

The `musicography` Package: Symbols for Music Writing with `pdf \LaTeX`

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October 31, 2017

Font packages for `pdf \LaTeX` only provided a limited range of musical symbols. The `lilyglyphs` package uses Lilypond’s fonts, but requires `lua \LaTeX` . This package makes available the most commonly used symbols in writing about music in a way that can be used with `pdf \LaTeX` and looks consistent and attractive. It includes accidentals, meters, and notes of different rhythmic values.

This package builds on the approach used in the `harmony` package, where the symbols are taken from the M \LaTeX fonts. But it provides a larger range of symbols and a more flexible, user-friendly interface written using `x \LaTeX` .

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1 Package Options

To use the package, write `\usepackage{musicography}` in your preamble. If you are also using this author’s `semantic-markup` package, load `semantic-markup` first, since `musicography` modifies the commands for accidentals in the other package.

The `bigger` option provides larger font sizes that match better with certain fonts.

The `\musNumFont` command allows you to change the font of the numerals used. For example, if using the `ebgaramond` font package, it looks better if you do this:

```
\renewcommand{\musNumFont}[1]{\liningnums{#1}}.
```

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2 Symbols and Commands

2.1 Accidentals

Flat	<code>\musFlat</code> or <code>\fl</code>	\flat
Sharp	<code>\musSharp</code> or <code>\sh</code>	\sharp
Natural	<code>\musNatural</code> or <code>\na</code>	\natural
Double Flat	<code>\musDoubleFlat</code>	$\flat\flat$
Double Sharp	<code>\musDoubleSharp</code>	$\sharp\sharp$

2.2 Notes of Different Rhythmic Values

Commands are available using modern (United States) note names; in several cases there are also aliases for older note names.

Whole note (semibreve)	<code>\musWhole</code> or <code>\musSemibreve</code>	\circ
Half note (minim)	<code>\musHalf</code> or <code>\musMinim</code>	♩
Quarter note (semiminim)	<code>\musQuarter</code> or <code>\musSeminim</code>	♪
Eighth note (corchea)	<code>\musEighth</code> or <code>\musCorchea</code>	♫
Sixteenth note	<code>\musSixteenth</code>	♬

A dot may be added to any of the above by adding `Dotted` to the end of the command. For example:

Dotted whole note	<code>\musWholeDotted</code>	$\circ\cdot$
Dotted quarter note	<code>\musQuarterDotted</code>	$\text{♪}\cdot$

2.3 Meter Signatures

Common dupe	<code>\meterC</code>	C
<i>Alla breve</i>	<code>\meterCutC</code>	C^\flat
Ternary (16th–18th cent.)	<code>\meterCThree</code>	$\text{C}3$
Ternary with 3 : 2 proportion	<code>\meterCThreeTwo</code>	C_2^3
Spanish 17th-cent. ternary	<code>\meterCZ</code>	CZ

For other time signatures, use `\musMeter{ }{ }`. The command `\musFigures` is an alias for `\musMeter` that can be used for notating figured bass. Both commands take two arguments and stack the arguments vertically.

2.4 Customization

It would be a simple matter of using `\newcommand` or `\let` to create aliases for these commands, say, for British usage (such as `\quaver`).

L^AT_EX programmers may wish to use the package’s internal commands directly to access more symbols from the fonts or fine-tune their appearance. See `\musSymbol` and `\musAccidental` in the code listing below.

