

# Reading MusiX<sub>TEX</sub> Manual

April 16, 2025

This article is a note of the manual document of MusiX<sub>TEX</sub>[1]: “MusiX<sub>TEX</sub> - Using <sub>TEX</sub> to write polyphonic or instrumental music”.

The purposes are 1) to learning MusiX<sub>TEX</sub>, 2) to write examples.

Sections are as numbered as the original document.

## 1 Introduction to MusiX<sub>TEX</sub>

### 1.2 A simple example

There is a framework for music scores. Referring to chapter 2, to define a framework, or in other words a <sub>TEX</sub> ([ˈleitek], X is the Greek letter  $\chi$  [2]) music template, is to define Music size, Number of instruments, Instrument names, Number of staves per instrument, Key signatures, Clefs for each staff, Meters.

Basically, a music score is wrapped in the "music" environment in <sub>TEX</sub> text.

```
\begin{music}  
% stoffs  
\end{music}
```

Within the "music" markup, we need to set up the framework of music sheet. For instance, is it a music score for a piano or for a guitar or for both? How many staves for each instrument? How to set the clef for each staff? What are the key signature, meter, tempo? And for staff layout itself, what's the size of the staff?

After that we start to write notes, the rhythm, the melody, the chords.

The basic staff line markup pair is `\startextract \endextract` `\zendextract`, or `\startpiece \endpiece` `\zendpiece`. The "extract" pair produce a part of a line and trims to the length of notes, it may exceed the paper width. The "piece" pair produce a line or multiple lines. "z" is a frequently used letter in command, another example `\zw`. I take it as the abbreviation of "zero". `\zendpiece` zero bar, no end bar. `\zw` to input a whole note with zero horizontal space so multiple whole note forms a chord.

No space line is allowed inside the `\startpiece \endpiece` pair. Also empty is not allowed, otherwise the error is "Division by zero".

Then input notes by the command `\notes ... \en`. What are the markups for notes? How to input the C major scale with quarter notes? `\notes \qa{cdefg'ab} \en`. Why this way? Suppose one has

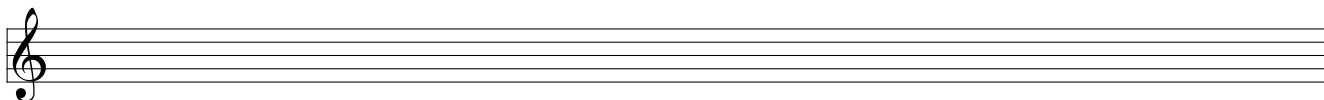
these questions in mind while reading MusiX<sub>TEX</sub>.

So if one uses the default setting of the MusiX<sub>TEX</sub> framework, and input a "piece", we get a blank staff line with a Treble clef.

```

1 \begin{music}
2 \startpiece
3 \notes\en
4 \zendpiece
5 \end{music}

```



Or the whole L<sup>A</sup>T<sub>E</sub>X file (.tex) is coded as:

```

1 \documentclass{article}
2 \usepackage{musixtex}
3 \begin{document}
4 \begin{music}
5 \startpiece
6 \notes\en
7 \zendpiece
8 \end{music}
9 \end{document}

```

Input "extract", we get a head of the staff line.

```

1 \begin{music}
2 \startextract
3 \notes\en
4 \endextract
5 \end{music}

```



Or left aligned:

```

1 \begin{music}
2 \let\extractline\leftline
3 \startextract
4 \notes\en
5 \endextract
6 \end{music}

```



Or a C major scale "piece":

```

1 \begin{music}
2 \startpiece
3 \Notes \qa{cdefg'aba}\qa{!gfedc} \en
4 \zendpiece
5 \end{music}

```



And C major scale "extract":

```

1 \begin{music}
2 \let\extractline\leftline
3 \startextract
4 \Notes \qa{cdefg'aba}\qa{!gfedc} \en
5 \endextract
6 \end{music}

```



And G major scale "extract":

```

1 \begin{music}
2 \let\extractline\leftline
3 \startextract
4 \Notes \qa{g'abcde~fg~fedcba!g} \en
5 \endextract
6 \end{music}

