #'remove-first = ##t
    }
  }
}

```



A musical score for a vocal and bass instrument in 2/4 time. The key signature is one sharp (F#). The vocal line (treble clef) consists of four quarter notes: F#4, G#4, A4, and B4. The bass line (bass clef) consists of four quarter notes: F#3, G#3, A3, and B3. The lyrics 'la la la la' are written under the vocal line, and 'dum dum dum dum' are written under the bass line. A bracket on the left side of the staves indicates a repeat of the first measure, with a '3' above it.

3

la la la la

dum dum dum dum

## Tweaks and overrides

Section “Changing defaults” in *Notation Reference*

Section “Tweaking output” in *Learning Manual*

### Adjusting grace note spacing

The space given to grace notes can be adjusted using the `spacing-increment` property of `Score.GraceSpacing`.

```

graceNotes = {
  \grace { c4 c8 c16 c32 }
  c8
}

\relative c'' {
  c8
  \graceNotes
  \override Score.GraceSpacing #'spacing-increment = #2.0
  \graceNotes
  \revert Score.GraceSpacing #'spacing-increment
  \graceNotes
}

```



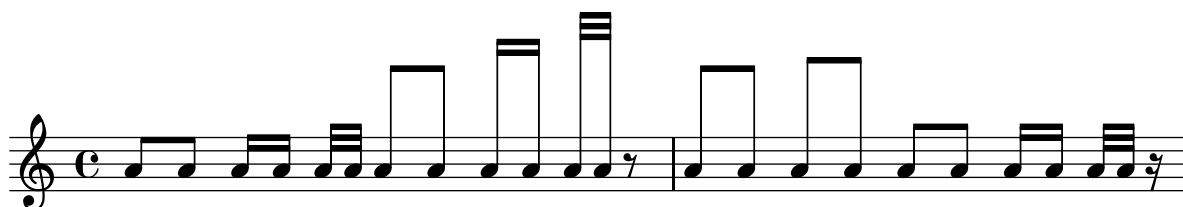
### Altering the length of beamed stems

Stem lengths on beamed notes can be varied by overriding the `beamed-lengths` property of the `details` of the `Stem`. If a single value is used as an argument, the length applies to all stems. When multiple arguments are used, the first applies to eighth notes, the second to sixteenth notes and so on. The final argument also applies to all notes shorter than the note length of the final argument. Non-integer arguments may also be used.

```

\relative c'' {
  \override Stem #'(details beamed-lengths) = #'(2)
  a8[ a] a16[ a] a32[ a]
  \override Stem #'(details beamed-lengths) = #'(8 10 12)
  a8[ a] a16[ a] a32[ a] r8
  \override Stem #'(details beamed-lengths) = #'(8)
  a8[ a]
  \override Stem #'(details beamed-lengths) = #'(8.5)
  a8[ a]
  \revert Stem #'details
  a8[ a] a16[ a] a32[ a] r16
}

```



## Alternative bar numbering

Two alternative methods for bar numbering can be set, especially for when using repeated music.

```
\relative c'{
  \set Score.alternativeNumberingStyle = #'numbers
  \repeat volta 3 { c4 d e f | }
  \alternative {
    { c4 d e f | c2 d \break }
    { f4 g a b | f4 g a b | f2 a | \break }
    { c4 d e f | c2 d }
  }
  c1 \break
  \set Score.alternativeNumberingStyle = #'numbers-with-letters
  \repeat volta 3 { c,4 d e f | }
  \alternative {
    { c4 d e f | c2 d \break }
    { f4 g a b | f4 g a b | f2 a | \break }
    { c4 d e f | c2 d }
  }
  c1
}
```

The musical score consists of six staves, each showing a sequence of notes and rests. The first staff is labeled '1' and the second '2'. The third staff is labeled '3'. The fourth staff is labeled '5' and the fifth '6b'. The sixth staff is labeled '6c'. Each staff shows a sequence of notes and rests, with some staves having repeat signs and first/second endings.

## Analysis brackets above the staff

Simple horizontal analysis brackets are added below the staff by default. The following example shows a way to place them above the staff instead.

```
\layout {
  \context {
    \Voice
    \consists "Horizontal_bracket_engraver"
  }
}
\relative c' {
  \once \override HorizontalBracket #'direction = #UP
  c2\startGroup
  d2\stopGroup
}
```



## Asymmetric slurs

Slurs can be made asymmetric to match an asymmetric pattern of notes better.

```
slurNotes = { d,8( a' d f a f' d, a) }
```

```
\relative c' {
  \stemDown
  \slurUp
  \slurNotes
  \once \override Slur #'eccentricity = #3.0
  \slurNotes
}
```



## Avoiding collisions with chord fingerings

Fingerings and string numbers applied to individual notes will automatically avoid beams and stems, but this is not true by default for fingerings and string numbers applied to the individual notes of chords. The following example shows how this default behavior can be overridden.

```
\relative c' {
  \set fingeringOrientations = #'(up)
  \set stringNumberOrientations = #'(up)
  \set strokeFingerOrientations = #'(up)

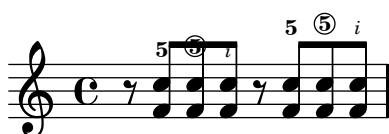
  % Default behavior
  r8
  <f c'-5>8
}
```

```

<f c'\5>8
<f c'\rightHandFinger #2 >8

% Corrected to avoid collisions
r8
\override Fingering #'add-stem-support = ##t
<f c'\5>8
\override StringNumber #'add-stem-support = ##t
<f c'\5>8
\override StrokeFinger #'add-stem-support = ##t
<f c'\rightHandFinger #2 >8
}

```



## Caesura ("railtracks") with fermata

A caesura is sometimes denoted by a double “railtracks” breath mark with a fermata sign positioned above. This snippet shows an optically pleasing combination of railtracks and fermata.

```

\relative c' {
  c2.
  % construct the symbol
  \override BreathingSign #'text = \markup {
    \line {
      \musicglyph #"scripts.caesura.curved"
      \translate #'(-1.75 . 1.6)
      \musicglyph #"scripts.ufermata"
    }
  }
  \breathe c4
  % set the breathe mark back to normal
  \revert BreathingSign #'text
  c2. \breathe c4
  \bar "|"
}

```



## Centering markup on note heads automatically

For technical reasons, text scripts attached to note heads cannot easily be centered on a note head's width, unlike articulations.

Instead of using trial-and-error offset tweaks, this snippet uses a Scheme engraver to reset the horizontal parent of each markup to a `NoteColumn`. This also allows text to follow note heads which have been shifted via `force-hshift`.

```

#(define (Text_align_engraver ctx)
  (let ((scripts '()))

```



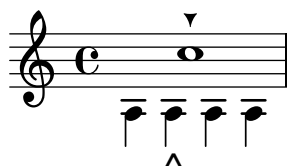
```

      (note-column #f))
(make-engraver
  (acknowledgers
    ((note-column-interface trans grob source)
     ;; cache NoteColumn in this Voice context
     (set! note-column grob))
    ((text-script-interface trans grob source)
     ;; whenever a TextScript is acknowledged,
     ;; add it to `scripts' list
     (set! scripts (cons grob scripts))))
    ((stop-translation-timestep trans)
     ;; if any TextScript grobs exist,
     ;; set NoteColumn as X-parent
     (for-each (lambda (script)
                  (set! (ly:grob-parent script X) note-column))
               scripts)
     ;; clear scripts ready for next timestep
     (set! scripts '())))))

\layout {
  \context {
    \Voice
    \consists #Text_align_engraver
    \override TextScript #'X-offset =
      #ly:self-alignment-interface::aligned-on-x-parent
    \override TextScript #'self-alignment-X = #CENTER
  }
}

\new Staff <<
  \relative c'' {
    \override NoteColumn #'force-hshift = #3
    c1-\markup { \arrow-head #Y #DOWN ##t }
  }
  \\\
  \relative c' {
    a4 a-\markup { \huge ^ } a a
  }
>>

```

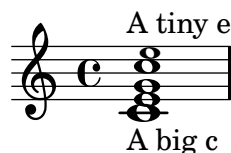


## Changing a single note's size in a chord

Individual note heads in a chord can be modified with the `\tweak` command inside a chord, by altering the `font-size` property.

Inside the chord (within the brackets `< >`), before the note to be altered, place the `\tweak` command, followed by `font-size` and define the proper size like `#-2` (a tiny note head).

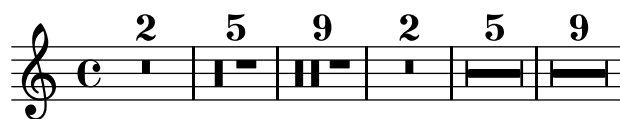
```
\relative c' {
  <\tweak #'font-size #+2 c e g c \tweak #'font-size #-2 e>1^\markup { A tiny e }_\markup {
}
```



## Changing form of multi-measure rests

If there are ten or fewer measures of rests, a series of longa and breve rests (called in German “Kirchenpausen” - church rests) is printed within the staff; otherwise a simple line is shown. This default number of ten may be changed by overriding the `expand-limit` property.

```
\relative c' {
  \compressFullBarRests
  R1*2 | R1*5 | R1*9
  \override MultiMeasureRest #'expand-limit = #3
  R1*2 | R1*5 | R1*9
}
```



## Changing properties for individual grobs

The `\applyOutput` command allows the tuning of any layout object, in any context. It requires a Scheme function with three arguments.

```
#(define (mc-squared grob grob-origin context)
  (let ((sp (ly:grob-property grob 'staff-position)))
    (if (grob::has-interface grob 'note-head-interface)
        (begin
          (ly:grob-set-property! grob 'stencil
            (grob-interpret-markup grob
              (make-lower-markup 0.5
                (case sp
                  ((-5) "m")
                  ((-3) "c ")
                  ((-2) (make-smaller-markup (make-bold-markup "2"))))
                (else "bla"))))))))
```

```
\relative c' {
  <d f g b>2
  \applyOutput #'Voice #mc-squared
  <d f g b>2
}
```



## Changing text and spanner styles for text dynamics

The text used for crescendos and decrescendos can be changed by modifying the context properties `crescendoText` and `decrescendoText`.

The style of the spanner line can be changed by modifying the `'style` property of `DynamicTextSpanner`. The default value is `'dashed-line`, and other possible values include `'line`, `'dotted-line` and `'none`.

```
\relative c'' {
  \set crescendoText = \markup { \italic { cresc. poco } }
  \set crescendoSpanner = #'text
  \override DynamicTextSpanner #'style = #'dotted-line
  a2\< a
  a2 a
  a2 a
  a2 a\mf
}
```



## Changing the default text font family

The default font families for text can be overridden with `make-pango-font-tree`.

```
\paper {
  % change for other default global staff size.
  myStaffSize = #20
  %{
    run
    lilypond -dshow-available-fonts blabla
    to show all fonts available in the process log.
  %}

  #(define fonts
    (make-pango-font-tree "Times New Roman"
                          "Nimbus Sans"
                          "Luxi Mono"
                          "Helvetica"
                          "Courier"
      (/ myStaffSize 20)))
}

\relative c'' {
  c4^\markup {
    roman: foo \bold bla \italic bar \italic \bold baz
  }
  c'4_\markup {
    \override #'(font-family . sans)
    {
      sans: foo \bold bla \italic bar \italic \bold baz
    }
  }
}
```

```

}
c'2^\markup {
  \override #'(font-family . typewriter)
  {
    mono: foo \bold bla \italic bar \italic \bold baz
  }
}
}

```



## Changing the staff size

Though the simplest way to resize staves is to use `#{set-global-staff-size xx}`, an individual staff's size can be changed by scaling the properties `'staff-space` and `fontSize`.

```

<<
  \new Staff {
    \relative c'' {
      \dynamicDown
      c8\ff c c c c c c c
    }
  }
  \new Staff \with {
    fontSize = #-3
    \override StaffSymbol #'staff-space = #(magstep -3)
  } {
    \clef bass
    c8 c c c c\ff c c c
  }
>>

```



## Changing the tempo without a metronome mark

To change the tempo in MIDI output without printing anything, make the metronome mark invisible.

```

\score {
  \new Staff \relative c' {
    \tempo 4 = 160
    c4 e g b
  }
}

```

```

c4 b d c
\set Score.tempoHideNote = ##t
\tempo 4 = 96
d,4 fis a cis
d4 cis e d
}
\layout { }
\midi { }
}

```



## Changing the text for sustain markings

`Staff.pedalSustainStrings` can be used to set the text used for pedal down and up. Note that the only valid strings are those found in the list of pedal glyphs - the values used this snippet constitute an exhaustive list.

```
sustainNotes = { c4\sustainOn d e\sustainOff\sustainOn f\sustainOff }
```

```

\relative c' {
  \sustainNotes
  \set Staff.pedalSustainStrings = #("P" "P-" "-")
  \sustainNotes
  \set Staff.pedalSustainStrings = #("d" "de" "e")
  \sustainNotes
  \set Staff.pedalSustainStrings = #("M" "M-" "-")
  \sustainNotes
  \set Staff.pedalSustainStrings = #("Ped" "*Ped" "*")
  \sustainNotes
}

```



## Controlling spanner visibility after a line break

The visibility of spanners which end on the first note following a line break is controlled by the after-line-breaking callback `ly:spanner::kill-zero-spanned-time`.

For objects such as glissandos and hairpins, the default behaviour is to hide the spanner after a break; disabling the callback will allow the left-broken span to be shown.

Conversely, spanners which are usually visible, such as text spans, can be hidden by enabling the callback.

```

\paper { ragged-right = ##t }

\relative c' {
  \override Hairpin #'to-barline = ##f
  \override Glissando #'breakable = ##t
}

```

```

% show hairpin
\override Hairpin #'after-line-breaking = ##t
% hide text span
\override TextSpanner #'after-line-breaking =
  #ly:spanner::kill-zero-spanned-time
e2\<\startTextSpan
% show glissando
\override Glissando #'after-line-breaking = ##t
f2\glissando
\break
f,1\!\stopTextSpan
}

```



## Controlling the vertical ordering of scripts

The vertical ordering of scripts is controlled with the `'script-priority` property. The lower this number, the closer it will be put to the note. In this example, the `TextScript` (the sharp symbol) first has the lowest priority, so it is put lowest in the first example. In the second, the prall trill (the `Script`) has the lowest, so it is on the inside. When two objects have the same priority, the order in which they are entered determines which one comes first.

```

\relative c'' {
  \once \override TextScript #'script-priority = #-100
  a2^\prall^\markup { \sharp }

  \once \override Script #'script-priority = #-100
  a2^\prall^\markup { \sharp }
}

```



## Controlling tuplet bracket visibility

The default behavior of tuplet-bracket visibility is to print a bracket unless there is a beam of the same length as the tuplet. To control the visibility of tuplet brackets, set the property `'bracket-visibility` to either `#t` (always print a bracket), `#f` (never print a bracket) or `#'if-no-beam` (only print a bracket if there is no beam).

```

music = \relative c'' {
  \times 2/3 { c16[ d e ] f8}
  \times 2/3 { c8 d e }
}

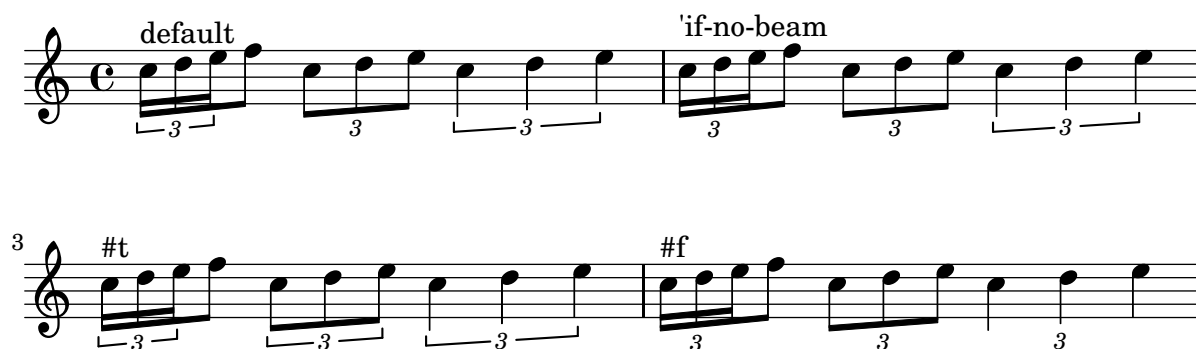
```

```

\times 2/3 { c4 d e }
}

\new Voice {
  \relative c' {
    << \music s4^"default" >>
    \override TupletBracket #'bracket-visibility = #'if-no-beam
    << \music s4^"'if-no-beam" >>
    \override TupletBracket #'bracket-visibility = ##t
    << \music s4^"#t" >>
    \override TupletBracket #'bracket-visibility = ##f
    << \music s4^"#f" >>
  }
}

```



## Creating a delayed turn

Creating a delayed turn, where the lower note of the turn uses the accidental, requires several overrides. The `outside-staff-priority` property must be set to `##f`, as otherwise this would take precedence over the `avoid-slur` property. The value of `halign` is used to position the turn horizontally.

```

\relative c' {
  \once \override TextScript #'avoid-slur = #'inside
  \once \override TextScript #'outside-staff-priority = ##f
  c2(^{\markup \tiny \override #'(baseline-skip . 1) {
    \halign #-4
    \center-column {
      \sharp
      \musicglyph #"scripts.turn"
    }
  })
  d4.) c8
}

```



## Creating double-digit fingerings

By default you cannot make double-digit fingering notation (i.e. numbers larger than 9). This is a hard coded limitation.

This snippet shows two methods of creating fingerings larger than 9.

```
ten =
#(make-music 'FingeringEvent
              'digit 10)

fifty =
#(make-music 'FingeringEvent
              'digit 50)

finger =
#(define-music-function (parser location digit) (integer?)
  (make-music 'FingeringEvent
              'digit digit))

#(define (calc-finger-without-warning grob)
  (let* ((event (event-cause grob))
        (digit (ly:event-property event 'digit)))
    (number->string digit 10)))

\relative c' {
  % optional override to remove warnings for fingerings larger than 5
  \override Fingering #'text = #calc-finger-without-warning
  c1\ten
  c1\fifty
  c1-\finger #36
  c1-\finger #29
}
```



## Creating simultaneous rehearsal marks

Unlike text scripts, rehearsal marks cannot be stacked at a particular point in a score: only one `RehearsalMark` object is created. Using an invisible measure and bar line, an extra rehearsal mark can be added, giving the appearance of two marks in the same column. This method may also prove useful for placing rehearsal marks at both the end of one system and the start of the following system.

```
{
  \key a \major
  \set Score.markFormatter = #format-mark-box-letters
  \once \override Score.RehearsalMark #'outside-staff-priority = #5000
  \once \override Score.RehearsalMark #'self-alignment-X = #LEFT
  \once \override Score.RehearsalMark #'break-align-symbols = #'(key-signature)
  \mark \markup { \bold { Senza denti } }

  % the hidden measure and bar line
```



```
% \cadenzaOn turns off automatic calculation of bar numbers
\cadenzaOn
\once \override Score.TimeSignature #'stencil = ##f
\time 1/16
s16 \bar ""
\cadenzaOff

\time 4/4
\once \override Score.RehearsalMark #'self-alignment-X = #LEFT
\mark \markup { \box \bold Intro }
d'1
\mark \default
d'1
}
```



## Creating text spanners

The `\startTextSpan` and `\stopTextSpan` commands allow the creation of text spanners as easily as pedal indications or octavations. Override some properties of the `TextSpanner` object to modify its output.

```
\paper { ragged-right = ##f }

\relative c'' {
  \override TextSpanner #'(bound-details left text) = #"bla"
  \override TextSpanner #'(bound-details right text) = #"blu"
  a4 \startTextSpan
  b4 c
  a4 \stopTextSpan

  \override TextSpanner #'style = #'line
  \once \override TextSpanner
    #'(bound-details left stencil-align-dir-y) = #CENTER
  a4 \startTextSpan
  b4 c
  a4 \stopTextSpan

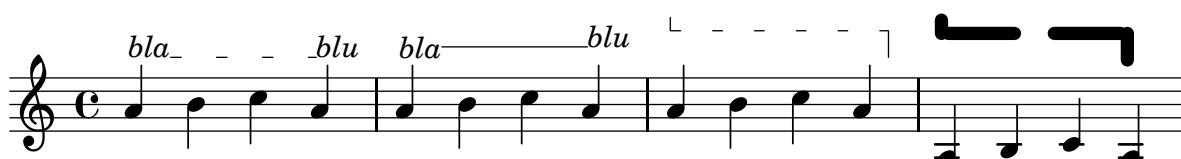
  \override TextSpanner #'style = #'dashed-line
  \override TextSpanner #'(bound-details left text) =
    \markup { \draw-line #'(0 . 1) }
  \override TextSpanner #'(bound-details right text) =
    \markup { \draw-line #'(0 . -2) }
  \once \override TextSpanner #'(bound-details right padding) = #-2

  a4 \startTextSpan
  b4 c
  a4 \stopTextSpan
}
```

```

\set Staff.middleCPosition = #-13
\override TextSpanner #'dash-period = #10
\override TextSpanner #'dash-fraction = #0.5
\override TextSpanner #'thickness = #10
a4 \startTextSpan
b4 c
a4 \stopTextSpan
}

```



## Cross-staff chords - beaming problems workaround

Sometimes it is better to use stems from the upper staff for creating cross-staff chords, because no problems with automatic beam collision avoidance then arise. If the stems from the lower staff were used in the following example, it would be necessary to change the automatic beam collision avoidance settings so that it doesn't detect collisions between staves using `\override Staff.Beam #'collision-voice-only = ##t`

```

\new PianoStaff <<
  \new Staff = up
    \relative c' {
      <<
        { r4
          \override Stem #'cross-staff = ##t
          \override Stem #'length = #19 % this is in half-spaces,
            % so it makes stems 9.5 staffspaces long
          \override Stem #'Y-offset = #-6 % stems are normally lengthened
            % upwards, so here we must lower the stem by the amount
            % equal to the lengthening - in this case (19 - 7) / 2
            % (7 is default stem length)
          e e e }
        { s4
          \change Staff = "bottom"
          \override NoteColumn #'ignore-collision = ##t
          c, c c
        }
      >>
    }
  >>
}
\new Staff = bottom
  \relative c' {
    \clef bass
    \voiceOne
    g8 a g a g a g a
  }
>>

```

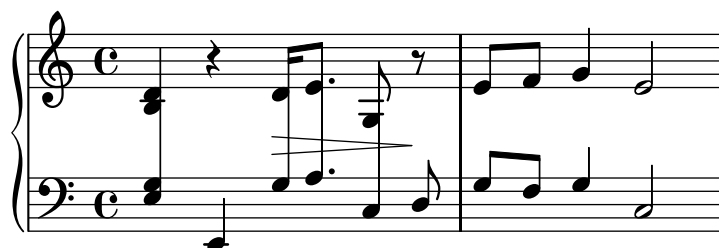


## Cross staff stems

This snippet shows the use of the `Span_stem_engraver` and `\crossStaff` to connect stems across staves automatically. The stem length need not be specified, as the variable distance between noteheads and staves is calculated automatically.

