Invitation
Write a Score//Music Notation
Use LilyPond

On
WSL

GNU/Linux 5.10.16.3-microsoft-standard-WSL x86_64
(Windows 11 & Linux)

11:07 Saturday, June 27, 2026
writer: *Yukio Yoshida*(Japan)

¶ *Fierst of all; about LilyPond*

Preface(LilyPond)

It must have been during a rehearsal of the EJE (Eindhoven Youth Orchestra), somewherein 1995 that Jan, one of the cranked violists told Han-Wen, one of the distorted French horn players, about the grand new project he was working on. It was an automated system for printing music (to be precise, it was MPp, a preprocessor for MusiXTEX. As it happened, Han-Wen accidentally wanted to print out some parts from a score, so he started looking at thesoftware, and he quickly got hooked. It was decided that MPp was a dead end. After lots of philosophizing and heated email exchanges, Han-Wen started LilyPond in 1996. This time, Jan got sucked into Han-Wen's new project.

In some ways, developing a computer program is like learning to play an instrument. In the beginning, discovering how it works is fun, and the things you cannot do are challenging. After the initial excitement, you have to practice and practice. Scales and studies can be dull, and if you are not motivated by others.teachers, conductors or audience. it is very tempting togive up. You continue, and gradually playing becomes a part of your life. Some days it comes naturally, and it is wonderful, and on some days it just does not work, but you keep playing, day after day.

Like making music, working on LilyPond can be dull work, and on some days it feels like plodding through a morass of bugs. Nevertheless, it has become a part of our life, and we keep doing it. Probably the most important motivation is that our program actually does something useful for people. When we browse around the net we find many people who use LilyPond, and produce impressive pieces of sheet music. Seeing that feels unreal, but in a very pleasant way.

Our users not only give us good vibes by using our program, many of them also help us by giving suggestions and sending bug reports, so we would like to thank all users that sent us bug reports, gave suggestions or contributed in any other way to LilyPond.

Playing and printing music is more than a nice analogy. Programming together is a lot of fun, and helping people is deeply satisfying, but ultimately, working on LilyPond is a way to express our deep love for music. *May it help you create lots of beautiful music!*
Han-Wen and Jan.
Utrecht/Eindhoven, The Netherlands, July 2002.

—Excerpt from LilyPond[ver1.6-lilypond.pdf-]—

context Voice

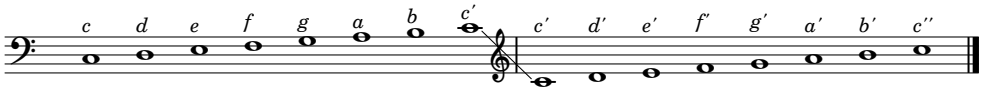
Knowledge for writing sheet music(using LilyPond)
—LilyPond language in the description of the musical score manuscript—

LilyPond's default is **to read `nederlands.ly`(In Netherlands notation)** and process the manuscript given. Strings such as **Note Names`(sharp, flat ...)`** in music are differences between countries(cultures). It is necessary to replace it with a target flight.
Those provided by Lilypond are
..... `english`.ly , `deutsch`.ly , `norsk`.ly , `svenska`.ly , `italiano`.ly , `catalan`.ly , `espanol`.ly , `portugues`.ly , `suomi`.ly , `vlaams`.ly .....
These are the declaration items at *the start of the musical score manuscript file* (described in the order below). For example,

```
\version "2.26.0"
\include "italiano.ly"
```

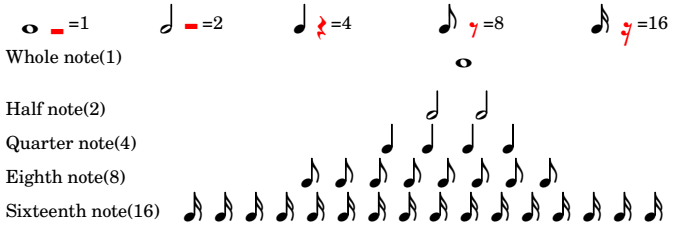
Version specification: This manuscript is written in ver2.26.0—. It is a *clear statement* to the "lilypond processing (token)".
In music manuscript coding, lilypond's-running does not choose OS. Also The ly(both old and new manuscript file) will run if it is (*LilyPond environment construction*)*OS*, and *even in the latest lilypond version*, too.