3 Code

```
\NeedsTeXFormat{LaTeX2e}
\ProvidesClass{musicography}
[2017/10/31 Symbols for music writing with pdflatex]

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%
% This work has the LPPL maintenance status 'maintained'.
% The Current Maintainer of this work is Andrew A. Cashner.
% This work consists of the package file musicography.sty
% and the documentation file musicography.tex.

% CHANGE LOG
% 2017-10-31 Corrected glyph for \musHalf and documented
%           \musMeter and \musFigures
% 2017-08-29 First version on CTAN
% 2017-04-12 Created

\newif\ifLargeFont
\LargeFontfalse
\DeclareOption{bigger}{\LargeFonttrue}
\ProcessOptions\relax

\RequirePackage{xparse}

\ifLargeFont
  \newfont{\musFont}{musix13}
  \newfont{\musFontBig}{musix16}
  \newfont{\musFontLarge}{musix20}
\else
  \newfont{\musFont}{musix11}
  \newfont{\musFontBig}{musix13}
  \newfont{\musFontLarge}{musix16}
\fi

% Font for numbers in \musStack
```

```

% Could redefine to use lining figures, math mode, sans-serif, etc.
% Example for ebgarmond: \renewcommand{\musNumFont}[1]{\liningnums{#1}}
\NewDocumentCommand{\musNumFont}{}{}

% Print a music symbol from the \musFont, specifying space before, after, and
% baseline adjustment
% #1 optional font command (default: \musFont)
% #2 kern before
% #3 raisebox value
% #4 kern after
% #5 symbol code (e.g., \symbol{4})
\NewDocumentCommand{\musSymbol}{ O{\musFont} m m m m }{%
  {#1\kern#2\raisebox{#3}{#5}\kern#4}%
}

% Accidentals
% #1 symbol command for accidental
\NewDocumentCommand{\musAccidental}{ m }{%
  \musSymbol[\musFontLarge]{0.1em}{0.5ex}{-0.1pt}{#1}%
}
\NewDocumentCommand{\musFlat}      {}{\musAccidental{\symbol{90}}}%
\NewDocumentCommand{\musDoubleFlat} {}{\musAccidental{\symbol{91}}}%
\NewDocumentCommand{\musSharp}     {}{\musAccidental{\symbol{92}}}%
\NewDocumentCommand{\musDoubleSharp}{}{\musAccidental{\symbol{93}}}%
\NewDocumentCommand{\musNatural}   {}{\musAccidental{\symbol{94}}}%

% Shorthand accidental commands
% These commands are defined differently in the semantic-markup package,
% so LaTeX will use musicography commands instead, if this package is called
% after
\let\fl\musFlat
\let\sh\musSharp
\let\na\musNatural

% Print a composite music symbol of a notehead plus stem
% #1 Symbol \musSymbol command for notehead
\NewDocumentCommand{\musStemmedNote}{ m }{%
  \musSymbol{0.05em}{0.5ex}{0.2em}{#1\musStem}%
}

% Stemmed note plus flag
% #1 symbol command for base note
% #2 symbol command for flag
\NewDocumentCommand{\musFlaggedNote}{ m m }{%
  \musSymbol{0.05em}{0.5ex}{0pt}{#1\musStem}%
  \musSymbol{0pt}{0pt}{0.9em}{#2}%
}

```

```

}

% Note plus dot
% #1 \musSymbol command for note to be dotted
\NewDocumentCommand{\musDottedNote}{ m }{#1\musDot}

\NewDocumentCommand{\musStem}{-}{-}{%
  \musSymbol{0.955em}{0.55ex}{0pt}{\symbol{16}}}%
}
\NewDocumentCommand{\musSegno}{-}{-}{%
  \musSymbol{0.55em}{-0.4ex}{1.5em}{\symbol{86}}}%
}
\NewDocumentCommand{\musDot}{-}{-}{%
  \musSymbol{-0.2em}{-0.5ex}{0.7em}{\symbol{24}}}%
}

\NewDocumentCommand{\musWhole}{-}{-}{%
  \musSymbol{0.05em}{0.5ex}{1.35em}{\symbol{9}}}%
}
\NewDocumentCommand{\musHalf}{-}{-}{%
  \musStemmedNote{\symbol{8}}}%
}
\NewDocumentCommand{\musQuarter}{-}{-}{%
  \musStemmedNote{\symbol{7}}}%
}
\NewDocumentCommand{\musEighth}{-}{-}{%
  \musFlaggedNote{\symbol{8}}{\symbol{40}}}%
}
\NewDocumentCommand{\musSixteenth}{-}{-}{%
  \musFlaggedNote{\symbol{8}}{\symbol{41}}}%
}

\NewDocumentCommand{\musWholeDotted}{-}{-}{%
  \musDottedNote{\musWhole}%
}
\NewDocumentCommand{\musHalfDotted}{-}{-}{%
  \musDottedNote{\musHalf}%
}
\NewDocumentCommand{\musQuarterDotted}{-}{-}{%
  \musDottedNote{\musQuarter}%
}
\NewDocumentCommand{\musEighthDotted}{-}{-}{%
  \musDottedNote{\musEighth}%
}
\NewDocumentCommand{\musSixteenthDotted}{-}{-}{%
  \musDottedNote{\musSixteenth}%
}