```
\layout {
  \context {
    \PianoStaff
    \consists #Span_stem_engraver
  }
}

{
  \new PianoStaff <<
    \new Staff {
      <b d'>4 r d'16\> e'8. g8 r\!
      e'8 f' g'4 e'2
    }
    \new Staff {
      \clef bass
      \voiceOne
      \autoBeamOff
      \crossStaff { <e g>4 e, g16 a8. c8} d
      \autoBeamOn
      g8 f g4 c2
    }
  }
  >>
}
```



## Custodes

Custodes may be engraved in various styles.

```
\layout { ragged-right = ##t }

\new Staff \with { \consists "Custos_engraver" } \relative c' {
  \override Staff.Custos #'neutral-position = #4

  \override Staff.Custos #'style = #'hufnagel
  c1^"hufnagel" \break
  <d a' f'>1
}
```

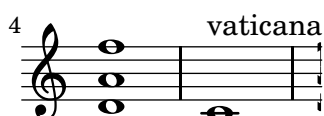
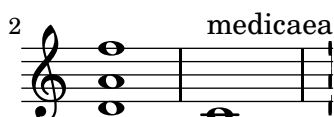
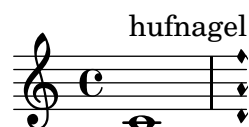
```

\override Staff.Custos #'style = #'medicaea
c1^"medicaea" \break
<d a' f'>1

\override Staff.Custos #'style = #'vaticana
c1^"vaticana" \break
<d a' f'>1

\override Staff.Custos #'style = #'mensural
c1^"mensural" \break
<d a' f'>1
}

```



## 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' }
                        #guitar-tuning
                        #"x;1-1-(;3-2;3-3;3-4;1-1-);"

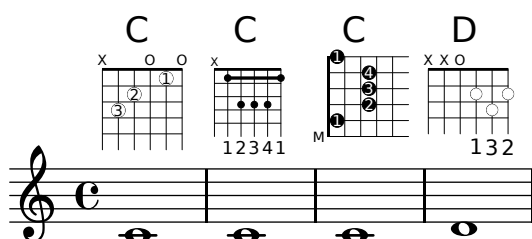
<<
  \new ChordNames {
    \chordmode { c1 | c | c | d }
  }
  \new FretBoards {
    % Set global properties of fret diagram

```

```

\override FretBoards.FretBoard #'size = #'1.2
\override FretBoard
  #'(fret-diagram-details finger-code) = #'in-dot
\override FretBoard
  #'(fret-diagram-details dot-color) = #'white
\chordmode {
  c
  \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
  c'
  \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
  c'
  \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
  d
}
}
\new Voice {
  c'1 | 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 guitar, no barre, using defaults
  % terse style
  c'1^\markup { \fret-diagram-terse #"x;3-3;2-2;o;1-1;o;" }

  %% 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))
        }
      }
    }
  }

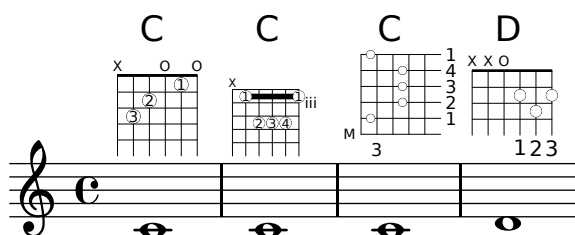
  %% C major for guitar, barred on third fret
  % verbose style
  % landscape orientation, arabic numbers, M for mute string
  % no barre, fret label down or left, small mute label font
  c'1^\markup {
    \override #'(fret-diagram-details . (
      (finger-code . below-string)
      (number-type . arabic)
      (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 . (
    (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;"
  }
}
}
>>

```



## Display bracket with only one staff in a system

If there is only one staff in one of the staff types **ChoirStaff** or **StaffGroup**, the bracket and the starting bar line will not be displayed as standard behavior. This can be changed by overriding the relevant properties.

Note that in contexts such as **PianoStaff** and **GrandStaff** where the systems begin with a brace instead of a bracket, another property has to be set, as shown on the second system in the example.

```

\markup \left-column {
  \score {
    \new StaffGroup <<
      % Must be lower than the actual number of staff lines
      \override StaffGroup.SystemStartBracket #'collapse-height = #1
      \override Score.SystemStartBar #'collapse-height = #1

```

```

    \new Staff {
      c'1
    }
  >>
  \layout { }
}
\null
\score {
  \new PianoStaff <<
    \override PianoStaff.SystemStartBrace #'collapse-height = #1
    \override Score.SystemStartBar #'collapse-height = #1
    \new Staff {
      c'1
    }
  >>
  \layout { }
}
}

```



## Displaying grob ancestry

When working with grob callbacks, it can be helpful to understand a grob’s “ancestry”. Most grobs have “parents” which influence the positioning of the grob. X- and Y-parents influence the horizontal and vertical positions for the grob, respectively. Additionally, each parent may have parents of its own.

Unfortunately, there are several aspects of a grob’s ancestry that can lead to confusion:

- \* The types of parents a grob has may depend on context.
- \* For some grobs, the X- and Y-parents are the same.
- \* A particular “ancestor” may be related to a grob in multiple ways.
- \* The concept of “generations” is misleading.

For example, the `System` grob can be both parent (on the Y-side) and grandparent (twice on the X-side) to a `VerticalAlignment` grob.

This macro prints (to the console) a textual representation of a grob’s ancestry.

When called this way

```
{ \once \override NoteHead #'before-line-breaking = #display-ancestry c }
```

The following output is generated:

---

```
NoteHead X,Y: NoteColumn X: PaperColumn X,Y: System Y: VerticalAxisGroup X: NonMusicalPaperColumn X,Y: System Y: VerticalAlignment X: NonMusicalPaperColumn X,Y: System Y: System
```

```

#(define (grob-name grob)
  (if (ly:grob? grob)
      (assoc-ref (ly:grob-property grob 'meta) 'name)

```



```

    #f))

#(define (get-ancestry grob)
  (if (not (null? (ly:grob-parent grob X)))
      (list (grob-name grob)
            (get-ancestry (ly:grob-parent grob X))
            (get-ancestry (ly:grob-parent grob Y)))
      (grob-name grob)))

#(define (format-ancestry lst padding)
  (string-append
    (symbol->string (car lst))
    "\n"
    (let ((X-ancestry
          (if (list? (cadr lst))
              (format-ancestry (cadr lst) (+ padding 3))
              (symbol->string (cadr lst))))
          (Y-ancestry
          (if (list? (caddr lst))
              (format-ancestry (caddr lst) (+ padding 3))
              (symbol->string (caddr lst))))))
    (if (equal? X-ancestry Y-ancestry)
        (string-append
          (format #f "~&")
          (make-string padding #\space)
          "X,Y: "
          (if (list? (cadr lst))
              (format-ancestry (cadr lst) (+ padding 5))
              (symbol->string (cadr lst))))
        (string-append
          (format #f "~&")
          (make-string padding #\space)
          "X: " X-ancestry
          "\n"
          (make-string padding #\space)
          "Y: " Y-ancestry
          (format #f "~&"))))
    (format #f "~&")))

#(define (display-ancestry grob)
  (format (current-error-port)
    "~3&~a~2%~a~&"
    (make-string 36 #\-)
    (format-ancestry (get-ancestry grob) 0)))

\relative c' {
  \once \override NoteHead #'before-line-breaking = #display-ancestry
  f4
  \once \override Accidental #'before-line-breaking = #display-ancestry
  \once \override Arpeggio #'before-line-breaking = #display-ancestry
  <f as c>4\arpeggio
}
```



## Dotted harmonics

Artificial harmonics using `\harmonic` do not show dots. To override this behavior, set the context property `harmonicDots`.

```
\relative c' {} {
  \time 3/4
  \key f \major
  \set harmonicDots = ##t
  <bes f'\harmonic>2. ~
  <bes f'\harmonic>4. <a e'\harmonic>8( <gis dis'\harmonic> <g d'\harmonic>)
  <fis cis'\harmonic>2.
  <bes f'\harmonic>2.
}
```



## Drawing boxes around grobs

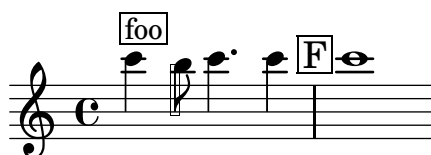
The `print`-function can be overridden to draw a box around an arbitrary grob.

```
\relative c' {} {
  \override TextScript #'stencil =
    #(make-stencil-boxer 0.1 0.3 ly:text-interface::print)
  c'4~"foo"

  \override Stem #'stencil =
    #(make-stencil-boxer 0.05 0.25 ly:stem::print)
  \override Score.RehearsalMark #'stencil =
    #(make-stencil-boxer 0.15 0.3 ly:text-interface::print)
  b8

  \revert Stem #'stencil

  \revert Flag #'stencil
  c4. c4
  \mark "F"
  c1
}
```



## Drawing circles around various objects

The `\circle` markup command draws circles around various objects, for example fingering indications. For other objects, specific tweaks may be required: this example demonstrates two strategies for rehearsal marks and measure numbers.



## Dynamics text spanner postfix

Custom text spanners can be defined and used with hairpin and text crescendos. `\<` and `\>` produce hairpins by default, `\cresc` etc. produce text spanners by default.

% Some sample text dynamic spanners, to be used as postfix operators

```
crpoco =
#(make-music 'CrescendoEvent
      'span-direction START
      'span-type 'text
      'span-text "cresc. poco a poco")
```

```
\relative c' {
  c4\cresc d4 e4 f4 |
  g4 a4\! b4\crpoco c4 |
  c4 d4 e4 f4 |
  g4 a4\! b4\< c4 |
  g4\dim a4 b4\decresc c4\!
}
```



## Fine-tuning pedal brackets

The appearance of pedal brackets may be altered in different ways.

```
\paper { ragged-right = ##f }
\relative c' {
  c2\sostenutoOn c
  c2\sostenutoOff c
  \once \override Staff.PianoPedalBracket #'shorten-pair = #'(-7 . -2)
  c2\sostenutoOn c
  c2\sostenutoOff c
  \once \override Staff.PianoPedalBracket #'edge-height = #'(0 . 3)
  c2\sostenutoOn c
  c2\sostenutoOff c
}
```



## Forcing horizontal shift of notes

When the typesetting engine cannot cope, the following syntax can be used to override typesetting decisions. The units of measure used here are staff spaces.

```
\relative c' <<
{
  <d g>2 <d g>
}
```

```

\\
{
  <b f'>2
  \once \override NoteColumn #'force-hshift = #1.7
  <b f'>2
}
>>

```



## Fret diagrams explained and developed

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

```

<<
\chords {
  a2 a
  \repeat unfold 3 {
    c c c d d
  }
}

\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 #'(fret-diagram-details . (
      (string-count . 4)
      (dot-color . white)
      (finger-code . in-dot))) {
      \fret-diagram #"4-2-2;3-1-1;2-o;1-o;"
    }
  }

  %% 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-o;1-o;"
    }
  }
}

```

```

%% 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 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^\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 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 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^\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)
    (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 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)

```

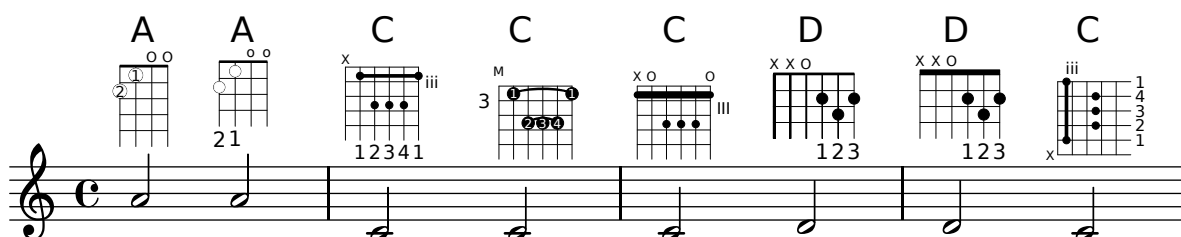
```

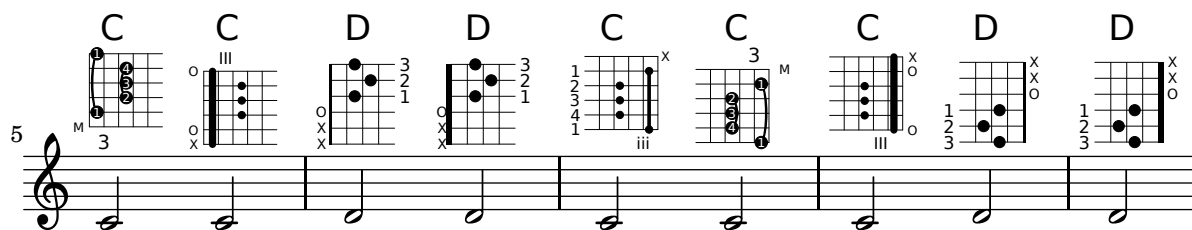
        (fret-label-vertical-offset . 0.5)
        (xo-font-magnification . 0.4)
        (xo-padding . 0.3))) {
\fret-diagram-verbose #'((mute 6)
                        (capo 3)
                        (open 5)
                        (place-fret 4 5 1)
                        (place-fret 3 5 2)
                        (place-fret 2 5 3)
                        (open 1))
    }
  }
}

%% simple D chord
d'2^\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)
    (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;"
  }
}
}
}
>>

```





## Generating custom flags

The `stencil` property of the `Flag` grob can be set to a custom scheme function to generate the glyph for the flag.

```
#(define-public (weight-flag grob)
  (let* ((stem-grob (ly:grob-parent grob X))
         (log (- (ly:grob-property stem-grob 'duration-log) 2))
         (is-up? (eqv? (ly:grob-property stem-grob 'direction) UP))
         (yext (if is-up? (cons (* log -0.8) 0) (cons 0 (* log 0.8))))
         (flag-stencil (make-filled-box-stencil '(-0.4 . 0.4) yext))
         (stroke-style (ly:grob-property grob 'stroke-style))
         (stroke-stencil (if (equal? stroke-style "grace")
                              (make-line-stencil 0.2 -0.9 -0.4 0.9 -0.4)
                              empty-stencil)))
    (ly:stencil-add flag-stencil stroke-stencil)))

% Create a flag stencil by looking up the glyph from the font
#(define (inverted-flag grob)
  (let* ((stem-grob (ly:grob-parent grob X))
         (dir (if (eqv? (ly:grob-property stem-grob 'direction) UP) "d" "u"))
         (flag (retrieve-glyph-flag "" dir "" grob))
         (line-thickness (ly:staff-symbol-line-thickness grob))
         (stem-thickness (ly:grob-property stem-grob 'thickness))
         (stem-width (* line-thickness stem-thickness))
         (stroke-style (ly:grob-property grob 'stroke-style))
         (stencil (if (null? stroke-style)
                      flag
                      (add-stroke-glyph flag stem-grob dir stroke-style "")))
         (rotated-flag (ly:stencil-rotate-absolute stencil 180 0 0)))
    (ly:stencil-translate rotated-flag (cons (- (/ stem-width 2)) 0))))
```

```
snippetexamplenotes = { \autoBeamOff c'8 d'16 c'32 d'64 \acciaccatura {c'8} d'64 }■
```

```
{
  \override Score.RehearsalMark #'self-alignment-X = #LEFT
  \time 1/4
  \mark "Normal flags"
  \snippetexamplenotes

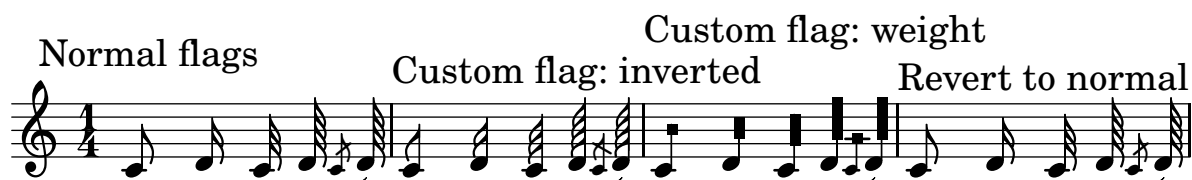
  \mark "Custom flag: inverted"
  \override Flag #'stencil = #inverted-flag
  \snippetexamplenotes

  \mark "Custom flag: weight"
  \override Flag #'stencil = #weight-flag
  \snippetexamplenotes
```

```

\mark "Revert to normal"
\revert Flag #'stencil
\snippetexamplenotes
}

```



## Glissandi can skip grobs

NoteColumn grobs can be skipped over by glissandi.

```

\relative c' {
  a2 \glissando
  \once \override NoteColumn #'glissando-skip = ##t
  f''4 d,
}

```



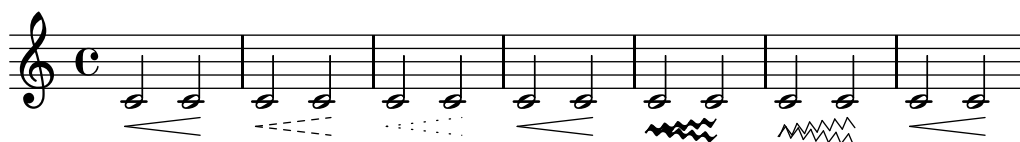
## Hairpins with different line styles

Hairpins can take any style from `line-interface` - dashed-line, dotted-line, line, trill or zigzag.

```

\relative c' {
  c2\< c\!
  \override Hairpin #'style = #'dashed-line
  c2\< c\!
  \override Hairpin #'style = #'dotted-line
  c2\< c\!
  \override Hairpin #'style = #'line
  c2\< c\!
  \override Hairpin #'style = #'trill
  c2\< c\!
  \override Hairpin #'style = #'zigzag
  c2\< c\!
  \revert Hairpin #'style
  c2\< c\!
}

```



## Horizontally aligning custom dynamics (e.g. "sempre pp" "piu f" "subito p")

Some dynamic expressions involve additional text, like “sempre pp”. Since dynamics are usually centered under the note, the \pp would be displayed way after the note it applies to.

To correctly align the “sempre pp” horizontally, so that it is aligned as if it were only the \pp, there are several approaches:

- \* Simply use `\once\override DynamicText #'X-offset = #-9.2` before the note with the dynamics to manually shift it to the correct position. Drawback: This has to be done manually each time you use that dynamic markup... \* Add some padding (`#:hspace 7.1`) into the definition of your custom dynamic mark, so that after Lilypond center-aligns it, it is already correctly aligned. Drawback: The padding really takes up that space and does not allow any other markup or dynamics to be shown in that position.

- \* Shift the dynamic script `\once\override ... #'X-offset = ...` Drawback: `\once\override` is needed for every invocation!

- \* Set the dimensions of the additional text to 0 (using `#:with-dimensions '(0 . 0) '(0 . 0)`). Drawback: To LilyPond “sempre” has no extent, so it might put other stuff there and create collisions (which are not detected by the collision detection!). Also, there seems to be some spacing, so it’s not exactly the same alignment as without the additional text

- \* Add an explicit shifting directly inside the scheme function for the dynamic-script.

- \* Set an explicit alignment inside the dynamic-script. By default, this won’t have any effect, only if one sets X-offset! Drawback: One needs to set `DynamicText #'X-offset`, which will apply to all dynamic texts! Also, it is aligned at the right edge of the additional text, not at the center of pp.

```
\header { title = "Horizontally aligning custom dynamics" }
```

```
\paper { ragged-right = ##f }
```

```
% Solution 1: Using a simple markup with a particular halign value
% Drawback: It's a markup, not a dynamic command, so \dynamicDown
%           etc. will have no effect
semppMarkup = \markup { \halign #1.4 \italic "sempre" \dynamic "pp" }
```

```
% Solution 2: Using a dynamic script & shifting with
%           \once \override ... #'X-offset = ..
% Drawback: \once \override needed for every invocation
semppK =
#(make-dynamic-script
  (markup #:line
    (#:normal-text
      #:italic "sempre"
      #:dynamic "pp"))))
```

```
% Solution 3: Padding the dynamic script so the center-alignment
%           puts it at the correct position
% Drawback: the padding really reserves the space, nothing else can be there
semppT =
#(make-dynamic-script
  (markup #:line
    (#:normal-text
      #:italic "sempre"
      #:dynamic "pp")))
```

```

#:hspace 7.1)))

% Solution 4: Dynamic, setting the dimensions of the additional text to 0
% Drawback: To lilypond "sempre" has no extent, so it might put
%           other stuff there => collisions
% Drawback: Also, there seems to be some spacing, so it's not exactly the
%           same alignment as without the additional text
semppM =
#(make-dynamic-script
  (markup #:line
    (#:with-dimensions '(0 . 0) '(0 . 0)
      #:right-align
      #:normal-text
      #:italic "sempre"
      #:dynamic "pp"))))

% Solution 5: Dynamic with explicit shifting inside the scheme function
semppG =
#(make-dynamic-script
  (markup #:hspace 0
    #:translate '(-18.85 . 0)
    #:line (#:normal-text
      #:italic "sempre"
      #:dynamic "pp"))))

% Solution 6: Dynamic with explicit alignment. This has only effect
%           if one sets X-offset!
% Drawback: One needs to set DynamicText #'X-offset!
% Drawback: Aligned at the right edge of the additional text,
%           not at the center of pp
semppMII =
#(make-dynamic-script
  (markup #:line (#:right-align
    #:normal-text
    #:italic "sempre"
    #:dynamic "pp"))))

\context StaffGroup <<
  \context Staff = "s" <<
    \set Staff.instrumentName = #"Normal"
    \relative c'' {
      \key es \major
      c4\pp c\p c c | c\ff c c\pp c
    }
  >>
  \context Staff = "sMarkup" <<
    \set Staff.instrumentName = \markup \column { Normal markup }
    \relative c'' {
      \key es \major
      c4-\semppMarkup c\p c c | c\ff c c-\semppMarkup c
    }
  >>

```

```

\context Staff = "sK" <<
  \set Staff.instrumentName = \markup \column { Explicit shifting }
  \relative c'' {
    \key es \major
    \once \override DynamicText #'X-offset = #-9.2
    c4\semppK c\p c c
    c4\ff c
    \once \override DynamicText #'X-offset = #-9.2
    c4\semppK c
  }
>>
\context Staff = "sT" <<
  \set Staff.instrumentName = \markup \column { Right padding }
  \relative c'' {
    \key es \major
    c4\semppT c\p c c | c\ff c c\semppT c
  }
>>
\context Staff = "sM" <<
  \set Staff.instrumentName = \markup \column { Setting dimension "to zero" }
  \relative c'' {
    \key es \major
    c4\semppM c\p c c | c\ff c c\semppM c
  }
>>
\context Staff = "sG" <<
  \set Staff.instrumentName = \markup \column { Shifting inside dynamics }
  \relative c'' {
    \key es \major
    c4\semppG c\p c c | c\ff c c\semppG c
  }
>>
\context Staff = "sMII" <<
  \set Staff.instrumentName = \markup \column { Alignment inside dynamics }
  \relative c'' {
    \key es \major
    % Setting to ##f (false) gives the same result
    \override DynamicText #'X-offset = #0
    c4\semppMII c\p c c | c\ff c c\semppMII c
  }
>>
>>

```

## Horizontally aligning custom dynamics



Normal

Normal markup

Explicit shifting

Right padding

Setting dimension to zero

Shifting inside dynamics

Alignment inside dynamics

## 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 rhythmic 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;" } b4. a8\break
% 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;" }
}
>>
}
>>
}

```

## How to print two rehearsal marks above and below the same barline (method 1)

This method prints two 'rehearsal marks', one on top of the other. It shifts the lower rehearsal mark below the staff and then adds padding above it in order to place the upper rehearsal mark above the staff.

By adjusting the extra-offset and baseline-skip values you can increase or decrease the overall space between the rehearsal mark and the staff.

Because nearly every type of glyph or string can be made to behave like a rehearsal mark it is possible to centre those above and below a bar line.

Adding the appropriate 'break visibility' as shown in snippet 1 will allow you to position two marks at the end of a line as well.

Note: Method 1 is less complex than Method 2 but does not really allow for fine tuning of placement of one of the rehearsal marks without affecting the other. It may also give some problems with vertical spacing, since using `extra-offset` does not change the bounding box of the mark from its original value.