Default typesetting is output in Note(*quarter*) , Beat(*4/4*) , Clef(*treble*) , and Major(*C*). Midi is created with "*acoustic grand*(piano)" if there is no designated instrument.

Notes Scale(pitch) basic code;
" `c d e f g a b` " Scale(pitch explicit symbol)

clef bass c d e f g a b is default position of LilyPond
Units value(default in World); (a,=110Hz,) a=220Hz, a'=440Hz, a''=880Hz
Octave Up = ' or Down = , is; If you compare it with the c sound ----
1octerve-Up; c' *2octerve-Up;* c'' *1octerve-Down;* c, *2octerve-Down;* c,, ----

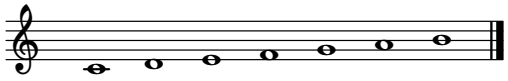
Notes Note value(length of note) Basic code;
" `c d e f g a b` " to specify the scale, specify the numerical value `1 2 4 8 16 32 64 128` with the subscript.
Descriptions of " `c4 a'1 g,2` ..... " *as note symbols*

1(Whole)⇒**2**(Half)⇒**4**(Quarter)⇒**8**(Eigth)⇒ **16**(Sixteenth) .....
1=whole sound divided evenly by all sounds, the following diagram; Rests are also notes



In Lilypond, for a note without a note value, the note value is searched before and before it , and the note value is evaluated

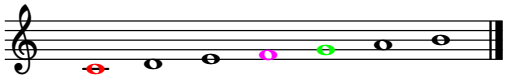
For example; `" a4 c8 d e f g r c4 "` **is interpreted as** `" a4 c8 d8 e8 f8 g8 r8 c4 "`

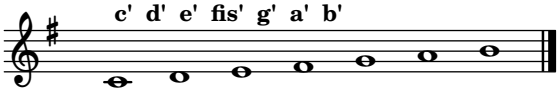
— \clef treble \key c\major —-
As c\major notes-writing are `c' d' e' f' g' a' b'`

Major scale list:
Cycle of 5th: UP *and* **DOWN**(The minor scale is omitted, there is nature+harmony ...so,there are many sample notations.)

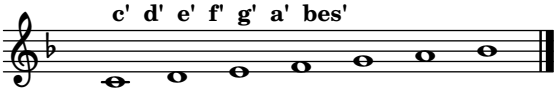
\clef treble \key c\major

Signature; (Tonic(I) , Dominant(V) , Subdominant(IV))

Default.

