Lilypond

... music notation for everyone!

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What can Lilypond do for me?
BWV 610

Largo

Pedale.
Exercise 3: Write 8th notes against the given bass line.
Salve, Regina, mater misericordiae
Popular Music

My eyes are dim, I cannot see, I have not brought my specs with me!
Parlando by Georges Aperghis
Analysis

G-Major: I V₆⁵ vii⁰₄/IV IV⁶ ii⁰₄ Fr⁺⁶

T S D T
Modern transcriptions of old notation

Chanson "Vince con lena"
übertragen im Verhältnis 1:4

Bartholomeus de Bononia
Übertragung: M.Maierhofer-Lischka

Cantus

Tenor

Contratenor
Lilypond has been used for...

- Mutopia Project
- Adoro Music Publishing
- Shady Lane Publishing
- Critical edition of Tommaso Traetta’s *Enea nel Lazio* from 1760 (Luca Rossetto Casel)
- Modern edition of Scarlatti’s *Serenata Erminia* (Thomas Griffin)
- *Affaire étrangère*, opera by Valentin Villenave, premiered 2009 at L’Opéra National de Montpellier
How does Lilypond compare to Finale/Sibelius?
Typesetting Quality

Finale 2008

Lilypond 2.14.2
In Lilypond, we write music as text!

Code

\{ \\
\time 2/4 \\
\clef bass \\
c4 c g g g a a g2 \\
\}

Commands start with \ 

Letters are notes

Numbers are durations

Output

\figurine
Lilypond is not a GUI-Program!

- You can write Lilypond code in *any* text editor
- For this workshop, we’ll use *Frescobaldi*
Let’s Get Started!
Workshop Files

Workshop examples and slides

- Slides you are looking at: lilypond_lac2013.pdf
- PDF contains many hyperlinks to web resources and local example files!
Software Installation

Installing Lilypond 2.16.2-1

- Linux
- Mac
- Windows

Installing Frescobaldi 2.0.9

- Windows (might require MS Visual C++ 2008 runtime)
- Linux: sudo apt-get install frescobaldi
- Mac: No binaries available!

Alternative (if things don’t work): http://lilybin.com/
Getting Help and Support

Before you get started

▶ Get an overview
▶ Read the manual

As you are working

▶ Lilypond cheatsheet
▶ Notation reference
▶ Mailing list (lilypond-user@gnu.org)
▶ IRC chat (#lilypond on irc.freenode.net)
Basic Syntax
Example №1

\{
\time 2/4
\clef bass
c8 d e f g4 g \% letters = notes
a8 a a a g2 \% numbers = durations
\}

See also
- Simple notation
- Time signature
- Clef
- Comments
Example №2

\relative c' \{ % Reference = middle C
  c2 g' \ % G one octave up
  \times 2/3 \{f8 e d\} c'2 g4 \}

See also

- Relative octave entry
- Bar checks
Example №3

\language "english"
\relative c'' {
 b b b b b
}

\language "deutsch"
\relative c'' {
 h h h h h
}

See also
- Note names in other languages
Example №4

\{\compressFullBarRests
r16 r r8 r4 r2 |
R1*4 | R1*24 |
r2. r16 s s r |
\}

See also

▶ Writing rests
Example №5

\begin{verbatim}
{ \relative c' { \time 3/4 e4 e4. e8 d2 e4 } \addlyrics { I am so lone -- ly } }
\end{verbatim}

See also

- Entering lyrics
Example №6

```
\relative c' {
  c2 \times 4/5 { f8 e f \times 2/3 { e[ f g] } \ 
  }
}
```

See also

- Tuplets
- Manual beams
\relative c' { 
  \key g \major
  g8 a b c d e fis g
  \key d \minor
  g, as b c d e fis g
}

See also

- Accidentals and key signatures
Example №8

\relative c’’ { 
        g4~ g c2~ | c4~ c8 a~ a2 |
        d4( c16) cis( d e c cis d) e( d4) |
        g,4\( g8( a) b( c) b4\)
    }

See also

▶ Ties and slurs
Example №9

\relative c’’ {  
c4-^ c+ c-- c-|  
c-> c-. c_ c\sfz  
c-3\< e-5\ff\> b-2 a-1\!  
}