```

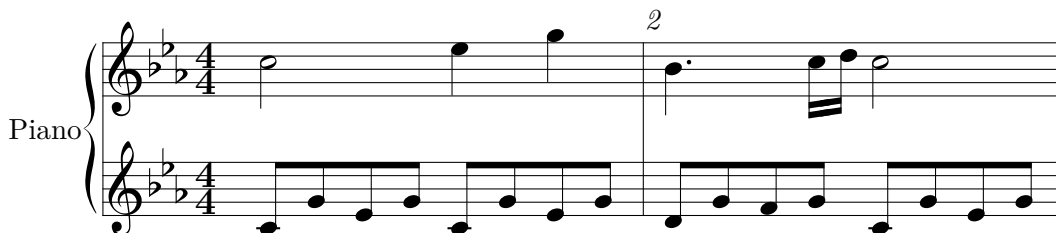


The document gives a real example of the two first bars of the sonata in C-major KV545 by Mozart.

```

1 \begin{music}
2 \normalmusicsize
3 \instrumentnumber{1}
4 \parindent10mm % placeholder for the instrument name.
5 \setname1{Piano}
6 \setstaves1{2}
7 \generalsignature{-3}
8 \generalmeter{\meterfrac44} % 4/4 meter chosen
9 \startextract % starting real score
10 \Notes\ibu0f0\qb0{cge}\tbu0\qb0g|\hl j\en
11 \Notes\ibu0f0\qb0{cge}\tbu0\qb0g|\ql l\sk\ql n\en
12 \bar
13 \Notes\ibu0f0\qb0{dggf}|\qlp i\en
14 \notes\tbu0\qb0g|\ibbl1j3\qb1j\tbl1\qb1k\en
15 \Notes\ibu0f0\qb0{cge}\tbu0\qb0g|\hl j\en
16 \zendextract % terminate excerpt without the end bar
17 \end{music}

```



Let's see how to define a music sheet framework through the example.

- Music size  
`\smallmusicsize`: 16pt-high staves  
`\normalmusicsize`: 20pt, default  
`\largemusicsize`: 24pt  
`\Largemusicsize`: 29pt
- Number of instruments  
`\instrumentnumber{n}`:  $n=1, 2, \dots, 6$ . Default: 1. It is the total number of how many instruments.

Most of the commands in MusiX<sub>TEX</sub> has a parameter of the instrument number, this is the label number  $\#i$ . For instance, if `\instrumentnumber{3}`, then there are at least 3 lines or groups of staves, one for each instrument. And the instruments are labeled **from the bottom**  $\#1$ ,  $\#2$ ,  $\#3$ .

Why from the bottom? The whole MusiX<sub>TEX</sub> counts from the bottom, except Guitar tablature. It is similar with counting the staff lines, from the lowest, 1,2,3,4,5. Even writing the notes are organized from the bottom.

We can also set the instrument name. `\setname{n}{name of the instrument}`: This will place the name in the space to the left of the first staff or group of staves for instrument  $\#n$ . In the example, `\setname1{Piano}`.

- Number of staves per instrument and staff group  
`\setstoffs{n}{p}`:  $n$  is the label number  $\#n$  of the instrument.  $p$  is the number of staves. For example `\setstoffs32` assigns two staves to the third instrument from the bottom.

And these 2 staves are grouped together with bars extending 2 staves.  
 In the example, `\setstoffs1{2}`.

- Clefs  
`\setclef{n}{s1s2s3s4}`:  $n$  is the label number of the instrument  $\#n$ ,  $s_1$  is a digit specifying the clef for the first (lowest) staff,  $s_2$  for the second staff, and so forth.  
 $s=0$ , G clef, or `\treble`  
 $s=1$  to 4, C-clef, 1 soprano, 3 alto `\alto` and 4 tenor  
 $s=5$  to 7, F-clef, 5 baritone, 6 the normal bass `\bass`  
 $s=8$  empty  
 $s=9$  a G clef on the first line, French violin clef

`\bass` `\treble` `\alto` can be used instead of digits.

For example, a music sheet is for 2 instruments: a piano and a guitar. The piano is the  $\#2$  instrument. So the staves are listed from the bottom: the 1st staff for the guitar, the above 2 staves for the piano. Now we need to set the clefs to the piano staff: `\setclef{2}{\bass\treble}`.