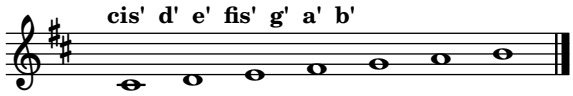


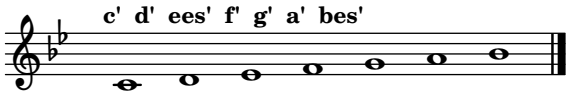
\key g\major

\key f\major



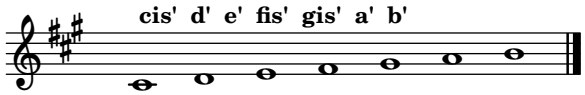
\key d\major

\key bes\major

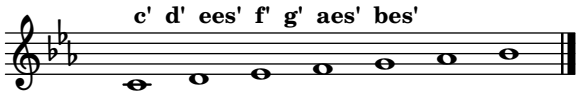




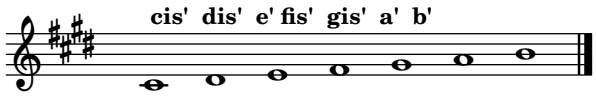
\key a\major



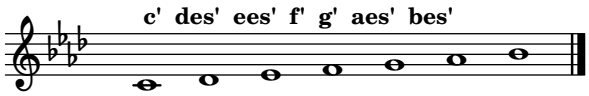
\key ees\major



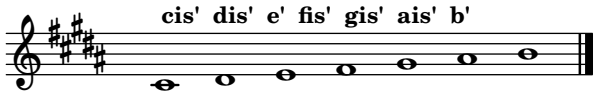
\key e\major



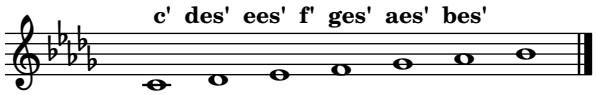
\key aes\major

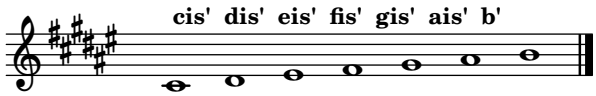


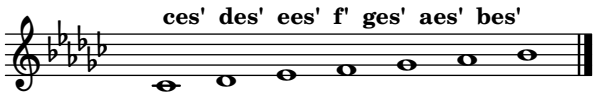
\key b\major



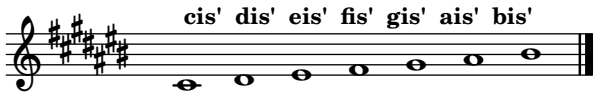
\key des\major



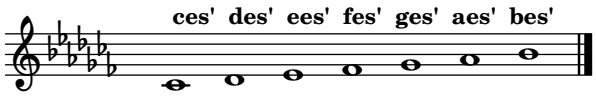
\key fis\major

\key ges\major

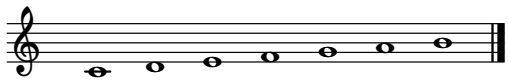


\key cis\major



\key ces\major



Here,both are back. ..... The changes are now back.
(c\major `c' d' e' f' g' a' b'`)

**No matter how much \clef changes,
the notes description convention of
\key name\major and name\miner is unchanged.**

Refer #1

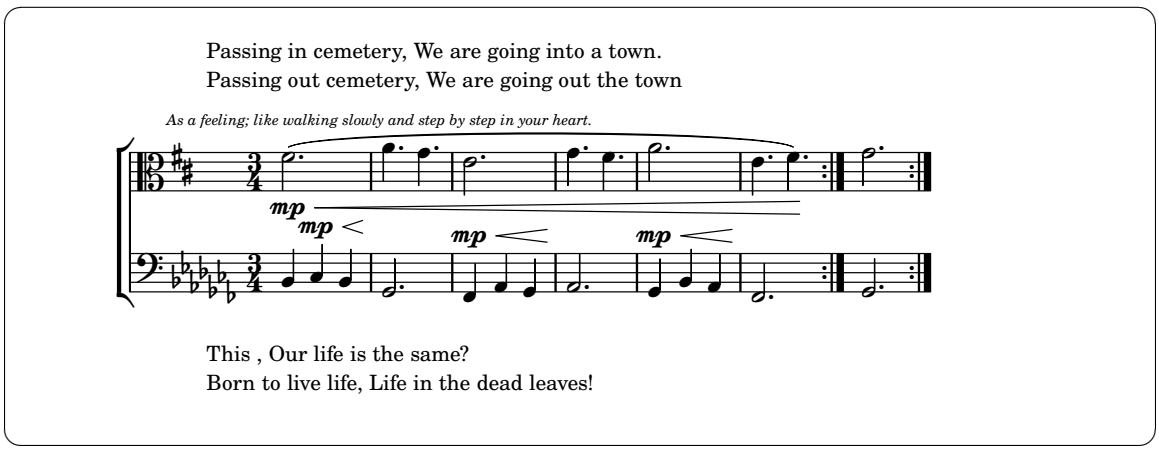
Automatic processing:
LilyPond processing result sample(file name is pompei4.ly)

