The `musicography` Package: Symbols for Music Writing with `pdflatex`

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Font packages for `pdflatex` only provided a limited range of musical symbols. The `lilyglyphs` package uses Lilypond's fonts, but requires `lualatex`. This package makes available the most commonly used symbols in writing about music in a way that can be used with `pdflatex` 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 MusiXTeX fonts. But it provides a larger range of symbols and a more flexible, user-friendly interface written using `xparse`.

Contents

1 Package Options

To use the package, write `\usepackage{musicography}` in your preamble. If you are also using this author's `semantic-markup` package, `musicography` will automatically redefine 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	\musFlat or \fl	♭
Sharp	\musSharp or \sh	♯
Natural	\musNatural or \na	♮
Double Flat	\musDoubleFlat	𝄫
Double Sharp	\musDoubleSharp	𝄪

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)	\musWhole or \musSemibreve	𝅝
Half note (minim)	\musHalf or \musMinim	𝅗𝅥
Quarter note (semiminim)	\musQuarter or \musSeminimin	♩
Eighth note (corchea)	\musEighth or \musCorchea	♪
Sixteenth note	\musSixteenth	♬

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

Dotted whole note	\musWholeDotted	𝅝·
Dotted quarter note	\musQuarterDotted	♩·

2.3 Meter Signatures

Common duple	\meterC	**C**
Alla breve	\meterCutC	¢
Ternary (16th–18th cent.)	\meterCThree	**C**3
Ternary with $3:2$ proportion	\meterCThreeTwo	**C**$\frac{3}{2}$
Spanish 17th-cent. ternary	\meterCZ	**C**Z

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).

LaTeX 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}[2018/05/21
  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
% 2018-05-21 Override semantic-markup's \fl, \sh, \na commands if it is loaded
% 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 ebgaramond: \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
\@ifpackageloaded{semantic-markup}{%
    \RenewDocumentCommand{\fl}{}{\musFlat}
    \RenewDocumentCommand{\sh}{}{\musSharp}
    \RenewDocumentCommand{\na}{}{\musNatural}
}{%
    \NewDocumentCommand{\fl}{}{\musFlat}
    \NewDocumentCommand{\sh}{}{\musSharp}
    \NewDocumentCommand{\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
```

```latex
%  #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}%
}
```

```latex
\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\nbxe
\newbox\nbxf
\newbox\nbxg
\newbox\nbxh
\newbox\nbxi

\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{\musSeminiminimDotted} {}{\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