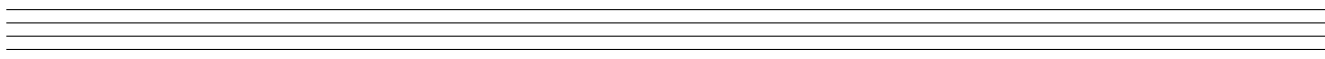
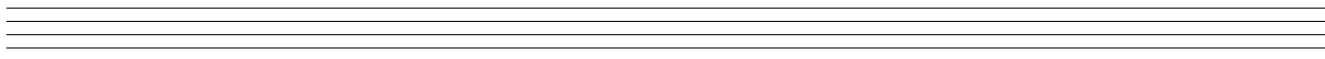
And two blank lines:

1	<code>\begin{music}</code>
2	<code>\setclef18</code>

```

3 \nostartrule
4 \startpiece
5 \notes\en
6 \zendpiece
7 \end{music}
8 \begin{music}
9 \setclef18
10 \nostartrule
11 \startpiece
12 \notes\en
13 \zendpiece
14 \end{music}

```



- Signature

`\generalsignature{s}`: where  $s > 0$  is the number of sharps in the signature and  $s < 0$  the number of flats. To override the common key signature for instrument  $n$ , use `\setsign{n}{s}`.

$s$  is defined by the Circle of Fifths[4] (see Figure 1),  $s=0$  means C major or a minor,  $s=-2$  is g minor or B♭ major,  $s=3$  is A major or f♯ minor,  $s=-1$  means F major or d minor,  $s=1$  means G major or e minor. `\generalsignature{-3}` is c minor or E♭ major.

- meter

`\generalmeter{\meterfrac44}` :

- Tempo, or beats per minute. `\metron{\qu}{60}` or `\metronequiv{\qup}{\qu}`: use `\uptext{}` to place it in the beginning above the staff. Or text only, for example: *Allegro cantabile*, *Larghetto maestoso*.

### 1.3 The three pass system

Like interpreting[3] external bibliography file is a sequence of operations, say xelatex + bibtex + xelatex + xelatex, there are three steps to compile a MusiX<sub>TEX</sub> file.<sup>1</sup>

xelatex filename

---

<sup>1</sup>At the beginning of the source code for TeX, Knuth calls TeX a "document compiler". But in The Art of Computer Programming, vol. 1, Knuth says that the TeX program is an interpreter for the TeX language, which produces output in DVI format, which can in turn be converted to PostScript, another interpreted language.—musarithmia

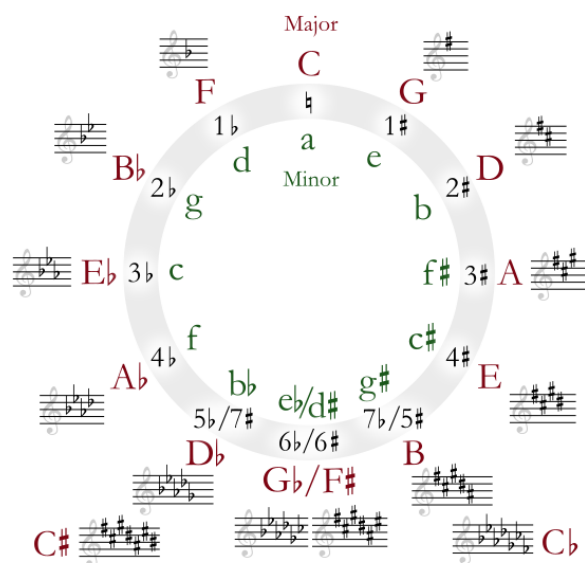


Figure 1: The Circle of Fifths

```
musixflx filename.mx1
xelatex filename
```

Since there is no “musixflx” option in texmaker *run* function, we need to manually input the commands in the Terminal window, say in a Macbook.

The reason is that L<sup>A</sup>T<sub>E</sub>X writes the paper piece by piece like handwriting. Let’s say it writes notes one by one on the staff. Then in the end L<sup>A</sup>T<sub>E</sub>X finds the horizontal space between notes on one staff line should be adjusted aesthetically. So L<sup>A</sup>T<sub>E</sub>X needs to rewrite the line. The output draft is filename.mx1. musixflx is to read it and to produce filename.mx2. L<sup>A</sup>T<sub>E</sub>X rewrites the DVI file using both filename.mx1 and filename.mx2.

Please delete all temporary files first. In Terminal, switch to the file directory first<sup>2</sup> and then execute 1st command and opening DVI file to see the rendering. Then the next command, and so on.