Create a pompei4.ly file with a text editor as shown below.
File-name; `pompei4.ly`

```
%% #(set-default-paper-size "letter")
\version "2.26.0"
#(set-global-staff-size 14)
\paper { paper-height = 48\mm
         paper-width = 160\mm
         page-top-space = 0.00\mm
         top-margin = 0.00\mm
         bottom-margin = 0.00\mm }
\header { tagline = \markup { \null } }
altoOne = { \clef alto
            \autoBeamOff
%1-
 \repeat volta 3 { \repeat volta 2 {
 fis'2.^\markup { \column { "  " \line {\hspace #-12 \teeny \italic
              "As a feeling; like walking slowly and step by step in your heart." }}}
       _\mp\<\( | a'4. g' | e'2. | g'4. fis' |
 a'2. | e'4. fis'\!\) | } g'2. | } \break }

bassOne = { \clef bass
            \autoBeamOff
%1-
 \repeat volta 3 { \repeat volta2 {
 bes,4 ces\mp^\<  bes, | ges,2.\! | fes,4\mp^\< aes, ges, |
 aes,2.\! | ges,4\mp^\< bes, aes, | fes,2.\! | } ges,2. | } \break }

%% --- get sheet music
\book {
\markup { \column {
\line {\hspace #8 "Passing in cemetery, We are going into a town."}
\line {\hspace #8 "Passing out cemetery, We are going out the town"}
               } }
\score { \context ChoirStaff = "UP" <<
         \context Staff = "Up" { \key d\major \time 3/4 \altoOne }
         \context Staff = "Down" { \key ces\major \time 3/4 \bassOne }
                                      >>
  \layout { indent = 0.00\mm  }
}
```

```
%% --- get midi music
\score {  \unfoldRepeats
          \context ChoirStaff = "UPDOWN" <<
          \context Staff = "Up" { \key d\major \time 3/4 \tempo 4 = 62
                      \set Staff.midiInstrument = "acoustic grand"  \altoOne }
          \context Staff = "Down" { \key ces\major \time 3/4 \tempo 4 = 62
                       \set Staff.midiInstrument = "acoustic grand"  \bassOne }
                                          >>
  \midi { tempoWholesPerMinute = #(ly:make-moment 62 4) }
}
\markup { \vspace #-6 \column {
\line {\hspace #8 "This , Our life is the same?"}
\line {\hspace #8 "Born to live life, Life in the dead leaves!"}
                } }
}
```

Where the pompei4.ly file is,
windows OS ======> `lilypond --pdf --png pompei4.ly`[Enter]
Linux OS =======$ `lilypond --pdf --png pompei4.ly`[Enter]
When you open the created pompei4.pdf(pompei4.png), it is as follows.



As you can see; Text can be processed with `\markup { text }`, whether inside `\score {.....}` or outside `\score {.....}` . On the contrary, this `\markup { \score {...}}` is also possible,too.
`"\markup"` is a kind of Line Editor function,and you can write pronunciation notation characters, special characters,... straight and continue writing the manuscript. Once you get used to it, you can also create a document(sentence only) with only `\markup` of lilypond.

Therefore, it is possible to display The score,a score,score-book,score-document, ...etc, in pdf/paper and display only by writing the LilyPond manuscript.

What we are talking about here is the "Formatting text" inside the LilyPond environment, not the "Formatting Text" outside the LilyPond environment. In the outside world, there are various [Word Processors],[TEX(system)],[Hypertext(system)], [Ghostscript]... It will be a word processor for general use in paper(documentation).

• For example;LibreOffice/OpenOffice(open source)
If you paste it into Word Processer–musical score,sheet music,sheet music book, musical score document–you can easily and easily put it on paper.
Reference==>`https://github.com/OOoLilyPond/OOoLilyPond/wiki#ooolilypond`

• On the other hand, there is a typesetting method for converting musical scores, musical scores, musical score books, and musical score documents into paper. Also, there is a display specification based on HyperText. **LilyPond** also provides a typesetting (TEX)system and a program for HyperText that can display the score at the document position(see usage.pdf for details)
.

Refer #2

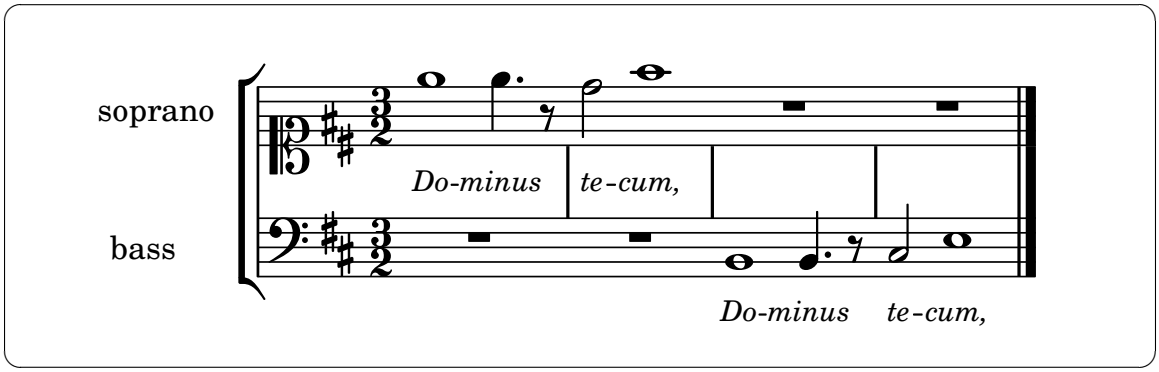
Automatic processing:
LilyPond processing result sample(file name is example-4.ly)