```

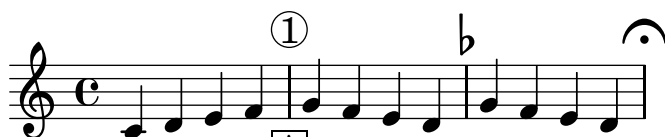
\relative c'{
  c d e f |
  \once \override Score.RehearsalMark #'extra-offset = #'(0 . -8.5)
  \once \override Score.RehearsalMark #'baseline-skip = #9
  \mark \markup \center-column { \circle 1 \box A }
}

```

```

g f e d |
\once \override Score.RehearsalMark #'extra-offset = #'(0 . -8.5)
\once \override Score.RehearsalMark #'baseline-skip = #9
\mark \markup \center-column { \flat { \bold \small \italic Fine. } }
g f e d |
\once \override Score.RehearsalMark #'extra-offset = #'(0 . -8.5)
\once \override Score.RehearsalMark #'baseline-skip = #9
\override Score.RehearsalMark #'break-visibility = #begin-of-line-invisible
\mark \markup \center-column { \musicglyph #"scripts.ufermata" \box z }
}

```



## How to print two rehearsal marks above and below the same barline (method 2)

This method prints two 'rehearsal marks' - one above the stave and one below, by creating two voices, adding the Rehearsal Mark engraver to each voice - without this no rehearsal mark is printed - and then placing each rehearsal mark UP and DOWN in each voice respectively.

This method (as opposed to method 1) is more complex, but allows for more flexibility, should it be needed to tweak each rehearsal mark independently of the other.

```

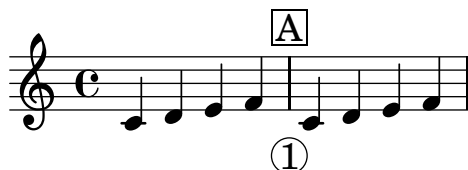
\score {
  \relative c'
  <<
    \new Staff {
      <<
        \new Voice \with {
          \consists "Mark_engraver"
          \consists "Staff_collecting_engraver"
        }
        { c4 d e f
          \mark \markup { \box A }
          c4 d e f
        }
        \new Voice \with {
          \consists "Mark_engraver"
          \consists "Staff_collecting_engraver"
          \override RehearsalMark #'direction = #DOWN
        }
        { s4 s s s
          \mark \markup { \circle 1 }
          s4 s s s
        }
      >>
    }
  >>
}
>>

```

```

\layout {
  \context {
    \Score
    \remove "Mark_engraver"
    \remove "Staff_collecting_engraver"
  }
}

```



## Inserting a caesura

Caesura marks can be created by overriding the 'text property of the `BreathingSign` object. A curved caesura mark is also available.

```

\relative c' {
  \override BreathingSign #'text = \markup {
    \musicglyph #"scripts.caesura.straight"
  }
  c8 e4. \breathe g8. e16 c4

  \override BreathingSign #'text = \markup {
    \musicglyph #"scripts.caesura.curved"
  }
  g8 e'4. \breathe g8. e16 c4
}

```



## Keep change clefs full sized

When a clef is changed, the clef sign displayed is smaller than the initial clef. This can be overridden with `full-size-change`.

```

\relative c' {
  \clef "treble"
  c1
  \clef "bass"
  c1
  \clef "treble"
  c1
  \override Staff.Clef #'full-size-change = ##t
  \clef "bass"
  c1
  \clef "treble"
  c1
  \revert Staff.Clef #'full-size-change
}

```

```

\clef "bass"
c1
\clef "treble"
c1
}

```



## Line arrows

Arrows can be applied to text-spanners and line-spanners (such as the Glissando).

```

\relative c' {
  \override TextSpanner #'bound-padding = #1.0
  \override TextSpanner #'style = #'line
  \override TextSpanner #'(bound-details right arrow) = ##t
  \override TextSpanner #'(bound-details left text) = #"fof"
  \override TextSpanner #'(bound-details right text) = #"gag"
  \override TextSpanner #'(bound-details right padding) = #0.6

  \override TextSpanner #'(bound-details right stencil-align-dir-y) = #CENTER
  \override TextSpanner #'(bound-details left stencil-align-dir-y) = #CENTER

  \override Glissando #'(bound-details right arrow) = ##t
  \override Glissando #'arrow-length = #0.5
  \override Glissando #'arrow-width = #0.25

  a8\startTextSpan gis a4 b\glissando b,
  g'4 c\stopTextSpan c2
}

```



## Making an object invisible with the 'transparent property

Setting the `transparent` property will cause an object to be printed in “invisible ink”: the object is not printed, but all its other behavior is retained. The object still takes up space, it takes part in collisions, and slurs, ties and beams can be attached to it.

This snippet demonstrates how to connect different voices using ties. Normally, ties only connect two notes in the same voice. By introducing a tie in a different voice, and blanking the first up-stem in that voice, the tie appears to cross voices.

```

\relative c' {
  \time 2/4
  <<
  {
    \once \override Stem #'transparent = ##t
    \once \override Stem #'length = #8
    b8 ~ b\noBeam
  }
}

```

```

\once \override Stem #'transparent = ##t
\once \override Stem #'length = #8
g8 ~ g\noBeam
}
\\
{
  b8 g g e
}
>>
}

```



## Manually controlling beam positions

Beam positions may be controlled manually, by overriding the `positions` setting of the `Beam` grob.

```

\relative c' {
  \time 2/4
  % from upper staff-line (position 2) to center (position 0)
  \override Beam #'positions = #'(2 . 0)
  c8 c
  % from center to one above center (position 1)
  \override Beam #'positions = #'(0 . 1)
  c8 c
}

```



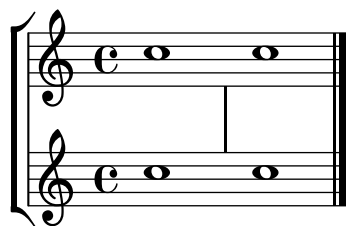
## Mensurstriche layout (bar lines between the staves)

The mensurstriche-layout where the bar lines do not show on the staves but between staves can be achieved with a `StaffGroup` instead of a `ChoirStaff`. The bar line on staves is blanked out by setting the `transparent` property.

```

global = {
  \override Staff.BarLine #'transparent = ##t
  s1 s
  % the final bar line is not interrupted
  \revert Staff.BarLine #'transparent
  \bar "|."
}
\new StaffGroup \relative c'' {
  <<
    \new Staff { << \global { c1 c } >> }
    \new Staff { << \global { c c } >> }
  >>
}

```



## Moving dotted notes in polyphony

When a dotted note in the upper voice is moved to avoid a collision with a note in another voice, the default is to move the upper note to the right. This behaviour can be over-ridden by using the `prefer-dotted-right` property of `NoteCollision`.

```
\new Staff \relative c' <<
{ f2. f4
  \override Staff.NoteCollision #'prefer-dotted-right = ##f
  f2. f4
  \override Staff.NoteCollision #'prefer-dotted-right = ##t
  f2. f4
}
\\
{ e4 e e e e e e e e e e }
>>
```



## Moving slur positions vertically

The vertical position of a slur can be adjusted using the `positions` property of `Slur`. The property has 2 parameters, the first referring to the left end of the slur and the second to the right. The values of the parameters are not used by LilyPond to make an exact movement of the slur - instead it selects what placement of the slur looks best, taking into account the parameter values. Positive values move the slur up, and are appropriate for notes with stems down. Negative values move downward slurs further down.

```
\relative c' {
  \stemDown
  e4( a)
  \override Slur #'positions = #'(1 . 1)
  e4( a)
  \override Slur #'positions = #'(2 . 2)
  e4( a)
  \override Slur #'positions = #'(3 . 3)
  e4( a)
  \override Slur #'positions = #'(4 . 4)
  e4( a)
  \override Slur #'positions = #'(5 . 5)
  e4( a)
  \override Slur #'positions = #'(0 . 5)
  e4( a)
  \override Slur #'positions = #'(5 . 0)
  e4( a)
  \stemUp
  \override Slur #'positions = #'(-5 . -5)
```

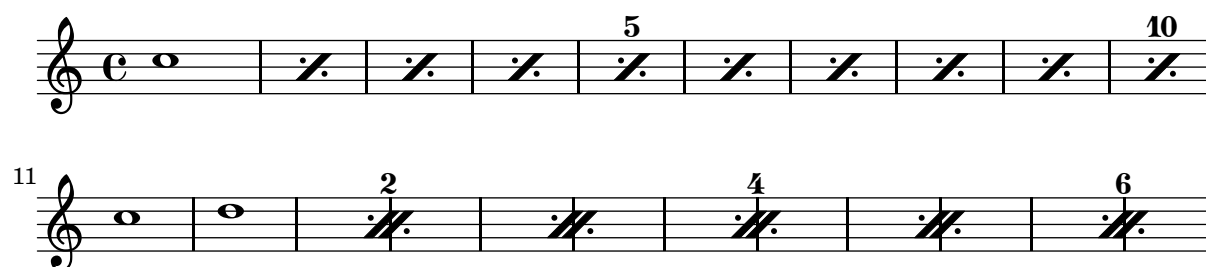




## Percent repeat count visibility

Percent repeat counters can be shown at regular intervals by setting the context property `repeatCountVisibility`.

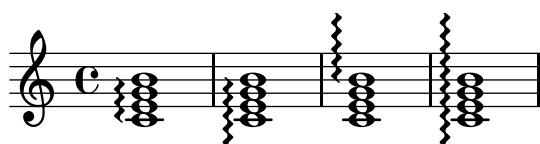
```
\relative c' {
  \set countPercentRepeats = ##t
  \set repeatCountVisibility = #(every-nth-repeat-count-visible 5)
  \repeat percent 10 { c1 } \break
  \set repeatCountVisibility = #(every-nth-repeat-count-visible 2)
  \repeat percent 6 { c1 d1 }
}
```



## Positioning arpeggios

If you need to extend or shorten an arpeggio, you can modify the upper and lower start positions independently.

```
\relative c' {
  <c e g b>1\arpeggio
  \once \override Arpeggio #'positions = #'(-5 . 0)
  <c e g b>1\arpeggio
  \once \override Arpeggio #'positions = #(0 . 5)
  <c e g b>1\arpeggio
  \once \override Arpeggio #'positions = #'(-5 . 5)
  <c e g b>1\arpeggio
}
```



## Positioning multi-measure rests

Unlike ordinary rests, there is no predefined command to change the staff position of a multi-measure rest symbol of either form by attaching it to a note. However, in polyphonic music multi-measure rests in odd-numbered and even-numbered voices are vertically separated. The positioning of multi-measure rests can be controlled as follows:

```
\relative c' {
  % Multi-measure rests by default are set under the fourth line
  R1
  % They can be moved using an override
  \override MultiMeasureRest #'staff-position = #-2
  R1
  \override MultiMeasureRest #'staff-position = #0
}
```

```

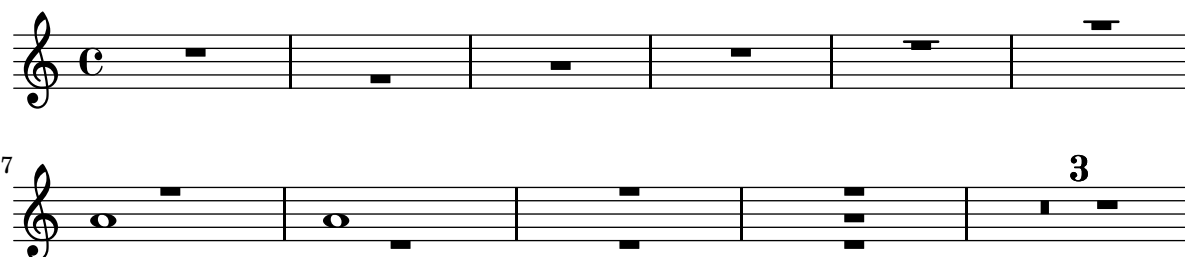
R1
\override MultiMeasureRest #'staff-position = #2
R1
\override MultiMeasureRest #'staff-position = #3
R1
\override MultiMeasureRest #'staff-position = #6
R1
\revert MultiMeasureRest #'staff-position
\break

% In two Voices, odd-numbered voices are under the top line
<< { R1 } \\\ { a1 } >>
% Even-numbered voices are under the bottom line
<< { a1 } \\\ { R1 } >>
% Multi-measure rests in both voices remain separate
<< { R1 } \\\ { R1 } >>

% Separating multi-measure rests in more than two voices
% requires an override
<< { R1 } \\\ { R1 } \\\
  \once \override MultiMeasureRest #'staff-position = #0
  { R1 }
>>

% Using compressed bars in multiple voices requires another override
% in all voices to avoid multiple instances being printed
\compressFullBarRests
<<
  \revert MultiMeasureRest #'staff-position
  { R1*3 }
  \\\
  \revert MultiMeasureRest #'staff-position
  { R1*3 }
>>
}

```



## Positioning text markups inside slurs

Text markups need to have the `outside-staff-priority` property set to false in order to be printed inside slurs.

```

\relative c'' {
  \override TextScript #'avoid-slur = #'inside
  \override TextScript #'outside-staff-priority = ##f
  c2(^\markup { \halign #-10 \natural } d4.) c8
}

```

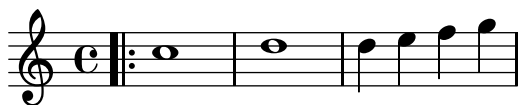
}



## Printing a repeat sign at the beginning of a piece

A |: bar line can be printed at the beginning of a piece, by overriding the relevant property:

```
\relative c' {
  \once \override Score.BreakAlignment #'break-align-orders =
    #(make-vector 3 '(instrument-name
                      left-edge
                      ambitus
                      breathing-sign
                      clef
                      key-signature
                      time-signature
                      staff-bar
                      custos))
  \once \override Staff.TimeSignature #'space-alist =
    #'((first-note . (fixed-space . 2.0))
       (right-edge . (extra-space . 0.5))
       ;; free up some space between time signature
       ;; and repeat bar line
       (staff-bar . (extra-space . 1)))
  \bar "|:"
  c1
  d1
  d4 e f g
}
```



## Printing bar numbers inside boxes or circles

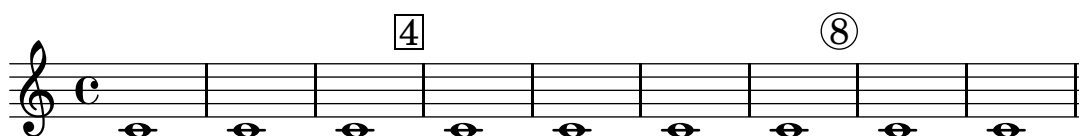
Bar numbers can also be printed inside boxes or circles.

```
\relative c' {
  % Prevent bar numbers at the end of a line and permit them elsewhere
  \override Score.BarNumber #'break-visibility = #end-of-line-invisible
  \set Score.barNumberVisibility = #(every-nth-bar-number-visible 4)

  % Increase the size of the bar number by 2
  \override Score.BarNumber #'font-size = #2

  % Draw a box round the following bar number(s)
  \override Score.BarNumber #'stencil
    = #(make-stencil-boxer 0.1 0.25 ly:text-interface::print)
  \repeat unfold 5 { c1 }
```

```
% Draw a circle round the following bar number(s)
\override Score.BarNumber #'stencil
  = #(make-stencil-circler 0.1 0.25 ly:text-interface::print)
\repeat unfold 4 { c1 } \bar "|."
}
```



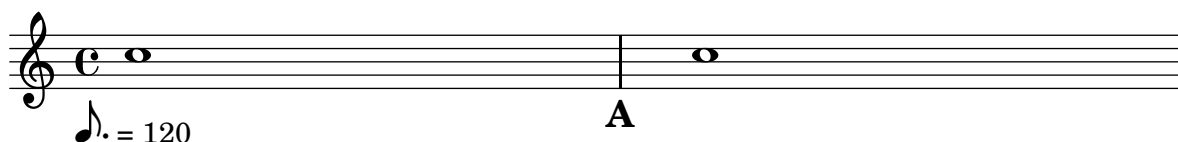
## Printing metronome and rehearsal marks below the staff

By default, metronome and rehearsal marks are printed above the staff. To place them below the staff simply set the `direction` property of `MetronomeMark` or `RehearsalMark` appropriately.

```
\layout { ragged-right = ##f }

{
  % Metronome marks below the staff
  \override Score.MetronomeMark #'direction = #DOWN
  \tempo 8. = 120
  c''1

  % Rehearsal marks below the staff
  \override Score.RehearsalMark #'direction = #DOWN
  \mark \default
  c''1
}
```



## Printing note names with and without an octave marker

The `NoteNames` context can be used to print the text value of notes. The `printOctaveNames` property turns on or off the representation of the octave of the note.

```
scale = \relative c' {
  a4 b c d
  e4 f g a
}

\new Staff {
  <<
    \scale
    \context NoteNames {
      \set printOctaveNames = ##f
      \scale
    }
  >>
```

```

R1
<<
  \scale
  \context NoteNames {
    \set printOctaveNames = ##t
    \scale
  }
>>
}

```



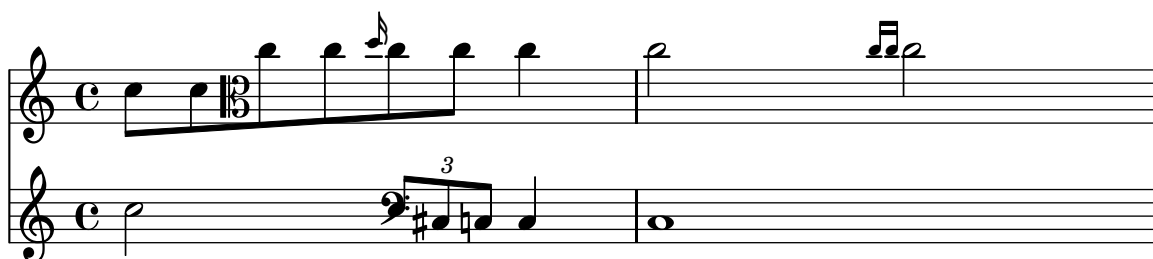
## Proportional strict notespacing

If `strict-note-spacing` is set spacing of notes is not influenced by bars or clefs within a system. Rather, they are placed just before the note that occurs at the same time. This may cause collisions.

```

\relative c' <<
  \override Score.SpacingSpanner #'strict-note-spacing = ##t
  \set Score.proportionalNotationDuration = #(ly:make-moment 1 16)
  \new Staff {
    c8[ c \clef alto c c \grace { d16 } c8 c] c4
    c2 \grace { c16[ c16] } c2
  }
  \new Staff {
    c2 \times 2/3 { c8 \clef bass cis,, c } c4
    c1
  }
>>

```



## Removing connecting bar lines on StaffGroup PianoStaff or GrandStaff

By default, bar lines in `StaffGroup`, `PianoStaff`, or `GrandStaff` groups are connected between the staves. This behaviour can be overridden on a staff-by-staff basis.

```

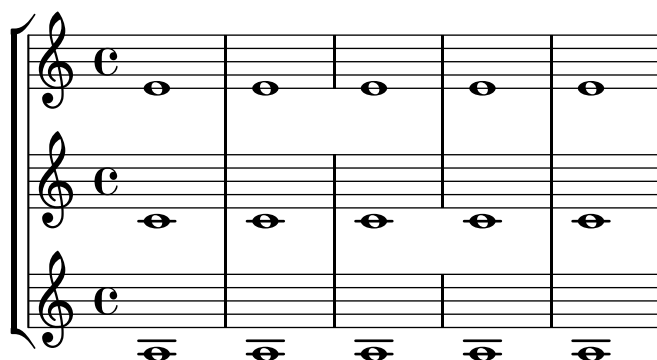
\relative c' {
  \new StaffGroup <<
    \new Staff {
      e1 | e
      \once \override Staff.BarLine #'allow-span-bar = ##f
    }
  >>
}

```

```

    e1 | e | e
  }
  \new Staff {
    c1 | c | c
    \once \override Staff.BarLine #'allow-span-bar = ##f
    c1 | c
  }
  \new Staff {
    a1 | a | a | a | a
  }
  >>
}

```



## Removing the first empty line

The first empty staff can also be removed from the score by setting the `VerticalAxisGroup` property `remove-first`. This can be done globally inside the `\layout` block, or locally inside the specific staff that should be removed. In the latter case, you have to specify the context (`Staff` applies only to the current staff) in front of the property.

The lower staff of the second staff group is not removed, because the setting applies only to the specific staff inside of which it is written.

```

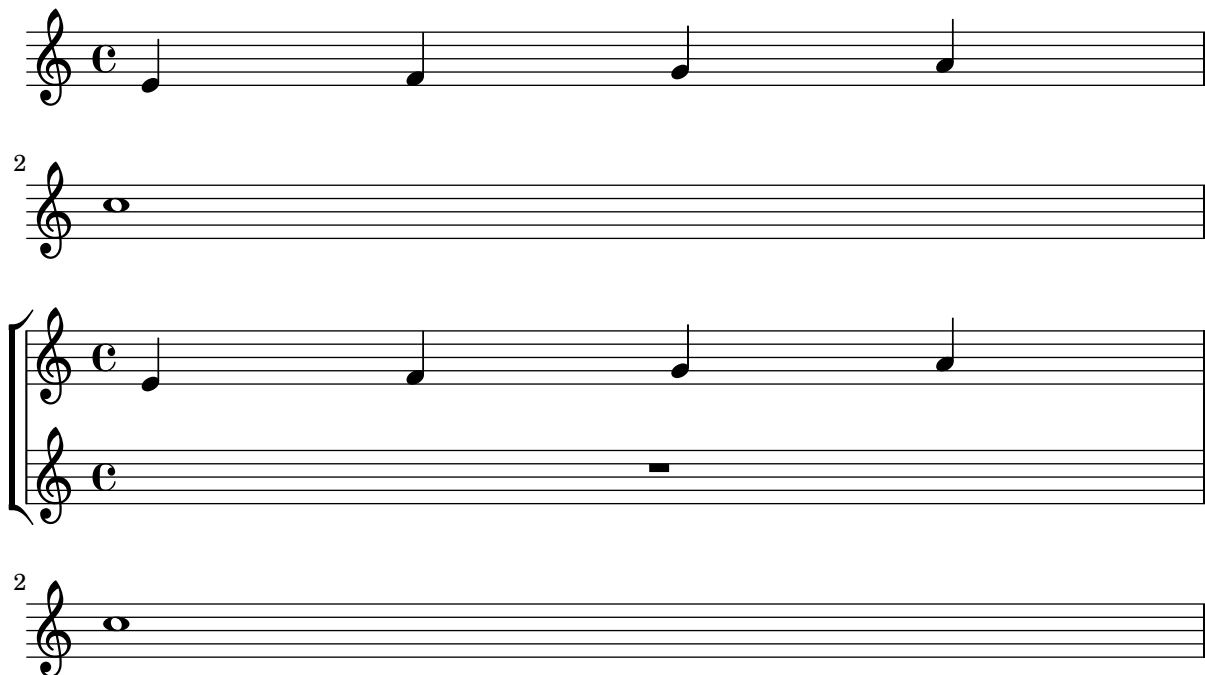
\layout {
  \context {
    \Staff \RemoveEmptyStaves
    % To use the setting globally, uncomment the following line:
    % \override VerticalAxisGroup #'remove-first = ##t
  }
}
\new StaffGroup <<
  \new Staff \relative c' {
    e4 f g a \break
    c1
  }
  \new Staff {
    % To use the setting globally, comment this line,
    % uncomment the line in the \layout block above
    \override Staff.VerticalAxisGroup #'remove-first = ##t
    R1 \break
    R
  }
  >>

```

```

\new StaffGroup <<
  \new Staff \relative c' {
    e4 f g a \break
    c1
  }
  \new Staff {
    R1 \break
    R
  }
>>

```



## Rest styles

Rests may be used in various styles.