Please close the code window in texmaker. After the three-pass operation in Terminal, the code may not pass in texmaker with a red message: "energy stop" at a line `\bar` or `\contpiece`. Then I delete the all temporary files again.

### 1.3.2 An example

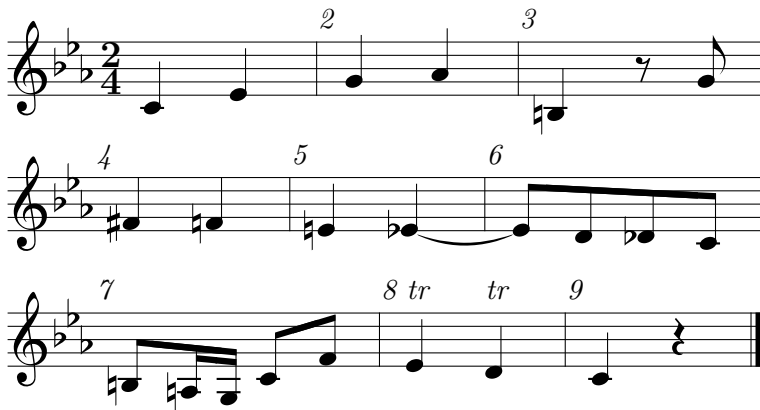
```
1 \begin{music}
2 \hsize=100mm
3 \generalmeter{\meterfrac{24}}{4}%
4 \parindent 0pt
5 \generalsignature{-3}
6 \nostartrule
7 \startpiece\bigaccid
8 \Notes\qu{ce}\en\bar
```

<sup>2</sup>Switch to the file directory by inputting the command `cd` and pull the archive from Finder to show the directory.

```

9 \Notes\qu{gh}\en\bar
10 \Notes\qu{=b}\en
11 \Notes\ds\cu g\en\bar
12 \Notes\qu{^f=f}\en\bar
13 \Notes\qu{=e}\itied0e\qu{e}\en\bar
14 \Notes\ttie0\Qqbu ed{d}c\en\bar
15 \Notes\ibu0b{-2}\qb0{=b}\en
16 \notes\nbbu0\qb0{=a}\tqh0N\en
17 \Notes\Dqbu cf\en\bar
18 \Notes\uptext{\it tr}\qu e\uptext{\it tr}\qu d\en\bar
19 \Notes\qu c\qp\en\multooseness=1\Endpiece
20 \end{music}

```



If the very part of the PDF file doesn't look like the same, **3-pass interpretation** as said above.

## 1.5 Installing and Using MusiXTEX

I installed L<sup>A</sup>T<sub>E</sub>X with the compiler MacT<sub>E</sub>X and the editor texmaker, following the L<sup>A</sup>T<sub>E</sub>X tutorial by Ms. Michelle Krummel[2]. And MusiXTEX is supported intrinsically.

## 4 Writing Notes

### 4.1 Normal (unbeamed) spacing notes

This is the method to input notes:

```
\notes...\en
```

It is the characteristic word of MusiXTEX.

\Notes or \Notes or more capital letters means more horizontal space for the note.

\notes...|...\en the absolute value mark is used to switch to another staff, e.g. as for piano staves to switch from the bass staff to the treble one, bar by bar in perfect synchronization. The designers said music "has the form of a two-dimensional matrix".

\notes...|...&...\en the ampersand mark means to switch to another instrument.



For `\notes ... % ...\en`, the percent mark % is to separate the line for code writing convenience for the line is too long, though a bit confusing because L<sup>A</sup>T<sub>E</sub>X uses % for comments in coding. For example:

```

1 \begin{music}
2 \let\extractline\leftline
3 \startextract
4 \N0tes\lpar g\rpar g\hu g\sk%
5 \loffset{1.5}{\lpar g\rpar g}\loffset{.4}{\sh g}\hu g\sk%
6 \loffset{2.1}{\lpar g}\loffset{1.5}{\rpar g}\loffset{.4}{\df1 g}\hu g\en
7 \endextract
8 \end{music}

```



`\wh` a whole note.

`\hu` a half note with the stem going up; `\hl` a half note with a stem going down on the left; `\ha` a half note with a stem automatically set by default: if the notehead of a music note is on the third line of the staff or above, the stems go down on the left. Otherwise, the stem goes up on the right.