Create a example-4.ly file with a text editor as shown below.
File-name; `example-4.ly`——————————————————————

```
\version "2.26.0"
%% #(set-default-paper-size "letter")
#(set-global-staff-size 16)
\paper{
paper-height = 30.00\mm
paper-width = 120.00\mm
page-top-space = 00.00\mm
top-margin = 0.00\mm
bottom-margin = 0.00\mm
}

\header { tagline = \markup { \null } }
%%%%%%%% soprano part %%%%%%%%%%%%%%%%%%%%
soprano = { \hide Staff.BarLine
    \autoBeamOff
%% 9-12
   e''1 e''4. r8 | d''2 fis''1 | R1. | R1.
   \undo \hide Staff.BarLine \bar "|." \break
}
sopranoL = \lyricmode {
    \override Score . LyricText #'font-shape = #'italic
    \tiny
Do -- minus te -- cum,
}

%%%%%%% bass; part %%%%%%%%%%%%%%%
bass = { \hide Staff.BarLine
   \autoBeamOff
%% 9-12
   R1. | R1. | b,1 b,4. r8 | cis2 e1
   \undo \hide Staff.BarLine \bar "|."  \break
}
bassL = \lyricmode {
    \override Score . LyricText #'font-shape = #'italic
    \tiny
Do -- minus te -- cum,
}
```

```
%% get sheet & midi music --------------------------------------------------------------
\score {
        <<
%%          \context ChoirStaff = "FourPartStaffaddchorus" <<
%% use \hide Staff.BarLine
  \context StaffGroup <<
          \context Voice = "soprano" { \clef soprano \key d\major \time 3/2
                      \set Staff.instrumentName = "soprano" \soprano }
                      \new Lyrics = "mainSL" \lyricsto "soprano" { \sopranoL }

          \context Voice = "bass" { \clef bass \key d\major \time 3/2
                      \set Staff.instrumentName = "bass   " \bass }
                      \new Lyrics = "mainBL" \lyricsto "bass" { \bassL }
                     >>
        >>
  \layout {  }
  \midi { tempoWholesPerMinute = #(ly:make-moment 58 4) }
}
```

Where the example-4.ly file is,
windows OS =====> `lilypond --pdf --png example-4.ly`[Enter]
Linux OS =======$ `lilypond --pdf --png example-4.ly`[Enter]
When you open the created example-4.pdf(example-4.png), it is as follows.



context Staff
Usually "`\new Staff`"(=`\context Staff`) is the way to call the staff.
However, in example-4.ly,
it is described as "`\context Voice`"(=`\new Voice`) instead.

As a rough reference, sopurano = ...lilypond code(music) description is processed by calling \score [cpu(music) processing] with \soprano. ...the(memory) stacks is named soprano(Same for bass). `\context Voice = "soprano"`,`\context Voice = "bass"` is the name, It means the associated(soprano, bass) Staff.
..... Therefore `\new Lyrics = "mainSL" \lyricsto "soprano" \sopranoL` holds. The

lyrics of sopranoL are called into \score with \sopranoL and synchronized with the soprano naming Staff. It will be a musical score(same for bass).

By the way,
`\context Voice = "soprano"` `\context Voice = "bass"` Rewrite this part
Write `\context Staff = "soprano"` `\context Staff = "bass"` .....
(verify)*`lilypond --pdf --png example-4.ly`*(running) and get example-4.pdf
It's obvious if you do (there is no lyrics part!?).

It is better to write in the staff call of "\new Voice {" or "\context Voice {" ....in the composition process, avoiding the staff call of "\new Staff {" or "\context Staff {" is more important than its convenience.