```

\layout {
  indent = 0
  \context {
    \Staff
    \remove "Time_signature_engraver"
  }
}

\new Staff \relative c {
  \cadenzaOn
  \override Staff.Rest #'style = #'mensural
  r\maxima^ \markup \typewriter { mensural }
  r\longa r\breve r1 r2 r4 r8 r16 s32 s64 s128 s128
  \bar ""

  \override Staff.Rest #'style = #'neomensural
  r\maxima^ \markup \typewriter { neomensural }
  r\longa r\breve r1 r2 r4 r8 r16 s32 s64 s128 s128

```

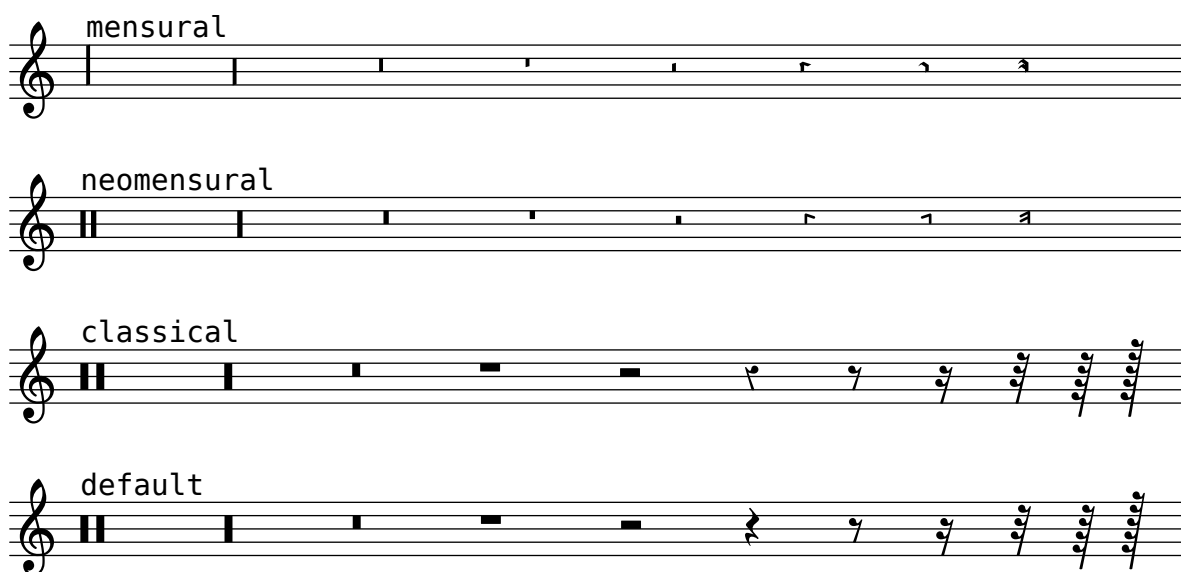
```

\bar ""

\override Staff.Rest #'style = #'classical
r\maxima^markup \typewriter { classical }
r\longa r\breve r1 r2 r4 r8 r16 r32 r64 r128 s128
\bar ""

\override Staff.Rest #'style = #'default
r\maxima^markup \typewriter { default }
r\longa r\breve r1 r2 r4 r8 r16 r32 r64 r128 s128
}

```



## Rhythmic slashes

In “simple” lead-sheets, sometimes no actual notes are written, instead only “rhythmic patterns” and chords above the measures are notated giving the structure of a song. Such a feature is for example useful while creating/transcribing the structure of a song and also when sharing lead sheets with guitarists or jazz musicians. The standard support for this using `\repeat percent` is unsuitable here since the first beat has to be an ordinary note or rest. This example shows two solutions to this problem, by redefining ordinary rests to be printed as slashes. (If the duration of each beat is not a quarter note, replace the `r4` in the definitions with a rest of the appropriate duration).

```

% Macro to print single slash
rs = {
  \once \override Rest #'stencil = #ly:percent-repeat-item-interface::beat-slash
  \once \override Rest #'thickness = #0.48
  \once \override Rest #'slope = #1.7
  r4
}

% Function to print a specified number of slashes
comp = #(define-music-function (parser location count) (integer?)
  #{
    \override Rest #'stencil = #ly:percent-repeat-item-interface::beat-slash
    \override Rest #'thickness = #0.48

```



```

\override Rest #'slope = #1.7
\repeat unfold $count { r4 }
\revert Rest #'stencil
#}
)

\score {
  \relative c' {
    c4 d e f |
    \rs \rs \rs \rs |
    \comp #4 |
  }
}

```



## Separating key cancellations from key signature changes

By default, the accidentals used for key cancellations are placed adjacent to those for key signature changes. This behavior can be changed by overriding the 'break-align-orders property of the `BreakAlignment` grob.

The value of 'break-align-orders is a vector of length 3, with quoted lists of breakable items as elements. This example only modifies the second list, moving `key-cancellation` before `staff-bar`; by modifying the second list, break alignment behavior only changes in the middle of a system, not at the beginning or the end.

```

\new Staff {
  \override Score.BreakAlignment #'break-align-orders =
    #'#((left-edge ambitus breathing-sign clef staff-bar
        key-cancellation key-signature time-signature custos)

        (left-edge ambitus breathing-sign clef key-cancellation
        staff-bar key-signature time-signature custos)

        (left-edge ambitus breathing-sign clef key-cancellation
        key-signature staff-bar time-signature custos))

  \key des \major
  c'1
  \bar "||"
  \key bes \major
  c'1
}

```



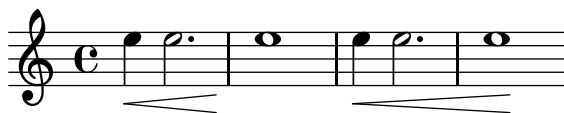
## Setting hairpin behavior at bar lines

If the note which ends a hairpin falls on a downbeat, the hairpin stops at the bar line immediately preceding. This behavior can be controlled by overriding the 'to-barline property.

```

\relative c' {
  e4\< e2.
  e1\!
  \override Hairpin #'to-barline = ##f
  e4\< e2.
  e1\!
}

```



## Setting system separators

System separators can be inserted between systems. Any markup can be used, but `\slashSeparator` has been provided as a sensible default.

```

\paper {
  system-separator-markup = \slashSeparator
}

notes = \relative c' {
  c1 | c \break
  c1 | c \break
  c1 | c
}

\book {
  \score {
    \new GrandStaff <<
      \new Staff \notes
      \new Staff \notes
    >>
  }
}

```

The image displays three systems of musical notation, each consisting of a grand staff (treble and bass clef) and a repeat sign. The first system has a common time signature 'C'. The second system has a '3' indicating a triplet. The third system has a '5' indicating a quintuplet. Each system shows two measures of music with whole notes.

System 1: Common time signature 'C'. The first measure contains a whole note in the treble clef (middle C) and a whole note in the bass clef (two ledger lines below). The second measure contains a whole note in the treble clef (middle C) and a whole note in the bass clef (two ledger lines below).

System 2: Triplet indication '3'. The first measure contains a whole note in the treble clef (middle C) and a whole note in the bass clef (two ledger lines below). The second measure contains a whole note in the treble clef (middle C) and a whole note in the bass clef (two ledger lines below).

System 3: Quintuplet indication '5'. The first measure contains a whole note in the treble clef (middle C) and a whole note in the bass clef (two ledger lines below). The second measure contains a whole note in the treble clef (middle C) and a whole note in the bass clef (two ledger lines below).

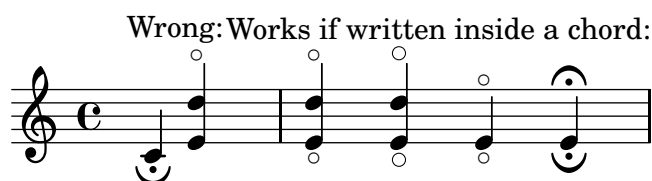
## Showing the same articulation above and below a note or chord

By default, LilyPond does not allow the same articulation (e.g., an accent, a fermata, a flageolet, etc.) to be displayed above and below a note. For example, `c4_\fermata^\fermata` will only show a fermata below. The fermata above will simply be ignored. However, one can stick scripts (just like fingerings) inside a chord, which means it is possible to have as many articulations as desired. This approach has the advantage that it ignores the stem and positions the articulation relative to the note head. This can be seen in the case of the flageolets in the snippet. To mimic the behaviour of scripts outside a chord, 'add-stem-support would be required. So, the solution is to write the note as a chord and add the articulations inside the `<...>`. The direction will always be above, but one can tweak this via a `\tweak`: `<c-\tweak #'direction #DOWN-\fermata^\fermata>`

```
% The same as \flageolet, just a little smaller
smallFlageolet =
#(let ((m (make-articulation "flageolet")))
  (set! (ly:music-property m 'tweaks)
    (acons 'font-size -2
      (ly:music-property m 'tweaks)))
  m)

\relative c' {
  s4^"Wrong:"
  c4_\fermata^\fermata % The second fermata is ignored!
  <e d'>4\smallFlageolet_\smallFlageolet

  s4^"Works if written inside a chord:"
  <e_\smallFlageolet d'^\smallFlageolet>4
  <e_\flageolet d'^\flageolet>4
  <e_\smallFlageolet^\smallFlageolet>4
  <e_\fermata^\fermata>4
}
```

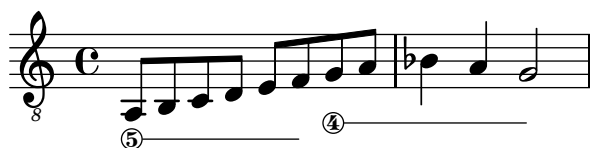


## String number extender lines

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?)
  #{
    \override TextSpanner #'style = #'solid
    \override TextSpanner #'font-size = #-5
    \override TextSpanner #'(bound-details left stencil-align-dir-y) = #CENTER
    \override TextSpanner #'(bound-details left text) = \markup { \circle \number #StringNumber }
  })
```

```
\relative c {
  \clef "treble_8"
  \stringNumberSpanner "5"
  \textSpannerDown
  a8\startTextSpan
  b c d e f\stopTextSpan
  \stringNumberSpanner "4"
  g\startTextSpan a
  bes4 a g2\stopTextSpan
}
```



## Suppressing warnings for clashing note columns

If notes from two voices with stems in the same direction are placed at the same position, and both voices have no shift or the same shift specified, the error message ‘warning: ignoring too many clashing note columns’ will appear when compiling the LilyPond file. This message can be suppressed by setting the 'ignore-collision' property of the `NoteColumn` object to `#t`. Please note that this does not just suppress warnings but stops LilyPond trying to resolve collisions at all and so may have unintended results unless used with care.

```
ignore = \override NoteColumn #'ignore-collision = ##t
```

```
\relative c' {
  <<
    \ignore
    { \stemDown f2 g }
    \
    { c2 c, }
  >>
}
```



## Time signature in parentheses - method 3

Another way to put the time signature in parenthesis

```
\relative c' {
  \override Staff.TimeSignature #'stencil = #(lambda (grob)
    (parenthesize-stencil (ly:time-signature::print grob) 0.1 0.4 0.4 0.1 ))
  \time 2/4
  a4 b8 c
}
```



## Time signature in parentheses

The time signature can be enclosed within parentheses.

```
\relative c'' {
  \override Staff.TimeSignature #'stencil = #(lambda (grob)
    (bracketify-stencil (ly:time-signature::print grob) Y 0.1 0.2 0.1))
  \time 2/4
  a4 b8 c
}
```



Time signature printing only the numerator as a number  
(instead of the fraction)

Sometimes, a time signature should not print the whole fraction (e.g. 7/4), but only the numerator (7 in this case). This can be easily done by using `\override Staff.TimeSignature #'style = #'single-digit` to change the style permanently. By using `\revert Staff.TimeSignature #'style`, this setting can be reversed. To apply the single-digit style to only one time signature, use the `\override` command and prefix it with a `\once`.

```
\relative c'' {
  \time 3/4
  c4 c c
  % Change the style permanently
  \override Staff.TimeSignature #'style = #'single-digit
  \time 2/4
  c4 c
  \time 3/4
  c4 c c
  % Revert to default style:
  \revert Staff.TimeSignature #'style
  \time 2/4
  c4 c
  % single-digit style only for the next time signature
  \once \override Staff.TimeSignature #'style = #'single-digit
  \time 5/4
  c4 c c c c
  \time 2/4
  c4 c
}
```



# Transcription of Ancient music with incipit

As a workaround to get real incipits which are independent from the main score these are included as a markup into the field normally used for the instrument name. As for now lyrics can only be added as a direct markup. It doesn't unfortunately conform with the spacing of the main lyrics.

```

global = {
  \set Score.skipBars = ##t
  \key g \major
  \time 4/4
  %make the staff lines invisible on staves
  \override Staff.BarLine #'transparent = ##t
  \skip 1*8 % the actual music
  % let finis bar go through all staves
  \override Staff.BarLine #'transparent = ##f
  % finis bar
  \bar "|."
}

discantusNotes = {
  \transpose c' c'' {
    \clef treble
    d'2. d'4 |
    b e' d'2 |
    c'4 e'4.( d'8 c' b |
    a4) b a2 |
    b4.( c'8 d'4) c'4 |
    \once \override NoteHead #'transparent = ##t c'1 |
    b\breve |
  }
}

discantusLyrics = \lyricmode {
  Ju -- bi -- |
  la -- te De -- |
  o, om --
  nis ter -- |
  ra, __ om- |
  "... " |
  -us. |
}

altusNotes = {
  \transpose c' c'' {
    \clef treble
    r2 g2. e4 fis g | % two bars
    a2 g4 e |
    fis g4.( fis16 e fis4) |
    g1 |
    \once \override NoteHead #'transparent = ##t g1 |
    g\breve |
  }
}

altusLyrics = \lyricmode {
  Ju -- bi -- la -- te | % two bars
  De -- o, om -- |
  nis ter -- ra, |

```

```

    "... " |
    -us. |
}

tenorNotes = {
  \transpose c' c' {
    \clef "treble_8"
    R1 |
    R1 |
    R1 |
    r2 d'2. d'4 b e' | % two bars
    \once \override NoteHead #'transparent = ##t e'1 |
    d'\breve |
  }
}

tenorLyrics = \lyricmode {
  Ju -- bi -- la -- te | % two bars
  "... " |
  -us.
}

bassusNotes = {
  \transpose c' c' {
    \clef bass
    R1 |
    R1 |
    R1 |
    R1 |
    g2. e4 |
    \once \override NoteHead #'transparent = ##t e1 |
    g\breve |
  }
}

bassusLyrics = \lyricmode {
  Ju -- bi- |
  "... " |
  -us.
}

incipitDiscantus = \markup {
  \score {
    {
      \set Staff.instrumentName = #"Discantus "
      \override NoteHead #'style = #'neomensural
      \override Rest #'style = #'neomensural
      \override Staff.TimeSignature #'style = #'neomensural
      \cadenzaOn
      \clef "neomensural-c1"
      \key f \major
      \time 2/2
    }
  }
}

```



```

        c'1._"IV-" s2 %two bars
        \skip 1*8 % eight bars
    }
    \layout {
        \context {
            \Voice
            \remove "Ligature_bracket_engraver"
            \consists "Mensural_ligature_engraver"
        }
        line-width = 4.5\cm
    }
}

incipitAltus = \markup {
    \score {
        {
            \set Staff.instrumentName = #"Altus "
            \override NoteHead #'style = #'neomensural
            \override Rest #'style = #'neomensural
            \override Staff.TimeSignature #'style = #'neomensural
            \cadenzaOn
            \clef "neomensural-c3"
            \key f \major
            \time 2/2
            r1          % one bar
            f'1._"IV-" s2  % two bars
            \skip 1*7 % seven bars
        }
        \layout {
            \context {
                \Voice
                \remove "Ligature_bracket_engraver"
                \consists "Mensural_ligature_engraver"
            }
            line-width = 4.5\cm
        }
    }
}

incipitTenor = \markup {
    \score {
        {
            \set Staff.instrumentName = #"Tenor "
            \override NoteHead #'style = #'neomensural
            \override Rest #'style = #'neomensural
            \override Staff.TimeSignature #'style = #'neomensural
            \cadenzaOn
            \clef "neomensural-c4"
            \key f \major
            \time 2/2
            r\longa % four bars

```

```

    r\breve    % two bars
    r1        % one bar
    c'1._"IV-" s2    % two bars
    \skip 1    % one bar
  }
  \layout {
    \context {
      \Voice
      \remove "Ligature_bracket_engraver"
      \consists "Mensural_ligature_engraver"
    }
    line-width = 4.5\cm
  }
}

incipitBassus = \markup {
  \score {
    {
      \set Staff.instrumentName = #"Bassus  "
      \override NoteHead #'style = #'neomensural
      \override Rest #'style = #'neomensural
      \override Staff.TimeSignature #'style = #'neomensural
      \cadenzaOn
      \clef "bass"
      \key f \major
      \time 2/2
      % incipit
      r\maxima % eight bars
      f1._"IV-" s2    % two bars
    }
    \layout {
      \context {
        \Voice
        \remove "Ligature_bracket_engraver"
        \consists "Mensural_ligature_engraver"
      }
      line-width = 4.5\cm
    }
  }
}

%StaffGroup is used instead of ChoirStaff to get bar lines between systems
\score {
  <<
    \new StaffGroup = choirStaff <<
      \new Voice = "discantusNotes" <<
        \global
        \set Staff.instrumentName = \incipitDiscantus
        \discantusNotes
      >>
      \new Lyrics = "discantusLyrics" \lyricsto discantusNotes { \discantusLyrics }

```

```

\new Voice = "altusNotes" <<
  \global
  \set Staff.instrumentName = \incipitAltus
  \altusNotes
>>
\new Lyrics = "altusLyrics" \lyricsto altusNotes { \altusLyrics }

\new Voice = "tenorNotes" <<
  \global
  \set Staff.instrumentName = \incipitTenor
  \tenorNotes
>>
\new Lyrics = "tenorLyrics" \lyricsto tenorNotes { \tenorLyrics }

\new Voice = "bassusNotes" <<
  \global
  \set Staff.instrumentName = \incipitBassus
  \bassusNotes
>>
>>
\new Lyrics = "bassusLyrics" \lyricsto bassusNotes { \bassusLyrics }
%Keep the bass lyrics outside of the staff group to avoid bar lines
%between the lyrics.
>>

\layout {
  \context {
    \Score
    % no bars in staves
    \override BarLine #'transparent = ##t
  }
  % the next three instructions keep the lyrics between the bar lines
  \context {
    \Lyrics
    \consists "Bar_engraver"
    \override BarLine #'transparent = ##t
  }
  \context {
    \StaffGroup
    \consists "Separating_line_group_engraver"
  }
  \context {
    \Voice
    % no slurs
    \override Slur #'transparent = ##t
    % Comment in the below "\remove" command to allow line
    % breaking also at those barlines where a note overlaps
    % into the next bar. The command is commented out in this
    % short example score, but especially for large scores, you
    % will typically yield better line breaking and thus improve
    % overall spacing if you comment in the following command.

```

```

        %\remove "Forbid_line_break_engraver"
    }
    indent = 5\cm
}
}

```

Discantus

Altus

Tenor

Bassus

IV-

IV-

IV-

IV-

Ju - bi - la - te De - o, om -

Ju - bi - la - te De - o, om -

8

IV-

IV-

IV-

IV-

4

- nis ter - ra, om- ... -us.

nis ter - ra, ... -us.

8

Ju - bi - la - te ... -us.

Ju - bi - ... -us.

## Tweaking clef properties

The command `\clef "treble_8"` is equivalent to setting `clefGlyph`, `clefPosition` (which controls the vertical position of the clef), `middleCPosition` and `clefOctavation`. A clef is printed when any of the properties except `middleCPosition` are changed.

Note that changing the glyph, the position of the clef, or the octavation does not in itself change the position of subsequent notes on the staff: the position of middle C must also be specified to do this. The positional parameters are relative to the staff center line, positive numbers displacing upwards, counting one for each line and space. The `clefOctavation` value would normally be set to 7, -7, 15 or -15, but other values are valid.

When a clef change takes place at a line break the new clef symbol is printed at both the end of the previous line and the beginning of the new line by default. If the warning clef at the end of the previous line is not required it can be suppressed by setting the **Staff** property `explicitClefVisibility` to the value `end-of-line-invisible`. The default behavior can be recovered with `\unset Staff.explicitClefVisibility`.