`\qu` a quarter note with a upward stem.

`\cqu` a eighth note with a upward stem. The “c” within this macro name stands for the equivalent British term “crotchet” since the eighth note has a flag on the stem, it looks like a crotchet.

`\lpar \rpar` is the left and right parentheses.

`\loffset{N}{}` or `\roffset{N}{}` is left or right offset, where N is the distance to be shifted in note head widths.

' before a note means to transpose the note an octave higher and ` before a note means an octave lower. And the transposition lasts the following notes inside the place holders `\notes xxx & yyy | zzz \en`. We can transpose the note explicitly using `\transpose=n`. We can also resume the pitch by put ! in front of a pitch, or set `\transpose=\normaltranspose`.

For example chord C7 in C major is C E G B $\flat$ . The interval pattern is (4 3 3), i.e. the distance from C to E is 4 semitones, E to G 3 semitones, and G to B $\flat$  is 3 semitones.

E major scale: E F $\sharp$  G $\sharp$  A B C $\sharp$  D $\sharp$ . E7 should be E G $\sharp$  B D. The signature of E major is 4 sharp signature because there are 4 sharps in the E major scale, but when we read the sheet, there should be 6 sharps in the treble staff, because the 1st space is F $\sharp$  and the 2nd line is G $\sharp$  as well. And of course there are also invisible sharps in ledger lines whenever its pitch name is FGCD (see the 1st bar).

One can use `\transpose=2` to compose a E7 from C7 (see bar 2).

The E $\flat$  major scale is E $\flat$  F G A $\flat$  B $\flat$  C D. There are 3 flats in the key signature. But we can make a E $\flat$ 7 by transposing a C7 (see bar 2).

```

1 \begin{music}
2 \let\extractline\leftline
3 \nostartrule% no start bar
4 %\nobarnumbers % no bar numbering
5 \generalsignature{0}% C major
6 \parindent0pt
7 \startextract
8 % bar 1
9 \notes \zchar{15}{\scriptsize C major}\en % Key signature
10 \NOTEs \zchar{10}{\tiny C7}\zw{ceg'_b}\en
11
12 % bar 2
13 \generalsignature{4}% E major: E F# G# A B C# D# E
14 \ignorenats\Changecontext
15 \NOTEs \zchar{15}{\scriptsize E major}\en % Key signature
16 \notes \sh{f}\zchar{-0.1}{\tiny F}\en
17 \notes \sh{g}\zchar{1}{\tiny G}\en
18 \notes \sh{'c}\zchar{4}{\tiny C}\en
19 \notes \sh{'d}\zchar{5.2}{\tiny D}\en
20 \notes \loffset{8}{\sh{'f}\zchar{6.7}{\tiny F}}\en
21 \notes \loffset{8}{\sh{'g}\zchar{8}{\tiny G}}\en
22 \NOTEs \zchar{9}{\tiny E7}\transpose=2\lsh{'b}\zw{`ceg'_b}\en
23 \NOTEs \roffset{1}{\zchar{10}{\tiny E7}\zw{eg'b=d}}\en
24
25 % bar 3
26 \setsign{1}{-3} %Eb major: Eb F G Ab Bb C D Eb
27 \ignorenats\Changecontext%
28 \Notes \zchar{15}{\scriptsize E\usym{266D} major}\en
29 \NOTEs \zchar{9}{\tiny E\usym{266D}7}\transpose=2\zw{ceg'_b}\en
30 \NOTEs \roffset{1}{\zchar{9}{\tiny E\usym{266D}7}\zw{eg'b_d}}\en
31 \zendextract
32 \end{music}

```



Let's look at minor scales.

c minor scale: C D Eb F G Ab Bb C. In fact, c minor scale and Eb major scale share the signature of 3 flats. The interval pattern of Chord Cm7 is (3 4 3), so Chord Cm7 is C Eb G Bb. With the preceding flats in signature, we can still transpose Cm7 in C major to form a Cm7 in c minor scale (see bar 2).

We can also transpose a Cm7 in c minor scale to form a Fm7 in f minor scale (see bar 3) and in c# minor scale (see bar 4).