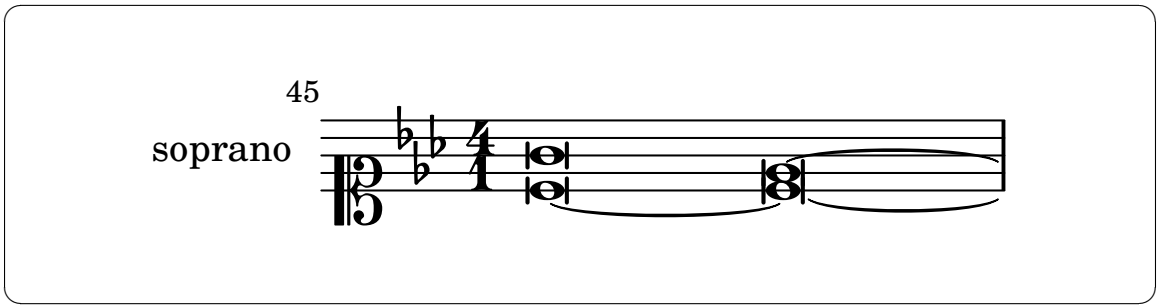
Automatic processing:
LilyPond processing result sample(file name is example-5.ly)

Create a example-5.ly file with a text editor as shown below.
File-name; `example-5.ly`———————————————————

```
\version "2.26.0"
#(set-global-staff-size 16)
\paper{
paper-height = 20.00\mm
paper-width = 100.00\mm
page-top-space = 0.00\mm
top-margin = 0.00\mm
bottom-margin = 0.00\mm
}
\header { tagline = \markup { \null } }

soprano = {  \bar " "
%% 45-47
   \time 4/1
   << { s\breve ees'\breve ~ | ees'1 s1 s\breve } \\
      { <c' g'>\breve ~ c'\breve ~ | c'\longa ~ } >> |
   \time 3/2
    << { s1. } \\ { c'1 s2 } >> \bar "|." \break  }
\score {
  \context Voice = "soprano" { \clef soprano \key ees\major \time 3/2
                       \set Staff.instrumentName = "soprano" \soprano }
  \layout { \override Score.BarNumber.break-visibility = ##(#f #t #t)
            \set Score.currentBarNumber=45 }
}
```

Where the example-5.ly file is,

windows OS =====> `lilypond --pdf --png example-5.ly`[Enter]
Linux OS =======$ `lilypond --pdf --png example-5.ly`[Enter]
When you open the created example-5.pdf(example-5.png), it is as follows.