The following examples show the possibilities when setting these properties manually. On the first line, the manual changes preserve the standard relative positioning of clefs and notes, whereas on the second line, they do not.

```
\layout { ragged-right = ##t }

{
  % The default treble clef
  c'1
  % The standard bass clef
  \set Staff.clefGlyph = #"clefs.F"
  \set Staff.clefPosition = #2
  \set Staff.middleCPosition = #6
  c'1
  % The baritone clef
  \set Staff.clefGlyph = #"clefs.C"
  \set Staff.clefPosition = #4
  \set Staff.middleCPosition = #4
  c'1
  % The standard choral tenor clef
  \set Staff.clefGlyph = #"clefs.G"
  \set Staff.clefPosition = #-2
  \set Staff.clefOctavation = #-7
  \set Staff.middleCPosition = #1
  c'1
  % A non-standard clef
  \set Staff.clefPosition = #0
  \set Staff.clefOctavation = #0
  \set Staff.middleCPosition = #-4
  c'1 \break

  % The following clef changes do not preserve
  % the normal relationship between notes and clefs:

  \set Staff.clefGlyph = #"clefs.F"
  \set Staff.clefPosition = #2
  c'1
  \set Staff.clefGlyph = #"clefs.G"
  c'1
  \set Staff.clefGlyph = #"clefs.C"
  c'1
  \set Staff.clefOctavation = #7
  c'1
  \set Staff.clefOctavation = #0
  \set Staff.clefPosition = #0
  c'1

  % Return to the normal clef:

  \set Staff.middleCPosition = #0
  c'1
}
```



## Tweaking grace layout within music

The layout of grace expressions can be changed throughout the music using the functions `add-grace-property` and `remove-grace-property`. The following example undefines the `Stem` direction for this grace, so that stems do not always point up, and changes the default note heads to crosses.

```
\relative c' {
  \new Staff {
    $(remove-grace-property 'Voice 'Stem 'direction)
    $(add-grace-property 'Voice 'NoteHead 'style 'cross)
    \new Voice {
      \acciaccatura { f16 } g4
      \grace { d16[ e] } f4
      \appoggiatura { f,32[ g a] } e2
    }
  }
}
```



## Using alternative flag styles

Alternative styles of flag on eighth and shorter notes can be displayed by overriding the `stencil` property of `Flag`. Valid values are `modern-straight-flag` and `old-straight-flag`.

```
testnotes = {
  \autoBeamOff
  c8 d16 c32 d64 \acciaccatura { c8 } d64 r4
}

\relative c' {
  \time 2/4
  \testnotes

  \override Flag #'stencil = #modern-straight-flag
  \testnotes

  \override Flag #'stencil = #old-straight-flag
  \testnotes

  \revert Flag #'stencil
  \testnotes
}
```



## Using ly:grob-object to access grobs with \tweak

Some grobs can be accessed “laterally” from within another grob’s callback. These are usually listed as “layout objects” in the “Internal properties” section of a grob-interface. The function `ly:grob-object` is used to access these grobs.

Demonstrated below are some ways of accessing grobs from within a `NoteHead` callback, but the technique is not limited to `NoteHeads`. However, the `NoteHead` callback is particularly important, since it is the implicit callback used by the `\tweak` command.

The example function defined below (“display-grobs”) is probably not that useful, but it demonstrates that the grobs are indeed being accessed.

Example console output:

```

----- #-Grob Accidental - #-Grob Arpeggio - #-Grob Stem -
#(define (notehead-get-accidental notehead)
  ;; notehead is grob
  (ly:grob-object notehead 'accidental-grob))

#(define (notehead-get-arpeggio notehead)
  ;; notehead is grob
  (let ((notecolumn (notehead-get-notecolumn notehead)))
    (ly:grob-object notecolumn 'arpeggio)))

#(define (notehead-get-notecolumn notehead)
  ;; notehead is grob
  (ly:grob-parent notehead X))

#(define (notehead-get-stem notehead)
  ;; notehead is grob
  (let ((notecolumn (notehead-get-notecolumn notehead)))
    (ly:grob-object notecolumn 'stem)))

#(define (display-grobs notehead)
  ;; notehead is grob
  (let ((accidental (notehead-get-accidental notehead))
        (arpeggio (notehead-get-arpeggio notehead))
        (stem (notehead-get-stem notehead)))
    (format (current-error-port) "~2&~a\n" (make-string 20 #\ -))
    (for-each
     (lambda (x) (format (current-error-port) "~a\n" x))
     (list accidental arpeggio stem))))

\relative c' {
  %% display grobs for each note head:
  %%\override NoteHead #'before-line-breaking = #display-grobs
  <c

```

```

%% or just for one:
\tweak #'before-line-breaking #display-grobs
es
g>1\arpeggio
}

```



## Using PostScript to generate special note head shapes

When a note head with a special shape cannot easily be generated with graphic markup, PostScript code can be used to generate the shape. This example shows how a parallelogram-shaped note head is generated.

```

parallelogram =
  #(ly:make-stencil (list 'embedded-ps
    "gsave
      currentpoint translate
      newpath
      0 0.25 moveto
      1.3125 0.75 lineto
      1.3125 -0.25 lineto
      0 -0.75 lineto
      closepath
      fill
      grestore" )
    (cons 0 1.3125)
    (cons -.75 .75))

myNoteHeads = \override NoteHead #'stencil = \parallelogram
normalNoteHeads = \revert NoteHead #'stencil

\relative c' {
  \myNoteHeads
  g4 d'
  \normalNoteHeads
  <f, \tweak #'stencil \parallelogram b e>4 d
}

```



## Using the \tweak command to tweak individual grobs

With the \tweak command, every grob can be tuned directly. Here are some examples of available tweaks.

```

\relative c' {
  \time 2/4
  \set fingeringOrientations = #'(right)
  <

```



```

\tweak #'font-size #3 c
\tweak #'color #red d-\tweak #'font-size #8 -4
\tweak #'style #'cross g
\tweak #'duration-log #2 a
>2
}

```



## Vertically aligned dynamics and textscripts

By setting the 'Y-extent property to a suitable value, all `DynamicLineSpanner` objects (hairpins and dynamic texts) can be aligned to a common reference point, regardless of their actual extent. This way, every element will be vertically aligned, thus producing a more pleasing output.

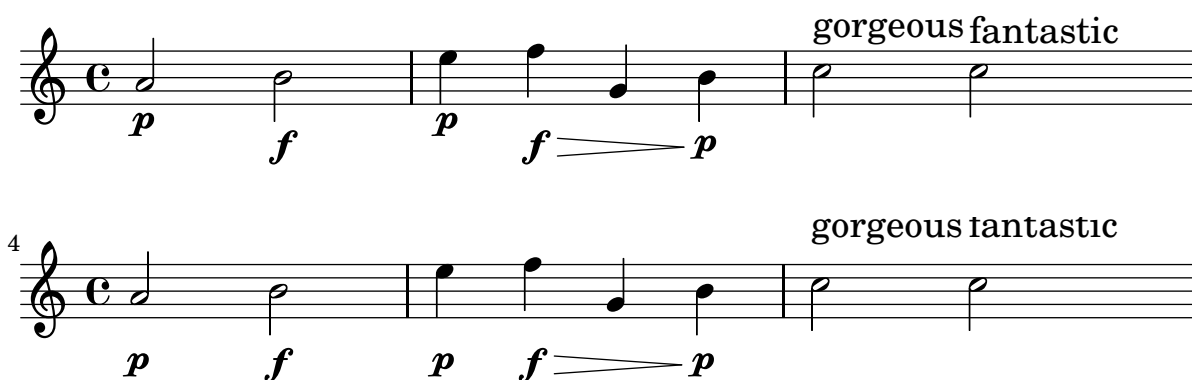
The same idea is used to align the text scripts along their baseline.

```

music = \relative c' {
  a'2\p b\f
  e4\p f\f\> g, b\p
  c2^\markup { \huge gorgeous } c^\markup { \huge fantastic }
}

{
  \music
  \break
  \override DynamicLineSpanner #'staff-padding = #2.0
  \override DynamicLineSpanner #'Y-extent = #'(-1.5 . 1.5)
  \override TextScript #'Y-extent = #'(-1.5 . 1.5)
  \music
}

```



## Vertically aligning ossias and lyrics

This snippet demonstrates the use of the context properties `alignBelowContext` and `alignAboveContext` to control the positioning of lyrics and ossias.

```

\paper {
  ragged-right = ##t
}

```

```

\relative c' <<
  \new Staff = "1" { c4 c s2 }
  \new Staff = "2" { c4 c s2 }
  \new Staff = "3" { c4 c s2 }
  { \skip 2
    <<
      \lyrics {
        \set alignBelowContext = #"1"
        lyrics4 below
      }
      \new Staff \with {
        alignAboveContext = #"3"
        fontSize = #-2
        \override StaffSymbol #'staff-space = #(magstep -2)
        \remove "Time_signature_engraver"
      } {
        \times 4/6 {
          \override TextScript #'padding = #3
          c8[~"ossia above" d e d e f]
        }
      }
    >>
  }
>>

```



## Vertically centering paired figured bass extenders

Where figured bass extender lines are being used by setting `useBassFigureExtenders` to true, pairs of congruent figured bass extender lines are vertically centered if `figuredBassCenterContinuations` is set to true.

```

<<
  \relative c' {
    c8 c b b a a c16 c b b
    c8 c b b a a c16 c b b
    c8 c b b a a c c b b
  }
  \figures {
    \set useBassFigureExtenders = ##t

```

```

<6+ 4 3>4 <6 4 3>8 r
<6+ 4 3>4 <6 4 3>8 <4 3+>16 r
\set figuredBassCenterContinuations = ##t
<6+ 4 3>4 <6 4 3>8 r
<6+ 4 3>4 <6 4 3>8 <4 3+>16 r
\set figuredBassCenterContinuations = ##f
<6+ 4 3>4 <6 4 3>8 r
<6+ 4 3>4 <6 4 3>8 <4 3+>8
}
>>

```

The image displays two staves of musical notation for figured bass. The first staff contains a sequence of notes with figured bass symbols: #6, 4, 3, 6, #6, 4, 3, 6, #3, #6, 4, 3, 6, #6, 4, 3, 6, #3. The second staff contains a sequence of notes with figured bass symbols: #6, 4, 3, 6, #6, 4, 3, 6, #3. The notation includes treble clefs, common time signatures, and various note values (quarter, eighth, sixteenth notes).

## Paper and layout

Section “Spacing issues” in *Notation Reference*

### Aligning and centering instrument names

The horizontal alignment of instrument names is tweaked by changing the `Staff.InstrumentName #'self-alignment-X` property. The `\layout` variables `indent` and `short-indent` define the space in which the instrument names are aligned before the first and the following systems, respectively.

```
\paper {
  left-margin = 3\cm
}

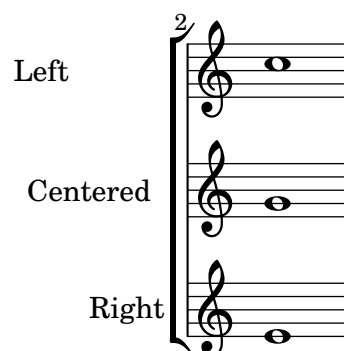
\score {
  \new StaffGroup <<
    \new Staff {
      \override Staff.InstrumentName #'self-alignment-X = #LEFT
      \set Staff.instrumentName = \markup \left-column {
        "Left aligned"
        "instrument name"
      }
      \set Staff.shortInstrumentName = #"Left"
      c'1
      \break
      c'1
    }
    \new Staff {
      \override Staff.InstrumentName #'self-alignment-X = #CENTER
      \set Staff.instrumentName = \markup \center-column {
        Centered
        "instrument name"
      }
      \set Staff.shortInstrumentName = #"Centered"
      g'1
      g'1
    }
    \new Staff {
      \override Staff.InstrumentName #'self-alignment-X = #RIGHT
      \set Staff.instrumentName = \markup \right-column {
        "Right aligned"
        "instrument name"
      }
      \set Staff.shortInstrumentName = #"Right"
      e'1
      e'1
    }
  >>
  \layout {
    ragged-right = ##t
    indent = 4\cm
    short-indent = 2\cm
  }
}
```

```
}
}
```

Left aligned  
instrument name

Centered  
instrument name

Right aligned  
instrument name



## Book parts

`\bookpart` can be used to split a book into several parts. Each part last page can be affected by `ragged-last-bottom`. Header and footer markups can detect a part last page, and make the difference with the book last page.

```
#(set-default-paper-size "a6")
```

```
\book {
  %% book paper, which is inherited by all children bookparts
  \paper {
    ragged-last-bottom = ##t
    %% Page footer: add a different part-tagline at part last page
    oddFooterMarkup = \markup {
      \column {
        \fill-line {
          %% Copyright header field only on book first page.
          \on-the-fly #first-page \fromproperty #'header:copyright
        }
        \fill-line {
          %% Part tagline header field only on each part last page.
          \on-the-fly #part-last-page \fromproperty #'header:parttagline
        }
        \fill-line {
          %% Tagline header field only on book last page.
          \on-the-fly #last-page \fromproperty #'header:tagline
        }
      }
    }
  }
}
```

```
    }
  }

%% book header, which is inherited by the first bookpart
\header {
  title = "Book title"
  copyright = "Copyright line on book first page"
  parttagline = "Part tagline"
  tagline = "Book tagline"
}

\bookpart {
  %% a different page breaking function may be used on each part
  \paper { page-breaking = #ly:minimal-breaking }
  \header { subtitle = "First part" }
  \markup { The first book part }
  \markup { a page break }
  \pageBreak
  \markup { first part last page }
  \markup \wordwrap { with ragged-last-bottom (see the space below this text) }
}

\bookpart {
  \header { subtitle = "Second part" }
  { c'4 }
}
}
```

# **Book title**

## **First part**

The first book part

a page break

Copyright line on book first page

2

first part last page

with ragged-last-bottom (see the space below this  
text)

Part tagline



3

**Book title****Second part**

Part tagline  
Book tagline

**Changing the staff size**

Though the simplest way to resize staves is to use `#{set-global-staff-size xx}`, an individual staff's size can be changed by scaling the properties `'staff-space` and `fontSize`.

```
<<
  \new Staff {
    \relative c'' {
      \dynamicDown
      c8\ff c c c c c c c
    }
  }
  \new Staff \with {
    fontSize = #-3
    \override StaffSymbol #'staff-space = #(magstep -3)
  } {
    \clef bass
    c8 c c c c\f c c c
  }
>>
```



## Clip systems

This code shows how to clip (extract) snippets from a full score.

This file needs to be run separately with `-dclip-systems`; the snippets page may not adequately show the results.

The result will be files named `'base-from-start-to-end[-count].eps'`.

If system starts and ends are included, they include extents of the System grob, e.g., instrument names.

Grace notes at the end point of the region are not included.

Regions can span multiple systems. In this case, multiple EPS files are generated.

```
#(ly:set-option 'clip-systems)
#(define output-suffix "1")

origScore = \score {
  \relative c' {
    \set Staff.instrumentName = #"bla"
    c1
    d1
    \grace c16 e1
    \key d \major
    f1 \break
    \clef bass
    g,1
    fis1
  }
}

\book {
  \score {
    \origScore
    \layout {
      % Each clip-region is a (START . END) pair
      % where both are rhythmic-locations.

      % (make-rhythmic-locations BAR-NUMBER NUM DEN)
      % means NUM/DEN whole-notes into bar numbered BAR-NUMBER

      clip-regions = #(list
        (cons
          (make-rhythmic-location 2 0 1)
          (make-rhythmic-location 4 0 1))

        (cons
          (make-rhythmic-location 0 0 1)
          (make-rhythmic-location 4 0 1)))
    }
```

```

        (cons
          (make-rhythmic-location 0 0 1)
          (make-rhythmic-location 6 0 1))
        )
      }
    }
  }

#(ly:set-option 'clip-systems #f)
#(define output-suffix #f)

\book {
  \score { \origScore }
  \markup { \bold \fontsize #6 clips }
  \score {
    \lyrics {
      \markup { from-2.0.1-to-4.0.1-clip.eps }
      \markup {
        \epsfile #X #30.0 #(format #f "~a-1-from-2.0.1-to-4.0.1-clip.eps"
          (ly:parser-output-name parser)) }
    }
  }
}

```



## clips



## Creating blank staves

To create blank staves, generate empty measures then remove the `Bar_number_engraver` from the `Score` context, and the `Time_signature_engraver`, `Clef_engraver` and `Bar_engraver` from the `Staff` context.

```

\set-global-staff-size 20)

```

```

\score {
  {
    \repeat unfold 12 { s1 \break }
  }
  \layout {
    indent = 0\in
    \context {
      \Staff
      \remove "Time_signature_engraver"
      \remove "Clef_engraver"
      \remove "Bar_engraver"
    }
    \context {
      \Score
      \remove "Bar_number_engraver"
    }
  }
}

```

```

\paper {
  \set-paper-size "letter")
  ragged-last-bottom = ##f
  line-width = 7.5\in
  left-margin = 0.5\in
  bottom-margin = 0.25\in
  top-margin = 0.25\in
}

```



## Demonstrating all headers

All header fields with special meanings.

```
\header {
  copyright = "copyright"
  title = "title"
  subtitle = "subtitle"
  composer = "composer"
  arranger = "arranger"
  instrument = "instrument"
  metre = "metre"
  opus = "opus"
  piece = "piece"
  poet = "poet"
  texidoc = "All header fields with special meanings."
  copyright = "public domain"
  enteredby = "jcn"
  source = "urtext"
}

\layout {
  ragged-right = ##f
}

\score {
  \relative c'' { c1 | c | c | c }
}

\score {
  \relative c'' { c1 | c | c | c }
  \header {
    title = "localtitle"
    subtitle = "localsubtitle"
    composer = "localcomposer"
    arranger = "localarranger"
```

```

    instrument = "localinstrument"
    metre = "localmetre"
    opus = "localopus"
    piece = "localpiece"
    poet = "localpoet"
    copyright = "localcopyright"
  }
}

```

	<b>title</b>	
	<b>subtitle</b>	
poet	<b>instrument</b>	composer
		arranger
piece		opus



localpiece	localopus
------------	-----------



## Setting system separators

System separators can be inserted between systems. Any markup can be used, but `\slashSeparator` has been provided as a sensible default.

```

\paper {
  system-separator-markup = \slashSeparator
}

```

```

notes = \relative c' {
  c1 | c \break
  c1 | c \break
  c1 | c
}

```

```

\book {
  \score {
    \new GrandStaff <<
      \new Staff \notes
      \new Staff \notes
    >>
  }
}

```

The image displays three systems of musical notation, each consisting of a grand staff (treble and bass clef) and a key signature of one flat (B-flat). The first system has a common time signature 'C'. The second and third systems are marked with a double bar line and a fermata, and are labeled with the numbers 3 and 5 respectively.

System 1: Treble clef, common time 'C'. Bass clef, common time 'C'. Both staves contain a single note (B-flat) in the first measure, followed by a double bar line and a fermata.

System 2: Treble clef, common time 'C'. Bass clef, common time 'C'. Both staves contain a single note (B-flat) in the first measure, followed by a double bar line and a fermata. The system is labeled with the number 3.

System 3: Treble clef, common time 'C'. Bass clef, common time 'C'. Both staves contain a single note (B-flat) in the first measure, followed by a double bar line and a fermata. The system is labeled with the number 5.



## Table of contents

A table of contents is included using `\markuplist \table-of-contents`. The TOC items are added with the `\tocItem` command.

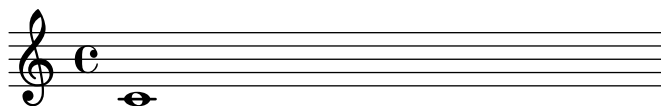
```
#(set-default-paper-size "a6")

\book {
  \markuplist \table-of-contents
  \pageBreak
  \tocItem \markup { The first score }
  \score {
    {
      c'1 \pageBreak
      \mark "A" \tocItem \markup { Mark A }
      d'1
    }
  }
  \pageBreak
  \tocItem \markup { The second score }
  \score {
    { e'1 }
    \header { piece = "Second score" }
  }
}
```

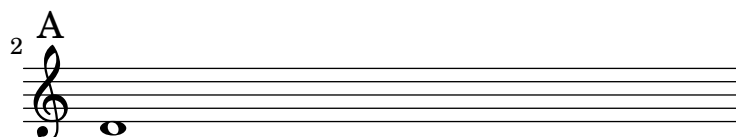
## Table of Contents

The first score	2
Mark A	3
The second score	4

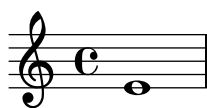
2



3



4  
Second score



# Titles

Section “Titles and headers” in *Notation Reference*

## Adding the current date to a score

With a little Scheme code, the current date can easily be added to a score.

```
% first, define a variable to hold the formatted date:
date = #(strftime "%d-%m-%Y" (localtime (current-time)))
```

```
% use it in the title block:
\header {
  title = "Including the date!"
  subtitle = \date
}
```

```
\score {
  \relative c'' {
    c4 c c c
  }
}
```

```
% and use it in a \markup block:
\markup {
  \date
}
```

**Including the date!**  
**09-11-2012**



09-11-2012

## Aligning and centering instrument names

The horizontal alignment of instrument names is tweaked by changing the `Staff.InstrumentName #'self-alignment-X` property. The `\layout` variables `indent` and `short-indent` define the space in which the instrument names are aligned before the first and the following systems, respectively.

```
\paper {
  left-margin = 3\cm
}
```

```
\score {
  \new StaffGroup <<
    \new Staff {
      \override Staff.InstrumentName #'self-alignment-X = #LEFT
      \set Staff.instrumentName = \markup \left-column {
        "Left aligned"
      }
    }
  }
}
```

```

        "instrument name"
    }
    \set Staff.shortInstrumentName = #"Left"
    c'1
    \break
    c'1
}
\new Staff {
    \override Staff.InstrumentName #'self-alignment-X = #CENTER
    \set Staff.instrumentName = \markup \center-column {
        Centered
        "instrument name"
    }
    \set Staff.shortInstrumentName = #"Centered"
    g'1
    g'1
}
\new Staff {
    \override Staff.InstrumentName #'self-alignment-X = #RIGHT
    \set Staff.instrumentName = \markup \right-column {
        "Right aligned"
        "instrument name"
    }
    \set Staff.shortInstrumentName = #"Right"
    e'1
    e'1
}
>>
\layout {
    ragged-right = ##t
    indent = 4\cm
    short-indent = 2\cm
}
}

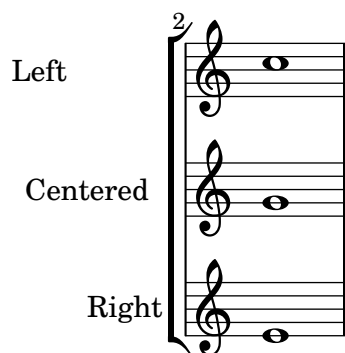
```

Left aligned  
instrument name

Centered  
instrument name

Right aligned  
instrument name





## Demonstrating all headers

All header fields with special meanings.

```
\header {
  copyright = "copyright"
  title = "title"
  subtitle = "subtitle"
  composer = "composer"
  arranger = "arranger"
  instrument = "instrument"
  metre = "metre"
  opus = "opus"
  piece = "piece"
  poet = "poet"
  texidoc = "All header fields with special meanings."
  copyright = "public domain"
  enteredby = "jcn"
  source = "urtext"
}

\layout {
  ragged-right = ##f
}

\score {
  \relative c'' { c1 | c | c | c }
}

\score {
  \relative c'' { c1 | c | c | c }
  \header {
    title = "localtitle"
    subtitle = "localsubtitle"
    composer = "localcomposer"
    arranger = "localarranger"
    instrument = "localinstrument"
    metre = "localmetre"
    opus = "localopus"
    piece = "localpiece"
    poet = "localpoet"
    copyright = "localcopyright"
  }
}
```

	<b>title</b>	
	<b>subtitle</b>	
poet	<b>instrument</b>	composer
		arranger
piece		opus



localpiece		localopus
------------	--	-----------



## Outputting the version number

By putting the output of `lilypond-version` into a lyric, it is possible to print the version number of LilyPond in a score, or in a document generated with `lilypond-book`. Another possibility is to append the version number to the doc-string, in this manner:

```
\score {
  \new Lyrics {
    \override Score.RehearsalMark #'self-alignment-X = #LEFT
    \mark #(string-append "Processed with LilyPond version " (lilypond-version))
    s2
  }
}
```

Processed with LilyPond version 2.16.1

## Spacing

Section “Spacing issues” in *Notation Reference*

### Adjusting lyrics vertical spacing

This snippet shows how to bring the lyrics line closer to the staff.