See also

- Articulation and dynamics
Example №10

\relative c'' {
    r4 <c e g> <c f a>2
}

See also

- Combining notes into chords
Example №11

\relative c'' { 
  c2 <<c e>> | 
  << { e2 f } { c2 <<b d>> } >> | 
} 

See also

- Multiple notes at once
Example №12

\relative c'' {
  \key g \major
  % Voice "1" Voice "2"
  << { g4 fis8( g) a4 g } \ { d4 d d d } >>
}

\clef \clef treble
\times 4 \times \times 4
\small
\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2
\accidentals.sharp
\times 4 \times \times 4
\small
\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2
\clef \clef treble
\times 4 \times \times 4
\small
\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2\noteheads.s2
\accidentals.sharp
\times 4 \times \times 4
\small
See also

▶ Single-staff polyphony
Other Useful Stuff
Lilypond Snippet Repository

Don’t reinvent the wheel!

- Cool thing about text: You achieve something once, . . . and have already documented it forever! 😊
- Even better: Works across multiple users!
- Lilypond Snippet Repository (LSR)
- Selected set also in Lilypond documentation
Prepping Scores and Parts

Frescobaldi score setup wizard

Tools → Setup New Score...
Preparing Scores and Parts

How to create larger projects

- Split into smaller files
- Master file for `\score` block
- Notes for individual parts in extra files via `\include`
Alternative Editors

Making Lilypond editing easier

- **Denemo** (Linux, Win)
- **LilyPondTool** plugin for jEdit (Linux, Mac, Win)
- **Elysium** Lilypond IDE for Eclipse (Linux, Mac, Win)
- Misc. Lilypond modes for **Emacs** (Linux, Mac, Win)
- Filetype plugin, indent and syntax-highlighting modes for **Vim** (Linux, Mac, Win)
- Lilypond extensions for **TexShop** (Mac)
Output formats

File formats that Lilypond can write

- **PDF**: Portable document format
- **PS**: Postscript
- **SVG**: Scalable vector graphics
- **EPS**: Encapsulated postscript
- **PNG**: Portable network graphics

**MIDI output**

- Via `\midi` command
- Better results with `articulate.ly` script
File formats that Lilypond can read via built-in tools

- Finale: etf2ly command line program (deprecated!)
- MIDI: midi2ly
- MusicXML: musicxml2ly
- ABC: abc2ly

File formats that Lilypond can read via external tools

- Sibelius: http://sidorefa.com/sib2ly/

Programs that export Lilypond code (selection)

- MuseScore
- Rosegarden
- Canorus
Post-Export Editing with Inkscape

Inkscape

- Open Source vector graphics editor (.svg file format)
- Free alternative to Adobe Illustrator
- Available for Linux, Mac, Win
Post-Export Editing with Inkscape

Why would I use it for music?

- Giving scores their final touch
- Advanced graphic notation

How to do it

1. Export .ly to .svg rather than .pdf
   Frescobaldi: LilyPond → Engrave (custom)... → Output Format: SVG → Run LilyPond
2. Open .svg file in Inkscape to edit
Randstimme

Mit Glissando durch die Stimme. Auf Vokalseite tragendes „a“ folgt.

Lockereung

Ver - lie-ben, ver - lo - ben, ver - lie - ben, ver - lo - ben, ver - lie - ben, ver - lo - ben.
Wir singen, wir san -- gen, wir singen, wir san -- gen, wir singen, wir san -- gen.

Von „wir singen, wir sangen“ nur „w“ und „s“ singen, stimmhaft.
lilypond-book and \LaTeX

\LaTeX code

\documentclass[a4paper]{article}
\begin{document}
\section{Introduction}
Mix music and text with \texttt{lilypond-book}.
\footnote{And it looks great, too!}
\begin{lilypond}[fragment,relative=1]
c2 e2 \times 2/3 \{ f8 a b \} a2 e4
\end{lilypond}
\begin{document}
\end{document}
lilypond-book and \LaTeX

How to run it

\$ lilypond-book --output=out --pdf lilybook.lytex \\
\$ cd out \\
\$ pdflatex lilybook.tex

Result

\examples/out/lilybook.pdf

Larger examples

Can be included in \LaTeX source as a separate .ly file:

\lilypondfile[quote,noindent]{/path/to/my_example.ly}
Other examples

- Margarethe’s own edition
Symbolic Score Control

Extending Lilypond through other Programming Languages

- *Abjad*: Python API for formalized score control
- *Strasheela*: Constraint-based composition
- *LilyCollider*: Score control via SuperCollider
- *FireLily*: Score control via Pd