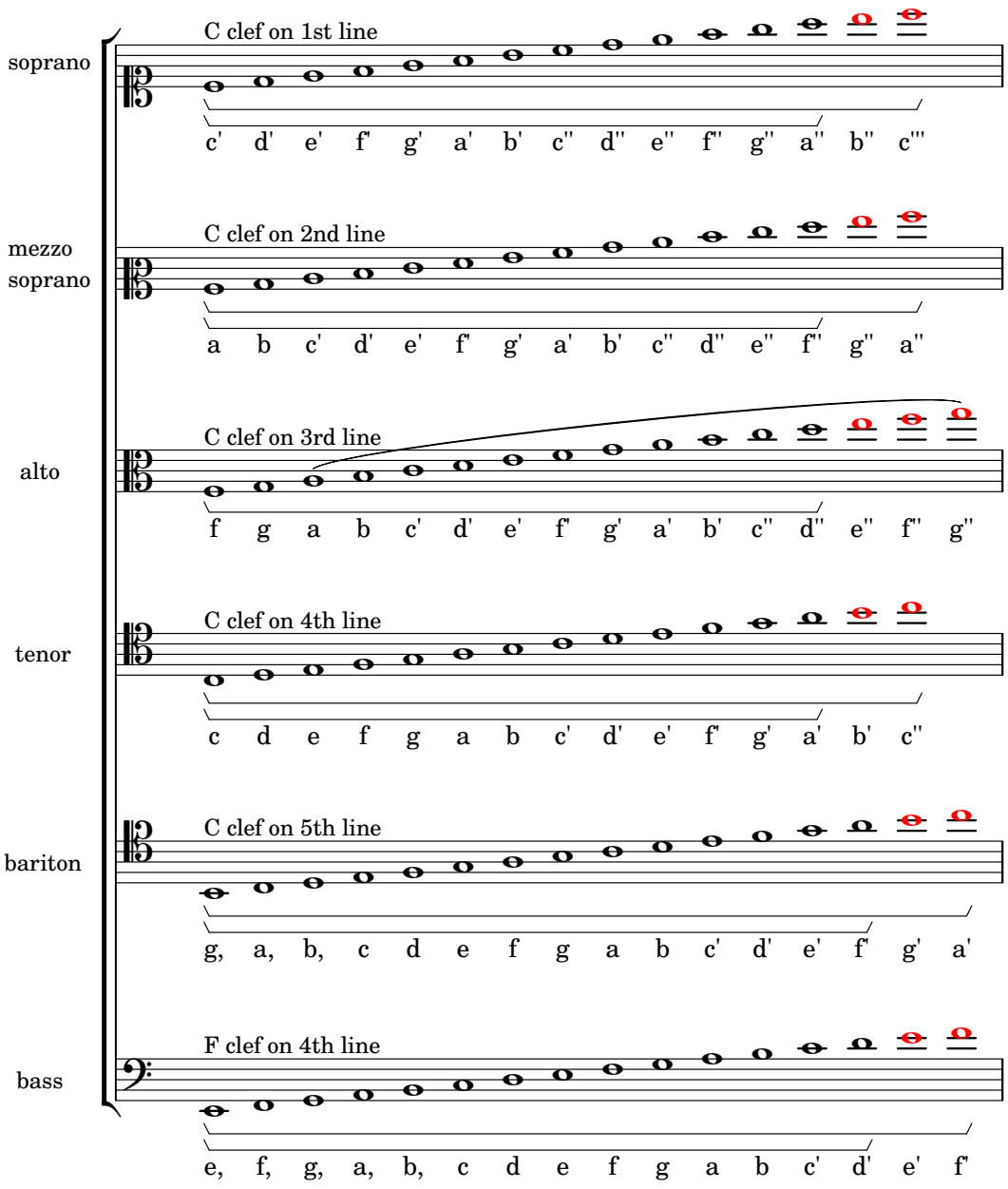


The 47th bar should be described as `c'1 s2 \bar "|." \break`, but since the 46th bar is described separately from the top and bottom ... `from the bottom. Since c'\longa ~` and Tie are being sent ... The code description in bar 47 is processed as above. **However**, LilyPond's musical score code description is not absolute for each person.
With the exception of LilyPond, information sent by that staff is received within that staff in principle.

Other;
Lilypond also has a feature called " `\skip argument`" that is similar to " s " note. (In notation.pdf)It is recommended to verify with(page-59,286,799).

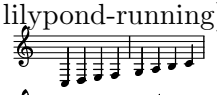
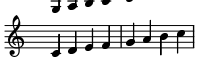
Refer #3

Chorus Scale ---Voice music---



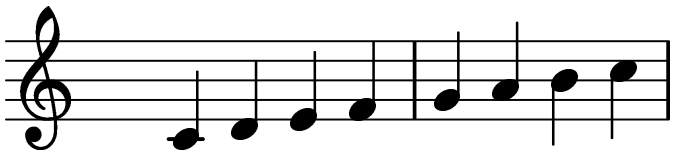
Formatting text

[Here, I will talk about something other than "LilyPond" and about so-called typesetting output(pdf file).]

For example, in lilypond the code
"{ c d e f g a b c' } or {\relative c' { c d e f g a b c }}" is not interpreted as a character(in lilypond-running). This object is often introduced in lilypond introductions,

{ c d e f g a b c' } or

{ \relative c' { c d e f g a b c } }

but it can be misleading to people trying to understand LilyPond.

Gnu Music Clean Copy Typesetter.



```
\version "2.26.0"
\book{
 \markup { \italic "Gnu Music Clean Copy Typesetter." }
 \markup { "  " }
\score { \new Staff { \relative c' { c d e f g a b c } }
           }
  \markup { \verbatim-file #"lily-3.ly" }
 }
```

It would be nice if they could at least describe it like this.

`{ ......}` ⇒The process starts with { } ends with. **Nesting is possible.**

'`\book`' Normally it works behind the scenes unless called. As you can see in the image above, you can use \markup outside of \score. You can also bundle many \scores together.

'`\markup`' You can output text, music symbols, etc., and can also typeset sheet music using \score.