I hope that sharps flats and naturals are one space high to align with the note head which is space height big Interligne. No, a little bit smaller than the space height so flats or sharps in a row don't touch each other.

```

1 \begin{music}
2 \let\extractline\leftline
3 \nostartrule% no start bar
4 %\nobarnumbers % no bar numbering
5 \smallmusicsize
6 \generalsignature{0} % C major
7 \parindent0pt
8
9 \startextract
10 % bar 1
11 \notes \zchar{15}{\scriptsize C major}\en % Key signature
12 \NOTEs \zchar{10}{\tiny Cm7}\zw{c_eg'_b}\en
13
14 % bar 2
15 \generalsignature{-3}\ignorenats\Changecontext
16 % c minor: C D Eb F G Ab Bb C
17 \notes \zchar{15}{\scriptsize c minor}\en % Key signature
18 \scale{1.2}\NOTEs \zchar{10}{\tiny Cm7}\zw{ceg'b}\en\scale{1}
19
20 % bar 3
21 \setsign{1}{-3} %f minor: F G Ab Bb C Db Eb F
22 \ignorenats\Changecontext%
23 \scale{1.5}\NOTEs \zchar{15}{\scriptsize f minor}\roffset{1}%
24 {\zchar{10}{\tiny Fm7}\zw{f'ace}}\en\scale{1}
25
26 % bar 4
27 \generalsignature{4}% c# minor (E major): C# D# E F# G# A B C#
28 \ignorenats\Changecontext
29 \scale{1.5}\NOTEs \zchar{15}{\scriptsize c\usym{266F} minor}%
30 \zchar{10}{\tiny C\usym{266F}m7}\zw{ceg'b}\en\scale{1}
31 \zendextract
32 \end{music}

```



^ before a note means sharp, a semitone higher, and \_ before a note means flat, a semitone lower, = means a natural symbol before a note. But accidental symbols might be overlaps, so \lsh{p} or \lfl{p} or even \loffset are used to left shift the accidentals. The width of the accidentals of sharp, flat and natural might be 0.8 note head width.

Notes or chords[5, 6] or some symbols are listed below

## Pitches

Pitches defined by the frequency of the instrument are labeled as letter CDEFGAB and their lower-case

letters and letters with prefixes. They are mapping to the spaces and lines of the staff one-to-one.

The document says: “\wh a produces a whole note at nominal frequency 222.5 Hz”, “\qu c produces an up-stemmed quarter note C (250 Hz)”.

We usually sing the numbered music notations, there are Fixed Do[dəu] solfège and movable Do solfège. Let's say the numbered music notation here are Fixed Do solfège or movable Do solfège in C major scale.

[illegible]

```

41 \Notes \zchar{16}{\scriptsize D}%
42 \zchar{12}{\scriptsize $\underset{\dot{\dot{}}}{2}}\wh{D}\en
43
44 \Notes \zchar{16}{\scriptsize E}%
45 \zchar{12}{\scriptsize $\underset{\dot{\dot{}}}{3}}\wh{E}\en
46
47 \Notes \zchar{16}{\scriptsize F}%
48 \zchar{12}{\scriptsize $\underset{\dot{\dot{}}}{4}}\wh{F}\en
49
50 \Notes \zchar{16}{\scriptsize G}%
51 \zchar{12}{\scriptsize $\underset{\dot{\dot{}}}{5}}\wh{G}\en
52
53 \Notes \loffset{1}{\zchar{16}{\scriptsize \textasciigrave a}}%
54 \zchar{12}{\scriptsize $\underset{\dot{\dot{}}}{6}}\wh{`a}\en
55
56 \Notes \loffset{1}{\zchar{16}{\scriptsize \textasciigrave b}}%
57 \zchar{12}{\scriptsize $\underset{\dot{\dot{}}}{7}}\wh{`b}\en
58
59 \Notes \loffset{1}{\zchar{16}{\scriptsize \textasciigrave c}}%
60 \zchar{12}{\scriptsize $\underset{\dot{}}{1}}\wh{`c}\en
61
62 \Notes \loffset{1}{\zchar{16}{\scriptsize \textasciigrave d}}%
63 \zchar{12}{\scriptsize $\underset{\dot{}}{2}}\wh{`d}\en
64
65 \Notes \loffset{1}{\zchar{16}{\scriptsize \textasciigrave e}}%
66 \zchar{12}{\scriptsize $\underset{\dot{}}{3}}\wh{`e}\en
67
68 \Notes \loffset{0.5}{\zchar{16}{\scriptsize \textasciigrave f}}%
69 \zchar{12}{\scriptsize $\underset{\dot{}}{4}}\wh{`f}\en
70
71 \Notes \zchar{16}{\scriptsize \textasciigrave g}
72 \zchar{12}{\scriptsize $\underset{\dot{}}{5}}\wh{`g}\en
73 `%a = 'A = H,`b = 'B = I,`c = 'C = J,`d = 'D = K,
74 `%e = 'E = L,`f = 'F = M,`g = 'G = N
75 \Notes \zchar{16}{\scriptsize a}%
76 \zchar{12}{\scriptsize $\underset{\dot{}}{6}}\wh{a}\en
77
78 \Notes \zchar{16}{\scriptsize b}%
79 \zchar{12}{\scriptsize $\underset{\dot{}}{7}}\wh{b}\en
80
81 \Notes \zchar{16}{\scriptsize c}%
82 \zchar{12}{\scriptsize $1}\wh{c}\en% middle C
83
84 \zendextract
85 \end{music}
86
87 % treble staff notes
88 \begin{music}
89 \let\extractline\leftline
90 \smallmusicsize