% Default layout:

```
<<
\new Staff \new Voice = melody \relative c' {
  c4 d e f
  g4 f e d
  c1
}
\new Lyrics \lyricsto melody { aa aa aa aa aa aa aa aa aa }

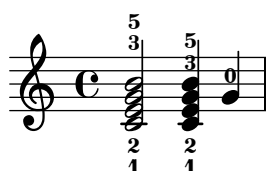
\new Staff {
  \new Voice = melody \relative c' {
    c4 d e f
    g4 f e d
    c1
  }
}
% Reducing the minimum space below the staff and above the lyrics:
\new Lyrics \with {
  \override VerticalAxisGroup #'nonstaff-relatedstaff-spacing = #'((basic-distance . 1))
}
\lyricsto melody { aa aa aa aa aa aa aa aa aa }
>>
```



### 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>
}
```



## Page label

Page labels may be placed inside music or at top-level, and referred to in markups.

```

#(set-default-paper-size "a6")

#(define-markup-command (toc-line layout props label text)
  (symbol? markup?)
  (interpret-markup layout props
    (markup #:fill-line (text #:page-ref label "8" "?"))))

\book {
  \markup \huge \fill-line { \null Title Page \null }

  \pageBreak

  \label #'toc
  \markup \column {
    \large \fill-line { \null Table of contents \null }
    \toc-line #'toc "Table of contents"
    \toc-line #'firstScore "First Score"
    \toc-line #'markA "Mark A"
    \toc-line #'markB "Mark B"
    \toc-line #'markC "Mark C"
    \toc-line #'unknown "Unknown label"
  }

  \pageBreak

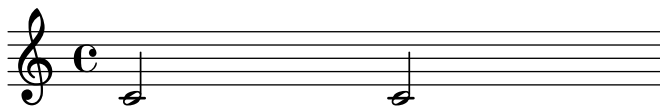
  \label #'firstScore
  \score {
    \new Staff \relative c' {
      c2 c
      \mark \markup {
        A (page \concat { \page-ref #'markA "0" "?" ) }
      } \label #'markA
      c2 c
      \pageBreak
      \mark "B" \label #'markB
      d2 d
      d2 d
      \once \override Score.RehearsalMark #'break-visibility =
        #begin-of-line-invisible
      \mark "C" \label #'markC
    }
    \header { piece = "First score" }
  }
}

```



2	Table of contents	
	Table of contents	2
	First Score	3
	Mark A	3
	Mark B	4
	Mark C	4
	Unknown label	?

	3
First score	



A (page 3)





Music engraving by LilyPond 2.16.1—[www.lilypond.org](http://www.lilypond.org)

## Proportional strict notespacing

If `strict-note-spacing` is set spacing of notes is not influenced by bars or clefs within a system. Rather, they are placed just before the note that occurs at the same time. This may cause collisions.

```
\relative c'' <<
  \override Score.SpacingSpanner #'strict-note-spacing = ##t
  \set Score.proportionalNotationDuration = #(ly:make-moment 1 16)
  \new Staff {
    c8[ c \clef alto c c \grace { d16 } c8 c] c4
    c2 \grace { c16[ c16] } c2
  }
  \new Staff {
    c2 \times 2/3 { c8 \clef bass cis,, c } c4
    c1
  }
>>
```



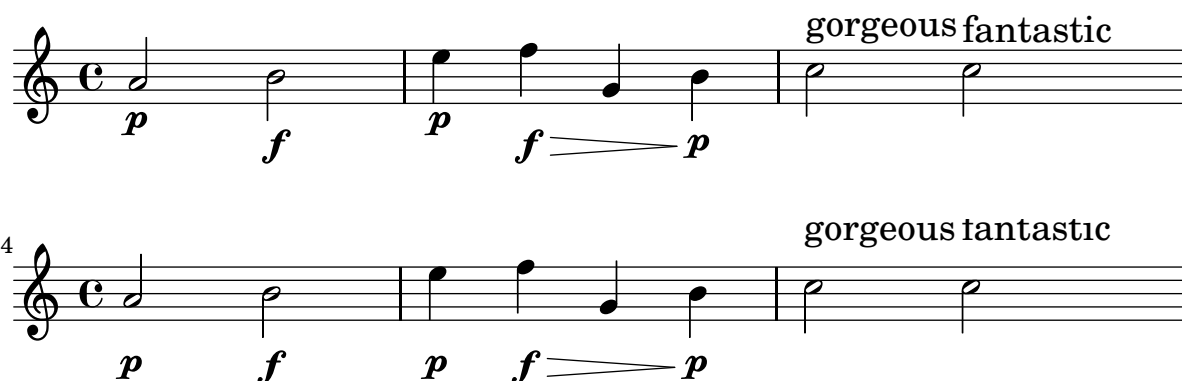
## Vertically aligned dynamics and textscripts

By setting the 'Y-extent property to a suitable value, all `DynamicLineSpanner` objects (hairpins and dynamic texts) can be aligned to a common reference point, regardless of their actual extent. This way, every element will be vertically aligned, thus producing a more pleasing output.

The same idea is used to align the text scripts along their baseline.

```
music = \relative c' {
  a'2\p b\f
  e4\p f\f\> g, b\p
  c2^\markup { \huge gorgeous } c^\markup { \huge fantastic }
}

{
  \music
  \break
  \override DynamicLineSpanner #'staff-padding = #2.0
  \override DynamicLineSpanner #'Y-extent = #'(-1.5 . 1.5)
  \override TextScript #'Y-extent = #'(-1.5 . 1.5)
  \music
}
```



## Vertically aligning ossias and lyrics

This snippet demonstrates the use of the context properties `alignBelowContext` and `alignAboveContext` to control the positioning of lyrics and ossias.

```
\paper {
  ragged-right = ##t
}

\relative c' <<
  \new Staff = "1" { c4 c s2 }
  \new Staff = "2" { c4 c s2 }
  \new Staff = "3" { c4 c s2 }
  { \skip 2
```

```

<<
  \lyrics {
    \set alignBelowContext = #"1"
    lyrics4 below
  }
  \new Staff \with {
    alignAboveContext = #"3"
    fontSize = #-2
    \override StaffSymbol #'staff-space = #(magstep -2)
    \remove "Time_signature_engraver"
  } {
    \times 4/6 {
      \override TextScript #'padding = #3
      c8[~"ossia above" d e d e f]
    }
  }
>>
}
>>

```

The image displays a musical score with three staves. The top staff contains two eighth notes in common time, with the text "lyrics below" positioned directly beneath it. The middle staff also contains two eighth notes in common time, with the text "ossia above" positioned beneath it. Below the middle staff, there is a musical phrase consisting of a sixteenth-note scale with a "6" above it, indicating a sextuplet. The bottom staff contains two eighth notes in common time.

## MIDI

Section “MIDI output” in *Notation Reference*

### Changing MIDI output to one channel per voice

When outputting MIDI, the default behavior is for each staff to represent one MIDI channel, with all the voices on a staff amalgamated. This minimizes the risk of running out of MIDI channels, since there are only 16 available per MIDI port, and most devices support only one port.

However, by moving the `Staff_performer` to the `Voice` context, each voice on a staff can have its own MIDI channel, as is demonstrated by the following example: despite being on the same staff, two MIDI channels are created, each with a different `midiInstrument`.

```
\score {
  \new Staff <<
    \new Voice \relative c'' {
      \set midiInstrument = #"flute"
      \voiceOne
      \key g \major
      \time 2/2
      r2 g-"Flute" ~
      g fis ~
      fis4 g8 fis e2 ~
      e4 d8 cis d2
    }
    \new Voice \relative c'' {
      \set midiInstrument = #"clarinet"
      \voiceTwo
      b1-"Clarinet"
      a2. b8 a
      g2. fis8 e
      fis2 r
    }
  >>
  \layout { }
  \midi {
    \context {
      \Staff
      \remove "Staff_performer"
    }
    \context {
      \Voice
      \consists "Staff_performer"
    }
  }
  \tempo 2 = 72
}
```



## Changing the tempo without a metronome mark

To change the tempo in MIDI output without printing anything, make the metronome mark invisible.

```
\score {
  \new Staff \relative c' {
    \tempo 4 = 160
    c4 e g b
    c4 b d c
    \set Score.tempoHideNote = ##t
    \tempo 4 = 96
    d,4 fis a cis
    d4 cis e d
  }
  \layout { }
  \midi { }
}
```



## Demo MidiInstruments

Problem: How to know which midiInstrument would be best for your composition? Solution: A LilyPond demo file.

```
\header {
  title = "Demo of all midi sounds"
  arranger = "Myself "
}
```

```
baseMelody = \relative c' {
  c4.\mf g c16 b' c d
  e16 d e f g4 g'4 r
  R1
}
```

```
melody = {
  \tempo 4 = 150
  \baseMelody
}
```

```
\score {
  \new Staff <<
    \new Voice \melody
  >>
  \layout { }
}
```

```
\score {
  \new Staff <<
    \new Voice {
```

```
r\mf
\set Staff.midiInstrument = #"acoustic grand" \melody
\set Staff.midiInstrument = #"bright acoustic" \melody
\set Staff.midiInstrument = #"electric grand" \melody
\set Staff.midiInstrument = #"honky-tonk" \melody
\set Staff.midiInstrument = #"electric piano 1" \melody
\set Staff.midiInstrument = #"electric piano 2" \melody
\set Staff.midiInstrument = #"harpsichord" \melody
\set Staff.midiInstrument = #"clav" \melody
\set Staff.midiInstrument = #"celesta" \melody
\set Staff.midiInstrument = #"glockenspiel" \melody
\set Staff.midiInstrument = #"music box" \melody
\set Staff.midiInstrument = #"vibraphone" \melody
\set Staff.midiInstrument = #"marimba" \melody
\set Staff.midiInstrument = #"xylophone" \melody
\set Staff.midiInstrument = #"tubular bells" \melody
\set Staff.midiInstrument = #"dulcimer" \melody
\set Staff.midiInstrument = #"drawbar organ" \melody
\set Staff.midiInstrument = #"percussive organ" \melody
\set Staff.midiInstrument = #"rock organ" \melody
\set Staff.midiInstrument = #"church organ" \melody
\set Staff.midiInstrument = #"reed organ" \melody
\set Staff.midiInstrument = #"accordion" \melody
\set Staff.midiInstrument = #"harmonica" \melody
\set Staff.midiInstrument = #"concertina" \melody
\set Staff.midiInstrument = #"acoustic guitar (nylon)" \melody
\set Staff.midiInstrument = #"acoustic guitar (steel)" \melody
\set Staff.midiInstrument = #"electric guitar (jazz)" \melody
\set Staff.midiInstrument = #"electric guitar (clean)" \melody
\set Staff.midiInstrument = #"electric guitar (muted)" \melody
\set Staff.midiInstrument = #"overdriven guitar" \melody
\set Staff.midiInstrument = #"distorted guitar" \melody
\set Staff.midiInstrument = #"acoustic bass" \melody
\set Staff.midiInstrument = #"electric bass (finger)" \melody
\set Staff.midiInstrument = #"electric bass (pick)" \melody
\set Staff.midiInstrument = #"fretless bass" \melody
\set Staff.midiInstrument = #"slap bass 1" \melody
\set Staff.midiInstrument = #"slap bass 2" \melody
\set Staff.midiInstrument = #"synth bass 1" \melody
\set Staff.midiInstrument = #"synth bass 2" \melody
\set Staff.midiInstrument = #"violin" \melody
\set Staff.midiInstrument = #"viola" \melody
\set Staff.midiInstrument = #"cello" \melody
\set Staff.midiInstrument = #"contrabass" \melody
\set Staff.midiInstrument = #"tremolo strings" \melody
\set Staff.midiInstrument = #"pizzicato strings" \melody
\set Staff.midiInstrument = #"orchestral harp" \melody
\set Staff.midiInstrument = #"timpani" \melody
\set Staff.midiInstrument = #"string ensemble 1" \melody
\set Staff.midiInstrument = #"string ensemble 2" \melody
\set Staff.midiInstrument = #"synthstrings 1" \melody
\set Staff.midiInstrument = #"synthstrings 2" \melody
```

```
\set Staff.midiInstrument = #"choir aahs" \melody
\set Staff.midiInstrument = #"voice oohs" \melody
\set Staff.midiInstrument = #"synth voice" \melody
\set Staff.midiInstrument = #"orchestra hit" \melody
\set Staff.midiInstrument = #"trumpet" \melody
\set Staff.midiInstrument = #"trombone" \melody
\set Staff.midiInstrument = #"tuba" \melody
\set Staff.midiInstrument = #"muted trumpet" \melody
\set Staff.midiInstrument = #"french horn" \melody
\set Staff.midiInstrument = #"brass section" \melody
\set Staff.midiInstrument = #"synthbrass 1" \melody
\set Staff.midiInstrument = #"synthbrass 2" \melody
\set Staff.midiInstrument = #"soprano sax" \melody
\set Staff.midiInstrument = #"alto sax" \melody
\set Staff.midiInstrument = #"tenor sax" \melody
\set Staff.midiInstrument = #"baritone sax" \melody
\set Staff.midiInstrument = #"oboe" \melody
\set Staff.midiInstrument = #"english horn" \melody
\set Staff.midiInstrument = #"bassoon" \melody
\set Staff.midiInstrument = #"clarinet" \melody
\set Staff.midiInstrument = #"piccolo" \melody
\set Staff.midiInstrument = #"flute" \melody
\set Staff.midiInstrument = #"recorder" \melody
\set Staff.midiInstrument = #"pan flute" \melody
\set Staff.midiInstrument = #"blown bottle" \melody
\set Staff.midiInstrument = #"shakuhachi" \melody
\set Staff.midiInstrument = #"whistle" \melody
\set Staff.midiInstrument = #"ocarina" \melody
\set Staff.midiInstrument = #"lead 1 (square)" \melody
\set Staff.midiInstrument = #"lead 2 (sawtooth)" \melody
\set Staff.midiInstrument = #"lead 3 (calliope)" \melody
\set Staff.midiInstrument = #"lead 4 (chiff)" \melody
\set Staff.midiInstrument = #"lead 5 (charang)" \melody
\set Staff.midiInstrument = #"lead 6 (voice)" \melody
\set Staff.midiInstrument = #"lead 7 (fifths)" \melody
\set Staff.midiInstrument = #"lead 8 (bass+lead)" \melody
\set Staff.midiInstrument = #"pad 1 (new age)" \melody
\set Staff.midiInstrument = #"pad 2 (warm)" \melody
\set Staff.midiInstrument = #"pad 3 (polysynth)" \melody
\set Staff.midiInstrument = #"pad 4 (choir)" \melody
\set Staff.midiInstrument = #"pad 5 (bowed)" \melody
\set Staff.midiInstrument = #"pad 6 (metallic)" \melody
\set Staff.midiInstrument = #"pad 7 (halo)" \melody
\set Staff.midiInstrument = #"pad 8 (sweep)" \melody
\set Staff.midiInstrument = #"fx 1 (rain)" \melody
\set Staff.midiInstrument = #"fx 2 (soundtrack)" \melody
\set Staff.midiInstrument = #"fx 3 (crystal)" \melody
\set Staff.midiInstrument = #"fx 4 (atmosphere)" \melody
\set Staff.midiInstrument = #"fx 5 (brightness)" \melody
\set Staff.midiInstrument = #"fx 6 (goblins)" \melody
\set Staff.midiInstrument = #"fx 7 (echoes)" \melody
\set Staff.midiInstrument = #"fx 8 (sci-fi)" \melody
```



```

\set Staff.midiInstrument = #"sitar" \melody
\set Staff.midiInstrument = #"banjo" \melody
\set Staff.midiInstrument = #"shamisen" \melody
\set Staff.midiInstrument = #"koto" \melody
\set Staff.midiInstrument = #"kalimba" \melody
\set Staff.midiInstrument = #"bagpipe" \melody
\set Staff.midiInstrument = #"fiddle" \melody
\set Staff.midiInstrument = #"shanai" \melody
\set Staff.midiInstrument = #"tinkle bell" \melody
\set Staff.midiInstrument = #"agogo" \melody
\set Staff.midiInstrument = #"steel drums" \melody
\set Staff.midiInstrument = #"woodblock" \melody
\set Staff.midiInstrument = #"taiko drum" \melody
\set Staff.midiInstrument = #"melodic tom" \melody
\set Staff.midiInstrument = #"synth drum" \melody
\set Staff.midiInstrument = #"reverse cymbal" \melody
\set Staff.midiInstrument = #"guitar fret noise" \melody
\set Staff.midiInstrument = #"breath noise" \melody
\set Staff.midiInstrument = #"seashore" \melody
\set Staff.midiInstrument = #"bird tweet" \melody
\set Staff.midiInstrument = #"telephone ring" \melody
\set Staff.midiInstrument = #"helicopter" \melody
\set Staff.midiInstrument = #"applause" \melody
\set Staff.midiInstrument = #"gunshot" \melody
}
>>
\midi { }
}

```

## Demo of all midi sounds

Myself



## Templates

### Ancient notation template – modern transcription of gregorian music

This example demonstrates how to do modern transcription of Gregorian music. Gregorian music has no measure, no stems; it uses only half and quarter note heads, and special marks, indicating rests of different length.

```
\include "gregorian.ly"

chant = \relative c' {
  \set Score.timing = ##f
  f4 a2 \divisioMinima
  g4 b a2 f2 \divisioMaior
  g4( f) f( g) a2 \finalis
}

verba = \lyricmode {
  Lo -- rem ip -- sum do -- lor sit a -- met
}

\score {
  \new Staff <<
    \new Voice = "melody" \chant
    \new Lyrics = "one" \lyricsto melody \verba
  >>
  \layout {
    \context {
      \Staff
      \remove "Time_signature_engraver"
      \remove "Bar_engraver"
      \override Stem #'transparent = ##t
      \override Flag #'transparent = ##t
    }
    \context {
      \Voice
      \override Stem #'length = #0
    }
    \context {
      \Score
      barAlways = ##t
    }
  }
}
```



## Ancient notation template – modern transcription of mensural music

When transcribing mensural music, an incipit at the beginning of the piece is useful to indicate the original key and tempo. While today musicians are used to bar lines in order to faster recognize rhythmic patterns, bar lines were not yet invented during the period of mensural music; in fact, the meter often changed after every few notes. As a compromise, bar lines are often printed between the staves rather than on the staves.

```
global = {
  \set Score.skipBars = ##t

  % incipit
  \once \override Score.SystemStartBracket #'transparent = ##t
  % Set tight spacing
  \override Score.SpacingSpanner #'spacing-increment = #1.0
  \key f \major
  \time 2/2
  \once \override Staff.TimeSignature #'style = #'neomensural
  \override Voice.NoteHead #'style = #'neomensural
  \override Voice.Rest #'style = #'neomensural
  \set Staff.printKeyCancellation = ##f
  \cadenzaOn % turn off bar lines
  \skip 1*10
  \once \override Staff.BarLine #'transparent = ##f
  \bar "||"
  \skip 1*1 % need this extra \skip such that clef change comes
            % after bar line
  \bar ""

  % main
  \cadenzaOff % turn bar lines on again
  \once \override Staff.Clef #'full-size-change = ##t
  \set Staff.forceClef = ##t
  \key g \major
  \time 4/4
  \override Voice.NoteHead #'style = #'default
  \override Voice.Rest #'style = #'default

  % Setting printKeyCancellation back to #t must not
  % occur in the first bar after the incipit. Dto. for forceClef.
  % Therefore, we need an extra \skip.
  \skip 1*1
  \set Staff.printKeyCancellation = ##t
  \set Staff.forceClef = ##f

  \skip 1*7 % the actual music

  % let finis bar go through all staves
  \override Staff.BarLine #'transparent = ##f

  % finis bar
  \bar "|."
}
```

```

discantusNotes = {
  \transpose c' c'' {
    \set Staff.instrumentName = #"Discantus  "

    % incipit
    \clef "neomensural-c1"
    c'1. s2  % two bars
    \skip 1*8 % eight bars
    \skip 1*1 % one bar

    % main
    \clef "treble"
    d'2. d'4 |
    b e' d'2 |
    c'4 e'4.( d'8 c' b |
    a4) b a2 |
    b4.( c'8 d'4) c'4 |
    \once \override NoteHead #'transparent = ##t c'1 |
    b\breve |
  }
}

```

```

discantusLyrics = \lyricmode {
  % incipit
  IV-

  % main
  Ju -- bi -- |
  la -- te De -- |
  o, om --
  nis ter -- |
  ra, __ om- |
  "... " |
  -us. |
}

```

```

altusNotes = {
  \transpose c' c'' {
    \set Staff.instrumentName = #"Altus  "

    % incipit
    \clef "neomensural-c3"
    r1          % one bar
    f1. s2      % two bars
    \skip 1*7 % seven bars
    \skip 1*1 % one bar

    % main
    \clef "treble"
    r2 g2. e4 fis g | % two bars
    a2 g4 e |
  }
}

```

```

        fis g4.( fis16 e fis4) |
        g1 |
        \once \override NoteHead #'transparent = ##t g1 |
        g\breve |
    }
}

altusLyrics = \lyricmode {
    % incipit
    IV-

    % main
    Ju -- bi -- la -- te | % two bars
    De -- o, om -- |
    nis ter -- ra, |
    "... " |
    -us. |
}

tenorNotes = {
    \transpose c' c' {
        \set Staff.instrumentName = #"Tenor  "

        % incipit
        \clef "neomensural-c4"
        r\longa    % four bars
        r\breve    % two bars
        r1         % one bar
        c'1. s2    % two bars
        \skip 1*1 % one bar
        \skip 1*1 % one bar

        % main
        \clef "treble_8"
        R1 |
        R1 |
        R1 |
        r2 d'2. d'4 b e' | % two bars
        \once \override NoteHead #'transparent = ##t e'1 |
        d'\breve |
    }
}

tenorLyrics = \lyricmode {
    % incipit
    IV-

    % main
    Ju -- bi -- la -- te | % two bars
    "... " |
    -us. |
}

```

```

bassusNotes = {
  \transpose c' c' {
    \set Staff.instrumentName = #"Bassus  "

    % incipit
    \clef "bass"
    r\maxima % eight bars
    f1. s2   % two bars
    \skip 1*1 % one bar

    % main
    \clef "bass"
    R1 |
    R1 |
    R1 |
    R1 |
    g2. e4 |
    \once \override NoteHead #'transparent = ##t e1 |
    g\breve |
  }
}

bassusLyrics = \lyricmode {
  % incipit
  IV-

  % main
  Ju -- bi- |
  "... " |
  -us. |
}

\score {
  \new StaffGroup = choirStaff <<
    \new Voice =
      "discantusNotes" << \global \discantusNotes >>
    \new Lyrics =
      "discantusLyrics" \lyricsto discantusNotes { \discantusLyrics }
    \new Voice =
      "altusNotes" << \global \altusNotes >>
    \new Lyrics =
      "altusLyrics" \lyricsto altusNotes { \altusLyrics }
    \new Voice =
      "tenorNotes" << \global \tenorNotes >>
    \new Lyrics =
      "tenorLyrics" \lyricsto tenorNotes { \tenorLyrics }
    \new Voice =
      "bassusNotes" << \global \bassusNotes >>
    \new Lyrics =
      "bassusLyrics" \lyricsto bassusNotes { \bassusLyrics }
  >>

```

```

\layout {
  \context {
    \Score

    % no bars in staves
    \override BarLine #'transparent = ##t

    % incipit should not start with a start delimiter
    \remove "System_start_delimiter_engraver"
  }
  \context {
    \Voice

    % no slurs
    \override Slur #'transparent = ##t

    % The command below can be commented out in
    % short scores, but especially for large scores you
    % will typically yield better line breaking and improve
    % overall spacing if you do not comment the command out.