'`\score`' The music composition process begins. All components belonging to score will be called.

'`Staff`' Staff is called with (**\new Staff , \context Staff, \new Voice, \conteext Voice**).

'`\layout`' Outputs what is received in the score. This is a rough reference(this is about memory and files).
Run `lilypond --pdf --png lily-3.ly.ly` etc. to get the sheet music, musical score, etc.

At the root of Running, the "context Voice" is processed, received by the "context Staff", and the "context Score" is then completed.

'`Voice`' Elements related to musical notes are this type.
For example; NoteHead, ...

'`Staff`' Elements related to musical staves are this type.
For example; Staff.BarLine, ...

'`Score`' Score(musical notation) elements are this type.
For example; Score.BarNumber .....

Text output can be expressed as \markup { text } \header { items } \lyrics { lyrics }, but if only \markup { text } declares \book, it can be used outside \score. Also, you can write musical notation using \score inside \markup.

Recently, LilyPond (running Guile2.2) can output PDF files. However, it is recommended that you have Ghostscript installed on your computer, as it is required to obtain the BoundingBox: value of ps⇒⇒eps.

```
lilypond -E lily-3.ly
```

It is likely that it is not possible to obtain the true value(?) of BoundingBox.

```
lilypond --ps lily-3.ly
gs -sDEVICE=eps2write -sOutputFile=lily-1.eps -dNOPAUSE lily-1.ps -c quit
```

You can get the value with this.
If you are using Windows OS, change "gs"⇒"gswin64c" or "gswin32c" and it will be running OK (on Windows version; Ghostscript).
This process runs the music part of the document through lilypond first, then inserts the result into that part of the document.
For example,
To edit a Texinfo document, use ↦ @image{lily-3b, 3.5in,}
To edit an HTML document, use ↦

•The LilyPond-provided "*lilypond-book.py*" process for creating documents(including music notation) allows you to write lilypond code directly into TEX(LATEX) , Texinfo , and HTML document editing, and typeset music fragments (boxes) and music notation (boxes) at that position in the document.(lilypond-book.py does not work on Windows OS !! but, Up to version 2.22.0 — OK).
For example, here is an example, which has fragment in option.

```
@lilypond[fragment,staffsize=24]
c d e f g a b c
@end lilypond
```

```
<lilypond quote fragment staffsize=24>
c d e f g a b c
</lilypond>
```

This is a Texinfo, HTML document description, but if you write lilypond(music notation) code in TEX(LATEX) or HTML document editing and run it with "*lilypond-book.py*", the fragment will be typeset at that exact position in the document.
This way, we don't need the "gs running" and "boundinbox values" from the previous section, and *lilypond-book.py* will do everything for us.

••However, the easiest process is to just paste the LilyPond sheet music(pdf, ps, eps, png, svg .....) into a word processor (word,....).
Although LilyPond and HTML formatting are good (code description is easy), TEX (not LATEX) and Texinfo are quite difficult to write. TEX is a typesetting processor with a simple documentation macro called plain.tex. LATEX is a huge documentation macro program that documents TEX. Texinfo can be roughly said to be an evolved version of plain.tex.

[It all began] After the release of TEX, LATEX and MusiXTEX were born, HTML was born in the fttp:// world in a universal format like LATEX, and Lilypond(a music typesetting processor) was created. . . . . .

If you are familiar with the basics of TEX(not LaTEX), namely boxes and glue(in typesetting), then writing Lilyond, Texinfo. html . . . . . should become much easier.

Sheet music is a format that makes music visible to everyone, so of course the pursuit of "beauty" is unavoidable. The LilyPond format provides the value of the hard work of printing and typesetting engineers to everyone through automated typesetting. To put it in extreme terms, even amateurs can obtain sheet music using their long history of technical value by simply spelling out (writing code) the music object, `c d e f g a b` and related things. Well, I think this can be said from a bird's eye view.

Regarding LilyPond, please see below. lilypond-2.26.0-documentation.tar.xz
`[share\doc\.........\Documentation\notation.pdf(7,114KB) + usage.pdf(519KB)`

Regarding TEX (not LATEX): Please refer to the following (download).
`https://tug.ctan.org/info/impatient/book.pdf`

About Texinfo: please see below (download). `https://www.gnu.org/software/texinfo/`