```

```

91 \setclef1{\treble}
92 \parindent0pt
93 \nostartrule
94 \startextract
95 \Notes \zchar{-8}{\scriptsize a}%
96 \zchar{-16}{\scriptsize $\underset{\dot{}}{6}$}\wh{a}\en
97
98 \Notes \zchar{-8}{\scriptsize b}%
99 \zchar{-16}{\scriptsize $\underset{\dot{}}{7}$}\wh{b}\en
100
101 \Notes \zchar{-8}{\scriptsize c}%
102 \zchar{-16}{\scriptsize $1$}\wh{c}\en
103
104 \Notes \zchar{-8}{\scriptsize d}%
105 \zchar{-16}{\scriptsize $2$}\wh{d}\en
106
107 \Notes \zchar{-8}{\scriptsize e}%
108 \zchar{-16}{\scriptsize $3$}\wh{e}\en
109
110 \Notes \zchar{-8}{\scriptsize f}%
111 \zchar{-16}{\scriptsize $4$}\wh{f}\en
112
113 \Notes \zchar{-8}{\scriptsize g}%
114 \zchar{-16}{\scriptsize $5$}\wh{g}\en
115
116 \Notes \zchar{-8}{\scriptsize \textquotesingle a}%
117 \zchar{-16}{\scriptsize $6$}\wh{'a}\en
118
119 \Notes \zchar{-8}{\scriptsize \textquotesingle b}%
120 \zchar{-16}{\scriptsize $7$}\wh{'b}\en
121
122 \Notes \zchar{-8}{\scriptsize \textquotesingle c}%
123 \zchar{-16}{\scriptsize $\dot{1}$}\wh{'c}\en
124
125 \Notes \zchar{-8}{\scriptsize \textquotesingle d}%
126 \zchar{-16}{\scriptsize $\dot{2}$}\wh{'d}\en
127
128 \Notes \zchar{-8}{\scriptsize \textquotesingle e}%
129 \zchar{-16}{\scriptsize $\dot{3}$}\wh{'e}\en
130
131 \Notes \zchar{-8}{\scriptsize \textquotesingle f}%
132 \zchar{-16}{\scriptsize $\dot{4}$}\wh{'f}\en
133
134 \Notes \zchar{-8}{\scriptsize \textquotesingle g}%
135 \zchar{-16}{\scriptsize $\dot{5}$}\wh{'g}\en
136 %'a = h, 'b = i, 'c = j, 'd = k, 'e = l, 'f = m, 'g = n
137
138 \Notes \zchar{-8}{\scriptsize \textquotesingle\textquotesingle a}%
139 \zchar{-16}{\scriptsize $\dot{6}$}\wh{'a}\en
140