    \remove "Forbid_line_break_engraver"
  }
}

```

Discantus

IV-

Altus

IV-

Tenor

IV-

Bassus

IV-

Ju - bi - la - te De -

Ju - bi - la - te

3

o, om - nis ter - ra, om- ... -us.

De - o, om - nis ter - ra, ... -us.

8

Ju - bi - la - te ... -us.

Ju - bi- ... -us.

## Anglican psalm template

This template shows one way of setting out an Anglican psalm chant. It also shows how the verses may be added as stand-alone text under the music. The two verses are coded in different styles to demonstrate more possibilities.

```
SopranoMusic = \relative g' {
  g1 | c2 b | a1 | \bar "||"
  a1 | d2 c | c b | c1 | \bar "||"
}

AltoMusic = \relative c' {
  e1 | g2 g | f1 |
  f1 | f2 e | d d | e1 |
}

TenorMusic = \relative a {
  c1 | c2 c | c1 |
  d1 | g,2 g | g g | g1 |
}

BassMusic = \relative c {
  c1 | e2 e | f1 |
  d1 | b2 c | g' g | c,1 |
}

global = {
  \time 2/2
}

dot = \markup {
  \raise #0.7 \musicglyph #"dots.dot"
}

tick = \markup {
  \raise #1 \fontsize #-5 \musicglyph #"scripts.rvarcomma"
}

% Use markup to center the chant on the page
```



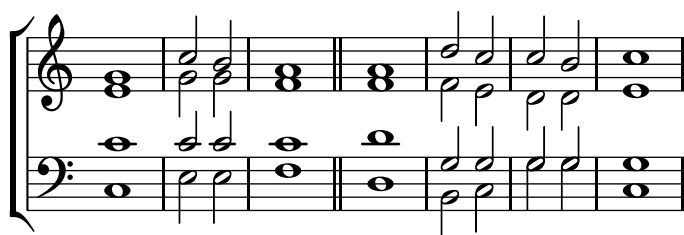
```

\markup {
  \fill-line {
    \score { % centered
      <<
        \new ChoirStaff <<
          \new Staff <<
            \global
            \clef "treble"
            \new Voice = "Soprano" <<
              \voiceOne
              \SopranoMusic
            >>
            \new Voice = "Alto" <<
              \voiceTwo
              \AltoMusic
            >>
          >>
          \new Staff <<
            \clef "bass"
            \global
            \new Voice = "Tenor" <<
              \voiceOne
              \TenorMusic
            >>
            \new Voice = "Bass" <<
              \voiceTwo
              \BassMusic
            >>
          >>
        >>
      >>
    \layout {
      \context {
        \Score
        \override SpacingSpanner
          #'base-shortest-duration = #(ly:make-moment 1 2)
      }
      \context {
        \Staff
        \remove "Time_signature_engraver"
      }
    }
  } % End score
} % End markup

\markup {
  \fill-line {
    \column {
      \left-align {
        \null \null \null
      }
      \line {

```

```
\fontsize #5 0
\fontsize #3 come
let us \bold sing | unto \dot the | Lord : let
}
\line {
us heartily
\concat { re \bold joice }
in the | strength of | our
}
\line {
sal | vation.
}
\null
\line {
\hspace #2.5 8. Today if ye will hear his voice *
}
\line {
\concat { \bold hard en }
\tick not your \tick hearts : as in the pro-
}
\line {
vocation * and as in the \bold day of tempt- \tick
}
\line {
-ation \tick in the \tick wilderness.
}
}
}
```



**O** come let us **sing** | unto • the | Lord : let  
us heartily **rejoice** in the | strength of | our  
sal | vation.

8. Today if ye will hear his voice \*  
**harden'** not your' hearts : as in the pro-  
 vocation \* and as in the **day** of tempt-'  
 -ation' in the' wilderness.

## Hymn template

This code shows one way of setting out a hymn tune when each line starts and ends with a partial measure. It also shows how to add the verses as stand-alone text under the music.

```
Timeline = {
  \time 4/4
  \tempo 4=96
  \partial 2
  s2 | s1 | s2 \breathe s2 | s1 | s2 \bar "||" \break
  s2 | s1 | s2 \breathe s2 | s1 | s2 \bar "||"
}

SopranoMusic = \relative g' {
  g4 g | g g g g | g g g g | g g g g | g2
  g4 g | g g g g | g g g g | g g g g | g2
}

AltoMusic = \relative c' {
  d4 d | d d d d | d d d d | d d d d | d2
  d4 d | d d d d | d d d d | d d d d | d2
}

TenorMusic = \relative a {
  b4 b | b b b b | b b b b | b b b b | b2
  b4 b | b b b b | b b b b | b b b b | b2
}

BassMusic = \relative g {
  g4 g | g g g g | g g g g | g g g g | g2
  g4 g | g g g g | g g g g | g g g g | g2
}

global = {
  \key g \major
}

\score { % Start score
  <<
  \new PianoStaff << % Start pianostaff
  \new Staff << % Start Staff = RH
  \global
  \clef "treble"
  \new Voice = "Soprano" << % Start Voice = "Soprano"
  \Timeline
  \voiceOne
  \SopranoMusic
  >> % End Voice = "Soprano"
  \new Voice = "Alto" << % Start Voice = "Alto"
  \Timeline
  \voiceTwo
  \AltoMusic
  >> % End Voice = "Alto"
```

```

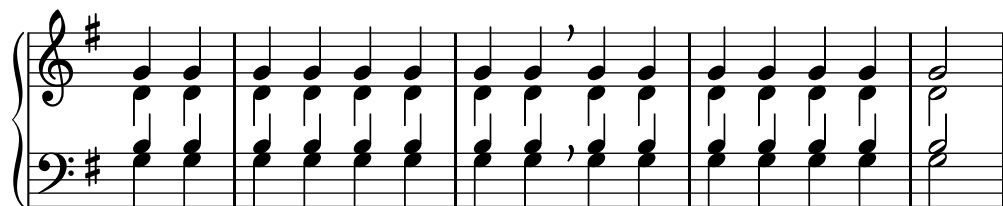
>> % End Staff = RH
\new Staff << % Start Staff = LH
  \global
  \clef "bass"
  \new Voice = "Tenor" << % Start Voice = "Tenor"
    \Timeline
    \voiceOne
    \TenorMusic
  >> % End Voice = "Tenor"
  \new Voice = "Bass" << % Start Voice = "Bass"
    \Timeline
    \voiceTwo
    \BassMusic
  >> % End Voice = "Bass"
>> % End Staff = LH
>> % End pianostaff
>>
} % End score

\markup {
  \fill-line {
    ""
    {
      \column {
        \left-align {
          "This is line one of the first verse"
          "This is line two of the same"
          "And here's line three of the first verse"
          "And the last line of the same"
        }
      }
    }
  }
  ""
}

\paper { % Start paper block
  indent = 0 % don't indent first system
  line-width = 130 % shorten line length to suit music
} % End paper block

```





This is line one of the first verse  
 This is line two of the same  
 And here's line three of the first verse  
 And the last line of the same

## 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"
```

```
%%%%%%%%%% Some macros %%%%%%%%%%
```

```
sl = {
  \override NoteHead #'style = #'slash
  \override Stem #'transparent = ##t
  \override Flag #'transparent = ##t
}
nsl = {
  \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 = { }
```

```
%%%%%%%%%% Keys'n'things %%%%%%%%%%
```

```

global = { \time 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 = {
  \global
  \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"
  \clef bass
  <<
    \tbone
  >>
}

% ##### Rhythm Section #####

% ----- Guitar -----
gtr = \relative c'' {
  \Key
  c1
  \sl
  b4 b b b
  \nsl
  c1
}
gtrHarmony = \chordmode {
  \jazzChords
  s1 c2:min7+ d2:maj9
}
guitar = {
  \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
  \global
  \set Staff.midiInstrument = #"acoustic grand"
  <<
    \new Voice = "one" \rhUpper
    \new Voice = "two" \rhLower
  >>
}

PianoLH = {
  \clef bass
  \global
  \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 {
  \Key

```



```

    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 = {
  \global
  <<
    \set DrumStaff.instrumentName = #"Drums"
    \new DrumVoice \up
    \new DrumVoice \down
  >>
}

%%%%%%%%%% It All Goes Together Here %%%%%%%%%%%%%%%

\score {
  <<
    \new StaffGroup = "horns" <<
      \new Staff = "trumpet" \trumpet
      \new Staff = "altosax" \altoSax
      \new ChordNames = "barichords" \bariHarmony
      \new Staff = "barisax" \bariSax
      \new Staff = "trombone" \trombone
    >>

    \new StaffGroup = "rhythm" <<
      \new ChordNames = "chords" \gtrHarmony
      \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**  
(tune)

moderato

Me

Swing

Trumpet

Alto Sax

Bari Sax

Trombone

Guitar

Piano

Bass

Drums

$B^{\Delta}$  Solo  $C\sharp m^7$

$Cm^{\Delta}$   $D^{\Delta 9}$

## Orchestra choir and piano template

This template demonstrates the use of nested `StaffGroup` and `GrandStaff` contexts to subgroup instruments of the same type together, and a way to use `\transpose` so that variables hold music for transposing instruments at concert pitch.

```

#(set-global-staff-size 17)
\paper {
  indent = 3.0\cm % space for instrumentName
  short-indent = 1.5\cm % space for shortInstrumentName
}

```

```

fluteMusic = \relative c' { \key g \major g'1 b }
% Pitches as written on a manuscript for Clarinet in A
% are transposed to concert pitch.
clarinetMusic = \transpose c' a
  \relative c'' { \key bes \major bes1 d }
trumpetMusic = \relative c { \key g \major g''1 b }
% Key signature is often omitted for horns
hornMusic = \transpose c' f
  \relative c { d'1 fis }
percussionMusic = \relative c { \key g \major g1 b }

```

```

sopranoMusic = \relative c' { \key g \major g'1 b }
sopranoLyrics = \lyricmode { Lyr -- ics }
altoIMusic = \relative c' { \key g \major g'1 b }
altoIIMusic = \relative c' { \key g \major g'1 b }
altoILyrics = \sopranoLyrics
altoIIILyrics = \lyricmode { Ah -- ah }
tenorMusic = \relative c' { \clef "treble_8" \key g \major g1 b }
tenorLyrics = \sopranoLyrics
pianoRHMus = \relative c { \key g \major g''1 b }
pianoLHMus = \relative c { \clef bass \key g \major g1 b }
violinIMusic = \relative c' { \key g \major g'1 b }
violinIIMusic = \relative c' { \key g \major g'1 b }
violaMusic = \relative c { \clef alto \key g \major g'1 b }
celloMusic = \relative c { \clef bass \key g \major g1 b }
bassMusic = \relative c { \clef "bass_8" \key g \major g,1 b }

```

```

\score {
  <<
    \new StaffGroup = "StaffGroup_woodwinds" <<
      \new Staff = "Staff_flute" {
        \set Staff.instrumentName = #"Flute"
        % shortInstrumentName, midiInstrument, etc.
        % may be set here as well
        \fluteMusic
      }
      \new Staff = "Staff_clarinet" {
        \set Staff.instrumentName =
        \markup { \concat { "Clarinet in B" \flat } }
        % Declare that written Middle C in the music
        % to follow sounds a concert B flat, for
        % output using sounded pitches such as MIDI.
        \transposition bes
        % Print music for a B-flat clarinet
        \transpose bes c' \clarinetMusic
      }
    >>
    \new StaffGroup = "StaffGroup_brass" <<
      \new Staff = "Staff_hornI" {
        \set Staff.instrumentName = #"Horn in F"
        \transposition f
        \transpose f c' \hornMusic
      }
      \new Staff = "Staff_trumpet" {
        \set Staff.instrumentName = #"Trumpet in C"
        \trumpetMusic
      }
    >>
    \new RhythmicStaff = "RhythmicStaff_percussion" <<
      \set RhythmicStaff.instrumentName = #"Percussion"
      \percussionMusic
    >>
    \new PianoStaff <<

```

```

\set PianoStaff.instrumentName = #"Piano"
\new Staff { \pianoRHMusical }
\new Staff { \pianoLHMusical }
>>
\new ChoirStaff = "ChoirStaff_choir" <<
  \new Staff = "Staff_soprano" {
    \set Staff.instrumentName = #"Soprano"
    \new Voice = "soprano"
    \sopranoMusical
  }
  \new Lyrics \lyricsto "soprano" { \sopranoLyrics }
  \new GrandStaff = "GrandStaff_altos"
  \with { \accepts Lyrics } <<
    \new Staff = "Staff_altoI" {
      \set Staff.instrumentName = #"Alto I"
      \new Voice = "altoI"
      \altoIMusical
    }
    \new Lyrics \lyricsto "altoI" { \altoILyrics }
    \new Staff = "Staff_altoII" {
      \set Staff.instrumentName = #"Alto II"
      \new Voice = "altoII"
      \altoIIMusical
    }
    \new Lyrics \lyricsto "altoII" { \altoIILyrics }
  >>
  \new Staff = "Staff_tenor" {
    \set Staff.instrumentName = #"Tenor"
    \new Voice = "tenor"
    \tenorMusical
  }
  \new Lyrics \lyricsto "tenor" { \tenorLyrics }
>>
\new StaffGroup = "StaffGroup_strings" <<
  \new GrandStaff = "GrandStaff_violins" <<
    \new Staff = "Staff_violinI" {
      \set Staff.instrumentName = #"Violin I"
      \violinIMusical
    }
    \new Staff = "Staff_violinII" {
      \set Staff.instrumentName = #"Violin II"
      \violinIIMusical
    }
  >>
  \new Staff = "Staff_viola" {
    \set Staff.instrumentName = #"Viola"
    \violaMusical
  }
  \new Staff = "Staff_cello" {
    \set Staff.instrumentName = #"Cello"
    \celloMusical
  }

```

```

\new Staff = "Staff_bass" {
  \set Staff.instrumentName = #"Double Bass"
  \bassMusic
}
>>
>>
\layout { }
}

```

Flute

Clarinet in B $\flat$

Horn in F

Trumpet in C

Percussion

Piano

Soprano

Alto I

Alto II

Tenor

Violin I

Violin II

Viola

Cello

Double Bass

Lyr - ics

Lyr - ics

Ah - ah

Lyr - ics

8

## Piano template (simple)

Here is a simple piano staff with some notes.

```

upper = \relative c'' {
  \clef treble
  \key c \major
  \time 4/4

  a4 b c d

```

```

}

lower = \relative c {
  \clef bass
  \key c \major
  \time 4/4

  a2 c
}

\score {
  \new PianoStaff <<
    \set PianoStaff.instrumentName = #"Piano  "
    \new Staff = "upper" \upper
    \new Staff = "lower" \lower
  >>
  \layout { }
  \midi { }
}

```



## Piano template with centered lyrics

Instead of having a full staff for the melody and lyrics, lyrics can be centered between the staves of a piano staff.

```

upper = \relative c'' {
  \clef treble
  \key c \major
  \time 4/4

  a4 b c d
}

lower = \relative c {
  \clef bass
  \key c \major
  \time 4/4

  a2 c
}

text = \lyricmode {
  Aaa Bee Cee Dee
}

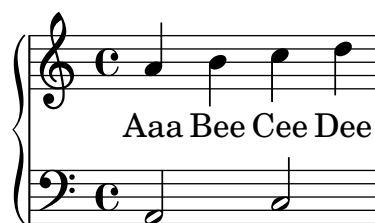
\score {

```

```

\new GrandStaff <<
  \new Staff = upper { \new Voice = "singer" \upper }
  \new Lyrics \lyricsto "singer" \text
  \new Staff = lower { \lower }
>>
\layout {
  \context {
    \GrandStaff
    \accepts "Lyrics"
  }
  \context {
    \Lyrics
    \consists "Bar_engraver"
  }
}
\midi { }
}

```



## Piano template with melody and lyrics

Here is a typical song format: one staff with the melody and lyrics, with piano accompaniment underneath.

```

melody = \relative c'' {
  \clef treble
  \key c \major
  \time 4/4

```

```

  a b c d
}

```

```

text = \lyricmode {
  Aaa Bee Cee Dee
}

```

```

upper = \relative c'' {
  \clef treble
  \key c \major
  \time 4/4

```

```

  a4 b c d
}

```

```

lower = \relative c {
  \clef bass
  \key c \major

```



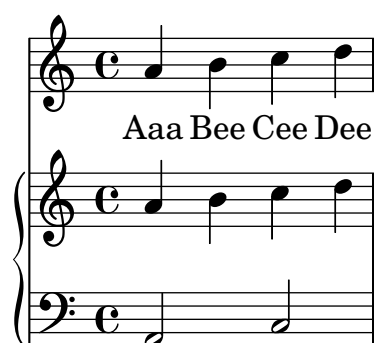
```

\time 4/4

a2 c
}

\score {
  <<
    \new Voice = "mel" { \autoBeamOff \melody }
    \new Lyrics \lyricsto mel \text
    \new PianoStaff <<
      \new Staff = "upper" \upper
      \new Staff = "lower" \lower
    >>
  >>
  \layout {
    \context { \Staff \RemoveEmptyStaves }
  }
  \midi { }
}

```



## SATB Choir template - four staves

SATB choir template (four staves)

```

global = {
  \key c \major
  \time 4/4
  \dynamicUp
}
sopranonotes = \relative c'' {
  c2 \p \< d c d \f
}
sopranowords = \lyricmode { do do do do }
altonotes = \relative c'' {
  c2\p d c d
}
altowords = \lyricmode { re re re re }
tenornotes = {
  \clef "G_8"
  c2\mp d c d
}
tenorwords = \lyricmode { mi mi mi mi }

```

```

bassnotes = {
  \clef bass
  c2\mf d c d
}
basswords = \lyricmode { mi mi mi mi }

\score {
  \new ChoirStaff <<
    \new Staff <<
      \new Voice = "soprano" <<
        \global
        \sopranonotes
      >>
      \lyricsto "soprano" \new Lyrics \sopranowords
    >>
    \new Staff <<
      \new Voice = "alto" <<
        \global
        \altonotes
      >>
      \lyricsto "alto" \new Lyrics \altowords
    >>
    \new Staff <<
      \new Voice = "tenor" <<
        \global
        \tenornotes
      >>
      \lyricsto "tenor" \new Lyrics \tenorwords
    >>
    \new Staff <<
      \new Voice = "bass" <<
        \global
        \bassnotes
      >>
      \lyricsto "bass" \new Lyrics \basswords
    >>
  >>
}

```



## Score for diatonic accordion

A template to write a score for a diatonic accordion.

- There is a horizontal staff indicating if the accordion must be pushed (thick line) or pulled (thin line)
- There is a small rhythmic staff with lyrics that describes the bass buttons to press. The bar lines are made from gridlines
- The tabulator staff for diatonic accordions shows the geographic position of the buttons and not (as for every other instrument) the pitch of the notes; the keys on the melody-side of the accordion are placed in three columns and about 12 rows

In the tabulator staff notation the outermost column is described with notes between lines, the innermost column is described with notes between lines and a cross as accidental, and the middle column is described with notes on a line, whereby the row in the middle is represented on the middle line in the staff.

Some words to transpose piano notes to the diatonic accordion:

1. Every diatonic accordion is built for some keys only (for example, for the keys of C major and F major), so it is important to transpose a piano melody to match one of these keys. Transpose the source code, not only the output because this code is required later on to translate it once more to the tabulator staff. This can be done with the command `displayLilyMusic`.
2. You have to alternate the push- and pull-direction of the accordion regularly. If the player has a too long part to pull the accordion gets broken. On the other hand, some harmonies are only available in one direction. Considering this, decide which parts of the melody are the push-parts and which the pull-parts.
3. For each pull- or push-part translate the piano notes to the according tabulature representation.

This snippet comes with a useful optional macro for the jEdit text editor.