```

```

}

% Command to stack numerals
% Adapted from harmony.sty's \ueber command
\newdimen\tmpdima
\newdimen\tmpdimb
\newdimen\tmpdimc
\newdimen\tmpdimd
\newdimen\tmpdime
\newbox\nbxa
\newbox\nbxb
\newbox\nbxc
\newbox\nbxd
\newbox\nbxex
\newbox\nbxexf
\newbox\nbxexg
\newbox\nbxexh
\newbox\nbxexi

\NewDocumentCommand{\musStack}{ m m }{%
  \setbox\nbxi=\hbox{%
    \setbox\nbxa=\hbox{\scriptsize{\musNumFont{#1}}}%
    \setbox\nbxb=\hbox{\scriptsize{\musNumFont{#2}}}%
    \ifdim\wd\nbxa>\wd\nbxb%
      \tmpdima=\wd\nbxa%
    \else%
      \tmpdima=\wd\nbxb%
    \fi%
    \setbox\nbxa=\hbox to \tmpdima{%
      \scriptsize\hss{\musNumFont{#1}}\hss}%
    \setbox\nbxb=\hbox to \tmpdima{\scriptsize\hss{
      \musNumFont{#2}}\hss}%
    \lower0.3ex\copy\nbxb%
    \kern-\wd\nbxb%
    \raise0.8\ht\nbxb%
    \box\nbxa%
  }%
  \unhbox\nbxi%
}

% Meter symbols
% #1 symbol code for meter sign
\NewDocumentCommand{\musSymbolMeter}{ m }{%
  \raisebox{0.58ex}[8pt][2pt]{%
    {\kern-1pt\musFontBig\raisebox{0.3ex}{#1}\kern0.3em}%
  }%
}

```

```

}
% Meter that combines \meterC with numerals (e.g., C3 C3/2)
\NewDocumentCommand{\meterCplus}{ m }{\meterC{\kern-0.7pt#1}

% Numeric meter signatures (e.g., 3/4)
% #1 number on top
% #2 number on bottom
\NewDocumentCommand{\musMeter}{ m m }{%
  \musStack{#1}{#2}\kern0.05em
}
% Same command used for figured bass
\NewDocumentCommand{\musFigures}{ }{\musMeter}

\NewDocumentCommand{\meterC}{ }{%
  \musSymbolMeter{\symbol{83}}%
}
\NewDocumentCommand{\meterCutC}{ }{%
  \musSymbolMeter{\symbol{82}}%
}
% Ternary meters used in 16th--18th c. music
\NewDocumentCommand{\meterCThree}{ }{%
  \meterCplus{\musNumFont{3}}%
}
\NewDocumentCommand{\meterCThreeTwo}{ }{%
  \meterCplus{\musStack{3}{2}}%
}
% Ternary meter used in 17th-century Spanish music
\NewDocumentCommand{\meterCZ}{ }{%
  \meterCplus{Z}%
}

% Aliases for older note names
\NewDocumentCommand{\musSemibreve}{ }{\musWhole}
\NewDocumentCommand{\musMinim}{ }{\musHalf}
\NewDocumentCommand{\musSemiminim}{ }{\musQuarter}
\NewDocumentCommand{\musCorchea}{ }{\musEighth}
\NewDocumentCommand{\musSemibreveDotted}{ }{\musWholeDotted}
\NewDocumentCommand{\musMinimDotted}{ }{\musHalfDotted}
\NewDocumentCommand{\musSemiminimDotted}{ }{\musQuarterDotted}
\NewDocumentCommand{\musCorcheaDotted}{ }{\musEighthDotted}

\endinput

```

4 Changes

2017/10/31 Corrected glyph used for `\musHalf` and documented `\musMeter` and
 `\musFigures`
2017/08/29 First version on CTAN
2017/04/12 Created