```
verse = \lyricmode { Wie gross bist du! Wie gross bist du! }
```

```
harmonies = \new ChordNames \chordmode {
  \germanChords
  \set chordChanges = ##t
  bes8 bes8 bes8
  es2 f
  bes1
```

```
}
```

```
NoStem = { \override Stem #'transparent = ##t \override Flag #'transparent = ##t }■
```

```
NoNoteHead = \override NoteHead #'transparent = ##t
```

```
ZeroBeam = \override Beam #'positions = #'(0 . 0)
```

```
staffTabLine = \new Staff \with {
  \remove "Time_signature_engraver"
  \remove "Clef_engraver"
}
```

```
{
```

```
\override Staff.StaffSymbol #'line-positions = #'(0)
```

```
% Shows one horizontal line. The vertical line (simulating a bar-line) is simulated with a
```

```
\set Staff.midiInstrument = #"choir aahs"
```

```
\key c \major
```

```
\relative c''
```

```
{
```

```
% disable the following line to see the the noteheads while writing the song
```

```
\NoNoteHead
```

```
\override NoteHead #'no-ledgers = ##t
```

```
% The beam between 8th-notes is used to draw the push-line
```

```
%How to fast write the push-lines:
```

```
% 1. write repeatedly 'c c c c c c c c |' for the whole length of the song
```

```
% 2. uncomment the line \NoNoteHead
```

```
% 3. compile
```

```
% 4. Mark the positions on which push/pull changes.
```

```
% In the score-picture click on the position the push- or pull-part starts■
```

```
% (on the noteHead, the cursor will change to a hand-icon).
```

```
% The cursor in the source code will jump just at this position.
```

```
% a) If a push-part starts there, replace the 'c' by an 'e['
```

```
% b) If a pull-part starts there, replace the 'c' by an 's'
```

```
% 5. Switch into 'overwrite-mode' by pressing the 'ins' key.
```

```
% 6. For the pull-parts overwrite the 'c' with 's'
```

```
% 7. For every push-part replace the last 'c' with 'e']'
```

```
% 8. Switch into 'insert-mode' again
```

```
% 9. At last it should look lik e.g. (s s e[ c | c c c c c c c c | c c c c c c e] s s)■
```

```
% 10. re-enable the line \NoNoteHead
```

```
\autoBeamOff
```

```
\ZeroBeam
```

```
s8 s s e[ c c c c c c e] | s s s s s
```

```
}
```

```
}
```

```
%{
```

```
%}
```

```
% Accordion melody in tabulator score
```

```
% 1. Place a copy of the piano melody below
```

```
% 2. Separate piano melody into pull- and push-parts according to the staffTabLine you've a
```

```
% 3. For each line: Double the line. Remark the 1st one (Keeps unchanged as reference) and t
```

```
% or the macros 'conv2diaton push.bsh' and 'conv2diaton pull.bsh'
```

```
% Tips:
```

% - In jEdit Search & Replace mark the Option 'Keep Dialog'

```
AccordionTabTwoCBesDur = {
```

```
  % pull 1
```

```
  %<f' bes'>8 <f' a'>8 <d' bes'>8 |
```

```
  <g'' a''>8 <g'' b''>8 <e'' a''>8 |
```

```
  % push 2
```

```
  %<g' c''>4 <f' d''> <g' ees''> <f' a'> |
```

```
  <g'' a''>4 <d'' eisis''> <g'' bisis''> <d'' f''> |
```

```
  % pull 3
```

```
  % <f' bes'>2 r8 }
```

```
  <g'' a''>2 r8 }
```

```
AccordionTab= { \dynamicUp
```

```
  % 1. Place a copy of the piano melody above
```

```
  % 2. Separate piano melody into pull- and push-parts according to the staffTabLine you've
```

```
  % 3. For each line: Double the line. Remark the 1st one (Keeps unchanged as reference) and
```

```
  %   change the second line using the transformation paper
```

```
  % Tips:
```

```
  % - In jEdit Search & Replace mark the Option 'Keep Dialog'
```

```
  % -
```

```
  \AccordionTabTwoCBesDur
```

```
}
```

```
\layout {
```

```
  \context {
```

```
    \Score
```

```
    % The vertical line (simulating a bar-line) in
```

```
    % the staffBassRhythm is a gridline
```

```
    \consists "Grid_line_span_engraver"
```

```
  }
```

```
  \context {
```

```
    \Staff
```

```
    \consists "Grid_point_engraver"
```

```
    gridInterval = #(ly:make-moment 4 4) % 4/4 - tact. How many beats per bar
```

```
    % The following line has to be adjusted O-F-T-E-N.
```

```
    \override GridPoint #'Y-extent = #'(-2 . -21)
```

```
  }
```

```
  \context {
```

```
    \ChoirStaff
```

```
    \remove "System_start_delimiter_engraver"
```

```
  }
```

```
}
```

```
staffVoice = \new Staff = astaffvoice {
```

```
  \time 4/4
```

```
  \set Staff.instrumentName = "Voice"
```

```
  \set Staff.midiInstrument = "voice oohs"
```

```
  \key bes \major
```

```
  \partial 8*3
```

```

\clef treble
{
  \context Voice = "melodyVoi"
  { <f' bes'>8 <f' a'>8 <d' bes'>8 | <g' c''>4 <f' d''> <g' es''> <f' a'> | <f' bes'>2 r8
  \bar "|."
}
}

```

```

staffAccordionMel =
\new Staff \with { \remove "Clef_engraver" } {
  \accidentalStyle "forget" %Set the accidentals (Vorzeichen) for each note,
  %do not remember them for the rest of the measure.
  \time 4/4
  \set Staff.instrumentName="Accordion"
  \set Staff.midiInstrument="voice oohs"
  \key c \major
  \clef treble
  { \AccordionTab \bar "|." }
}

```

```

AltOn =
#(define-music-function (parser location mag) (number?)
  #{ \override Stem #'length = #(* 7.0 mag)
    \override NoteHead #'font-size =
  #(inexact->exact (* (/ 6.0 (log 2.0)) (log mag))) #})

```

```

AltOff = {
  \revert Stem #'length
  \revert NoteHead #'font-size
}

```

```

BassRhytm = {s4 s8 | c2 c2 | c2 s8 }
LyricBassRhythmI= \lyricmode { c b | c }

```

```

staffBassRhytm =
\new Staff = staffbass \with { \remove "Clef_engraver" } {
  % This is not a RhythmicStaff because it must be possible to append lyrics.

  \override Score.GridLine #'extra-offset = #'( 13.0 . 0.0 ) % x.y
  \override Staff.StaffSymbol #'line-positions = #'( 0 )
  % Shows one horizontal line. The vertical line (simulating a bar-line) is simulated by a
  % Search for 'grid' in this page to find all related functions
  \time 4/4
  {
    \context Voice = "VoiceBassRhytm"
    \stemDown \AltOn #0.6
    \relative c''
    {
      \BassRhytm
    }
    \AltOff
    \bar "|."
  }
}

```

```

    }
  }

\score {
  \new ChoirStaff <<
    \harmonies
    \staffVoice
    \context Lyrics = "lmelodyVoi"
    \with { alignBelowContext = astaffvoice }
    \lyricsto melodyVoi \verse
    \staffAccordionMel
    \staffTabLine
    \staffBassRhytm
    \context Lyrics = "lBassRhytmAboveI"
    \with { alignAboveContext = staffbass }
    \lyricsto VoiceBassRhytm \LyricBassRhythmI
  >>
}
%}

```

The image shows a musical score for the song "Wie gross bist du!". It consists of three staves: Voice, Accordion, and Bass. The Voice staff is in treble clef with a key signature of one flat (Bb) and a common time signature (C). The melody is: B4 (quarter), A4 (quarter), G4 (quarter), F4 (quarter), E4 (quarter), D4 (half). The lyrics "Wie gross bist du! Wie gross bist du!" are written below the notes. The Accordion staff is in treble clef with a common time signature (C). The melody is: B4 (quarter), A4 (quarter), G4 (quarter), F4 (quarter), E4 (quarter), D4 (half). The Bass staff is in bass clef with a common time signature (C). The bass line is: C3 (half), B2 (half), C3 (half), D3 (half). The chords B, Eb, F, and B are indicated above the first four measures of the Voice staff.

### Single staff template with notes lyrics and chords

This template allows the preparation of a song with melody, words, and chords.

```

melody = \relative c' {
  \clef treble
  \key c \major
  \time 4/4

  a4 b c d
}

text = \lyricmode {
  Aaa Bee Cee Dee
}

harmonies = \chordmode {

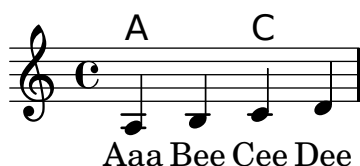
```

```

a2 c
}

\score {
  <<
    \new ChordNames {
      \set chordChanges = ##t
      \harmonies
    }
    \new Voice = "one" { \autoBeamOff \melody }
    \new Lyrics \lyricsto "one" \text
  >>
  \layout { }
  \midi { }
}

```



## Single staff template with notes lyrics chords and frets

Here is a simple lead sheet template with melody, lyrics, chords and fret diagrams.

```

verseI = \lyricmode {
  \set stanza = #"1."
  This is the first verse
}

verseII = \lyricmode {
  \set stanza = #"2."
  This is the second verse.
}

theChords = \chordmode {
  % insert chords for chordnames and fretboards here
  c2 g4 c
}

staffMelody = \relative c' {
  \key c \major
  \clef treble
  % Type notes for melody here
  c4 d8 e f4 g
  \bar "|"
}

\score {
  <<
    \context ChordNames { \theChords }
    \context FretBoards { \theChords }

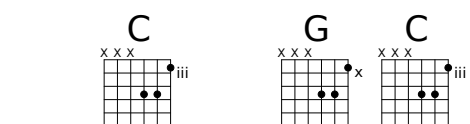
```



```

\new Staff {
  \context Voice = "voiceMelody" { \staffMelody }
}
\new Lyrics = "lyricsI" {
  \lyricsto "voiceMelody" \verseI
}
\new Lyrics = "lyricsII" {
  \lyricsto "voiceMelody" \verseII
}
>>
\layout { }
\midi { }
}

```



1. This is the first verse
2. This is the second verse.

## Single staff template with notes and chords

Want to prepare a lead sheet with a melody and chords? Look no further!

```

melody = \relative c' {
  \clef treble
  \key c \major
  \time 4/4

  f4 e8[ c] d4 g
  a2 ~ a
}

harmonies = \chordmode {
  c4:m f:min7 g:maj c:aug
  d2:dim b:sus
}

\score {
  <<
    \new ChordNames {
      \set chordChanges = ##t
      \harmonies
    }
    \new Staff \melody
  >>
  \layout{ }
  \midi { }
}

```



## Single staff template with notes and lyrics

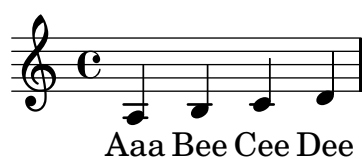
This small template demonstrates a simple melody with lyrics. Cut and paste, add notes, then words for the lyrics. This example turns off automatic beaming, which is common for vocal parts. To use automatic beaming, change or comment out the relevant line.

```
melody = \relative c' {
  \clef treble
  \key c \major
  \time 4/4

  a4 b c d
}

text = \lyricmode {
  Aaa Bee Cee Dee
}

\score{
  <<
    \new Voice = "one" {
      \autoBeamOff
      \melody
    }
    \new Lyrics \lyricsto "one" \text
  >>
  \layout { }
  \midi { }
}
```



## Single staff template with only notes

This very simple template gives you a staff with notes, suitable for a solo instrument or a melodic fragment. Cut and paste this into a file, add notes, and you're finished!

```
melody = \relative c' {
  \clef treble
  \key c \major
  \time 4/4

  a4 b c d
}

\score {
  \new Staff \melody
  \layout { }
}
```

```
\midi { }
}
```



## String quartet template (simple)

This template demonstrates a simple string quartet. It also uses a `\global` section for time and key signatures

```
global= {
  \time 4/4
  \key c \major
}
```

```
violinOne = \new Voice \relative c'' {
  \set Staff.instrumentName = #"Violin 1 "
```

```
  c2 d
  e1
```

```
  \bar "|."
}
```

```
violinTwo = \new Voice \relative c'' {
  \set Staff.instrumentName = #"Violin 2 "
```

```
  g2 f
  e1
```

```
  \bar "|."
}
```

```
viola = \new Voice \relative c' {
  \set Staff.instrumentName = #"Viola "
  \clef alto
```

```
  e2 d
  c1
```

```
  \bar "|."
}
```

```
cello = \new Voice \relative c' {
  \set Staff.instrumentName = #"Cello "
  \clef bass
```

```
  c2 b
  a1
```

```
  \bar "|."
}
```

```

}

\score {
  \new StaffGroup <<
    \new Staff << \global \violinOne >>
    \new Staff << \global \violinTwo >>
    \new Staff << \global \viola >>
    \new Staff << \global \cello >>
  >>
  \layout { }
  \midi { }
}

```

## String quartet template with separate parts

The “String quartet template” snippet produces a nice string quartet, but what if you needed to print parts? This new template demonstrates how to use the `\tag` feature to easily split a piece into individual parts.

You need to split this template into separate files; the filenames are contained in comments at the beginning of each file. `piece.ly` contains all the music definitions. The other files – `score.ly`, `vn1.ly`, `vn2.ly`, `vla.ly`, and `vlc.ly` – produce the appropriate part.

Do not forget to remove specified comments when using separate files!

```

%% piece.ly
%% (This is the global definitions file)

global= {
  \time 4/4
  \key c \major
}

Violinone = \new Voice { \relative c' {
  \set Staff.instrumentName = #"Violin 1 "

  c2 d e1

  \bar "|" } } %*****
Violintwo = \new Voice { \relative c' {
  \set Staff.instrumentName = #"Violin 2 "

```

```

g2 f e1

\bar "|" } %*****
Viola = \new Voice { \relative c' {
  \set Staff.instrumentName = #"Viola "
  \clef alto

e2 d c1

\bar "|" } %*****
Cello = \new Voice { \relative c' {
  \set Staff.instrumentName = #"Cello "
  \clef bass

c2 b a1

\bar "|." } %*****

music = {
  <<
    \tag #'score \tag #'vn1 \new Staff { << \global \Violinone >> }
    \tag #'score \tag #'vn2 \new Staff { << \global \Violintwo>> }
    \tag #'score \tag #'vla \new Staff { << \global \Viola>> }
    \tag #'score \tag #'vlc \new Staff { << \global \Cello>> }
  >>
}

%%% These are the other files you need to save on your computer

%%%%% score.ly
%%%%% (This is the main file)

%% uncomment the line below when using a separate file
%\include "piece.ly"
#(set-global-staff-size 14)
\score {
  \new StaffGroup \keepWithTag #'score \music
  \layout { }
  \midi { }
}

%{ Uncomment this block when using separate files

%%%%% vn1.ly
%%%%% (This is the Violin 1 part file)

\include "piece.ly"
\score {
  \keepWithTag #'vn1 \music
  \layout { }

```

```
}
```

```
%%%% vn2.ly
%%%% (This is the Violin 2 part file)
```

```
\include "piece.ly"
\score {
  \keepWithTag #'vn2 \music
  \layout { }
}
```

```
%%%% vla.ly
%%%% (This is the Viola part file)
```

```
\include "piece.ly"
\score {
  \keepWithTag #'vla \music
  \layout { }
}
```

```
%%%% vlc.ly
%%%% (This is the Cello part file)
```

```
\include "piece.ly"
\score {
  \keepWithTag #'vlc \music
  \layout { }
}
```

```
%}
```

Violin 1

Violin 2

Viola

Cello

## Vocal ensemble template with automatic piano reduction

This template adds an automatic piano reduction to the standard SATB vocal score demonstrated in “Vocal ensemble template”. This demonstrates one of the strengths of LilyPond – you can use a music definition more than once. If any changes are made to the vocal notes (say, `tenorMusic`), then the changes will also apply to the piano reduction.

```
\paper {
  top-system-spacing #'basic-distance = #10
```

```

    score-system-spacing #'basic-distance = #20
    system-system-spacing #'basic-distance = #20
    last-bottom-spacing #'basic-distance = #10
}

global = {
  \key c \major
  \time 4/4
}

sopMusic = \relative c'' {
  c4 c c8[( b)] c4
}
sopWords = \lyricmode {
  hi hi hi hi
}

altoMusic = \relative c' {
  e4 f d e
}
altoWords = \lyricmode {
  ha ha ha ha
}

tenorMusic = \relative c' {
  g4 a f g
}
tenorWords = \lyricmode {
  hu hu hu hu
}

bassMusic = \relative c {
  c4 c g c
}
bassWords = \lyricmode {
  ho ho ho ho
}

\score {
  <<
    \new ChoirStaff <<
      \new Lyrics = "sopranos" \with {
        % This is needed for lyrics above a staff
        \override VerticalAxisGroup #'staff-affinity = #DOWN
      }
      \new Staff = "women" <<
        \new Voice = "sopranos" { \voiceOne << \global \sopMusic >> }
        \new Voice = "altos" { \voiceTwo << \global \altoMusic >> }
      >>
      \new Lyrics = "altos"
      \new Lyrics = "tenors" \with {
        % This is needed for lyrics above a staff

```

```

\override VerticalAxisGroup #'staff-affinity = #DOWN
}

\new Staff = "men" <<
  \clef bass
  \new Voice = "tenors" { \voiceOne << \global \tenorMusic >> }
  \new Voice = "basses" { \voiceTwo << \global \bassMusic >> }
>>
\new Lyrics = "basses"
\context Lyrics = "sopranos" \lyricsto "sopranos" \sopWords
\context Lyrics = "altos" \lyricsto "altos" \altoWords
\context Lyrics = "tenors" \lyricsto "tenors" \tenorWords
\context Lyrics = "basses" \lyricsto "basses" \bassWords
>>
\new PianoStaff <<
  \new Staff <<
    \set Staff.printPartCombineTexts = ##f
    \partcombine
    << \global \sopMusic >>
    << \global \altoMusic >>
  >>
  \new Staff <<
    \clef bass
    \set Staff.printPartCombineTexts = ##f
    \partcombine
    << \global \tenorMusic >>
    << \global \bassMusic >>
  >>
>>
>>
}

```

The image shows a musical score for a four-part vocal ensemble and piano accompaniment. The vocal parts are Soprano, Alto, Tenor, and Bass, each with lyrics. The piano accompaniment is on the bottom two staves.

**Vocal Parts:**

- Soprano:** hi hi hi hi
- Alto:** ha ha ha ha
- Tenor:** hu hu hu hu
- Bass:** ho ho ho ho

**Piano Accompaniment:**

The piano accompaniment consists of two staves, Treble and Bass clef, with a common time signature (C). The melody is primarily in the Treble clef, with the Bass clef providing harmonic support.



## Vocal ensemble template with lyrics aligned below and above the staves

This template is basically the same as the simple “Vocal ensemble” template, with the exception that here all the lyrics lines are placed using `alignAboveContext` and `alignBelowContext`.

```
global = {
  \key c \major
  \time 4/4
}

sopMusic = \relative c'' {
  c4 c c8[( b)] c4
}
sopWords = \lyricmode {
  hi hi hi hi
}

altoMusic = \relative c' {
  e4 f d e
}
altoWords = \lyricmode {
  ha ha ha ha
}

tenorMusic = \relative c' {
  g4 a f g
}
tenorWords = \lyricmode {
  hu hu hu hu
}

bassMusic = \relative c {
  c4 c g c
}
bassWords = \lyricmode {
  ho ho ho ho
}

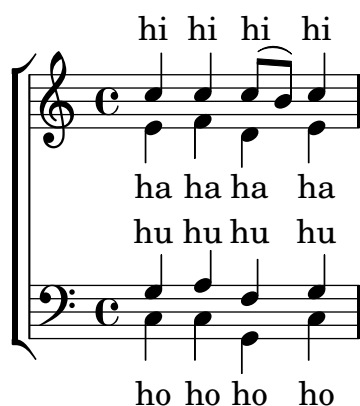
\score {
  \new ChoirStaff <<
    \new Staff = "women" <<
      \new Voice = "sopranos" { \voiceOne << \global \sopMusic >> }
      \new Voice = "altos" { \voiceTwo << \global \altoMusic >> }
    >>
    \new Lyrics \with { alignAboveContext = #"women" }
      \lyricsto "sopranos" \sopWords
    \new Lyrics \with { alignBelowContext = #"women" }
      \lyricsto "altos" \altoWords
    % we could remove the line about this with the line below, since
    % we want the alto lyrics to be below the alto Voice anyway.
    % \new Lyrics \lyricsto "altos" \altoWords

    \new Staff = "men" <<
```

```

\clef bass
\new Voice = "tenors" { \voiceOne << \global \tenorMusic >> }
\new Voice = "basses" { \voiceTwo << \global \bassMusic >> }
>>
\new Lyrics \with { alignAboveContext = #"men" }
  \lyricsto "tenors" \tenorWords
\new Lyrics \with { alignBelowContext = #"men" }
  \lyricsto "basses" \bassWords
% again, we could replace the line above this with the line below.
% \new Lyrics \lyricsto "basses" \bassWords
>>
}

```



## Vocal ensemble template with verse and refrain

This template creates a score which starts with a solo verse and continues into a refrain for two voices. It also demonstrates the use of spacer rests within the `\global` variable to define meter changes (and other elements common to all parts) throughout the entire score.

```

global = {
  \key g \major

  % verse
  \time 3/4
  s2.*2
  \break

  % refrain
  \time 2/4
  s2*2
  \bar "|"
}

SoloNotes = \relative g' {
  \clef "treble"

  % verse
  g4 g g |
  b4 b b |

  % refrain

```

```

    R2*2 |
}

SoloLyrics = \lyricmode {
    One two three |
    four five six |
}

SopranoNotes = \relative c'' {
    \clef "treble"

    % verse
    R2.*2 |

    % refrain
    c4 c |
    g4 g |
}

SopranoLyrics = \lyricmode {
    la la |
    la la |
}

BassNotes = \relative c {
    \clef "bass"

    % verse
    R2.*2 |

    % refrain
    c4 e |
    d4 d |
}

BassLyrics = \lyricmode {
    dum dum |
    dum dum |
}

\score {
  <<
    \new Voice = "SoloVoice" << \global \SoloNotes >>
    \new Lyrics \lyricsto "SoloVoice" \SoloLyrics

    \new ChoirStaff <<
      \new Voice = "SopranoVoice" << \global \SopranoNotes >>
      \new Lyrics \lyricsto "SopranoVoice" \SopranoLyrics

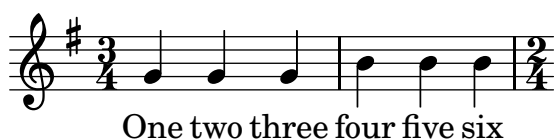
      \new Voice = "BassVoice" << \global \BassNotes >>
      \new Lyrics \lyricsto "BassVoice" \BassLyrics
    >>
  >>
}

```

```

>>
\layout {
  ragged-right = ##t
  \context { \Staff
    % these lines prevent empty staves from being printed
    \RemoveEmptyStaves
    \override VerticalAxisGroup #'remove-first = ##t
  }
}

```



## Vocal ensemble template

Here is a standard four-part SATB vocal score. With larger ensembles, it is often useful to include a section which is included in all parts. For example, the time signature and key signature are almost always the same for all parts. Like in the “Hymn” template, the four voices are regrouped on only two staves.

```

\paper {
  top-system-spacing #'basic-distance = #10
  score-system-spacing #'basic-distance = #20
  system-system-spacing #'basic-distance = #20
  last-bottom-spacing #'basic-distance = #10
}

global = {
  \key c \major
  \time 4/4
}

sopMusic = \relative c'' {
  c4 c c8[( b)] c4
}
sopWords = \lyricmode {
  hi hi hi hi
}

altoMusic = \relative c' {
  e4 f d e
}

```

```

}
altoWords = \lyricmode {
  ha ha ha ha
}

tenorMusic = \relative c' {
  g4 a f g
}
tenorWords = \lyricmode {
  hu hu hu hu
}

bassMusic = \relative c {
  c4 c g c
}
bassWords = \lyricmode {
  ho ho ho ho
}

\score {
  \new ChoirStaff <<
    \new Lyrics = "sopranos" \with {
      % this is needed for lyrics above a staff
      \override VerticalAxisGroup #'staff-affinity = #DOWN
    }
    \new Staff = "women" <<
      \new Voice = "sopranos" {
        \voiceOne
        << \global \sopMusic >>
      }
      \new Voice = "altos" {
        \voiceTwo
        << \global \altoMusic >>
      }
    >>
    \new Lyrics = "altos"
    \new Lyrics = "tenors" \with {
      % this is needed for lyrics above a staff
      \override VerticalAxisGroup #'staff-affinity = #DOWN
    }
    \new Staff = "men" <<
      \clef bass
      \new Voice = "tenors" {
        \voiceOne
        << \global \tenorMusic >>
      }
      \new Voice = "basses" {
        \voiceTwo << \global \bassMusic >>
      }
    >>
    \new Lyrics = "basses"
    \context Lyrics = "sopranos" \lyricsto "sopranos" \sopWords

```

```
\context Lyrics = "altos" \lyricsto "altos" \altoWords  
\context Lyrics = "tenors" \lyricsto "tenors" \tenorWords  
\context Lyrics = "basses" \lyricsto "basses" \bassWords  
>>  
}
```

A musical score for three voices (altos, tenors, and basses) in common time (C). The score is written on three staves, each with a different clef: alto (treble clef), tenor (treble clef with a one-line extension), and bass (bass clef). The lyrics are 'hi hi hi hi', 'ha ha ha ha', 'hu hu hu hu', and 'ho ho ho ho'. The melody is simple, with each voice part having a similar rhythmic pattern of quarter and eighth notes.