```

```

141 \Notes \zchar{-8}{\scriptsize \textquotesingle \textquotesingle b}%
142 \zchar{-16}{\scriptsize $\dot{7}$}\wh{'b'}\en
143
144 \Notes \zchar{-8}{\scriptsize \textquotesingle \textquotesingle c}%
145 \zchar{-16}{\scriptsize $\dot{\dot{1}}$}\wh{'c'}\en
146
147 \Notes \zchar{-8}{\scriptsize \textquotesingle \textquotesingle d}%
148 \zchar{-16}{\scriptsize $\dot{\dot{2}}$}\wh{'d'}\en
149
150 \Notes \zchar{-8}{\scriptsize \textquotesingle \textquotesingle e}%
151 \zchar{-16}{\scriptsize $\dot{\dot{3}}$}\wh{'e'}\en
152
153 \Notes \zchar{-8}{\scriptsize \textquotesingle \textquotesingle f}%
154 \zchar{-16}{\scriptsize $\dot{\dot{4}}$}\wh{'f'}\en
155
156 \Notes \zchar{-8}{\scriptsize \textquotesingle \textquotesingle g}%
157 \zchar{-16}{\scriptsize $\dot{\dot{5}}$}\wh{'g'}\en
158 %''a = o, ''b = p, ''c = q, ''d = r, ''e = s, ''f = t, ''g = u
159
160 \Notes \zchar{-8}{\scriptsize \textquotesingle %
161 \textquotesingle \textquotesingle a}%
162 \zchar{-16}{\scriptsize $\dot{\dot{6}}$}\wh{''a'}\en
163
164 \Notes \zchar{-8}{\scriptsize \textquotesingle%
165 \textquotesingle \textquotesingle b}%
166 \zchar{-16}{\scriptsize $\dot{\dot{7}}$}\wh{''b'}\en
167
168 \Notes \zchar{-8}{\scriptsize \textquotesingle%
169 \textquotesingle \textquotesingle c}%
170 \zchar{-16}{\scriptsize $\dot{\dot{\dot{1}}}$}\wh{''c'}\en
171
172 \Notes \zchar{-8}{\scriptsize \textquotesingle%
173 \textquotesingle
174 \textquotesingle d}%
175 \zchar{-16}{\scriptsize $\dot{\dot{\dot{2}}}$}\wh{''d'}\en
176
177 \Notes \zchar{-8}{\scriptsize \textquotesingle%
178 \textquotesingle \textquotesingle e}%
179 \zchar{-16}{\scriptsize $\dot{\dot{\dot{3}}}$}\wh{''e'}\en %
180 %''a = v, ''b = w, ''c = x, ''d = y, ''e = z
181
182 \Notes \zchar{-8}{\scriptsize \textquotesingle%
183 \textquotesingle \textquotesingle f}%
184 \zchar{-16}{\scriptsize $\dot{\dot{\dot{4}}}$}\wh{''f'}\en
185
186 \Notes \zchar{-8}{\scriptsize \textquotesingle%
187 \textquotesingle \textquotesingle g}%
188 \zchar{-16}{\scriptsize $\dot{\dot{\dot{5}}}$}\wh{''g'}\en
189
190 \Notes \zchar{-8}{\scriptsize \textquotesingle%

```

```

191 \textquotesingle \textquotesingle a)%
192 \zchar{-16}{\scriptsize $\dot{\dot{\dot{6}}}$}\wh{'''a}\en
193
194 \NOTes \zchar{-8}{\scriptsize \textquotesingle%
195 \textquotesingle \textquotesingle b)%
196 \zchar{-16}{\scriptsize $\dot{\dot{\dot{7}}}$}\wh{'''b}\en
197
198 \NOTes \zchar{-8}{\scriptsize \textquotesingle%
199 \textquotesingle \textquotesingle c)%
200 \zchar{-16}{\scriptsize $\dot{\dot{\dot{\dot{1}}}}$}\wh{'''c}\en %
201
202 \zendextract
203 \end{music}
204
205 \vspace{20pt}
206 \textbf{Notes and Accidentals}
207 \vspace{20pt}
208
209 \begin{music}
210 \let\extractline\leftline
211 \smallmusicsize
212 \setclef1{\treble}
213 \parindent0pt
214 \nostartrule
215 \startextract
216 \NOTes \loffset{1}{\zchar{12}{\scriptsize $\backslash$maxima}%
217 \zchar{-8}{\scriptsize \scriptsize Accidentals}}\maxima{'b}\sk\en
218 \Notes \loffset{1}{\zchar{12}{\scriptsize $\backslash$longa}}%
219 \longa{'b}\sk\en
220 \NOTes \loffset{1}{\zchar{12}{\scriptsize $\backslash$breve}}%
221 $\breve{'b}$\en
222 \NOTes \loffset{0.5}{\zchar{12}{\scriptsize $\backslash$wq}}%
223 \wq{'b}\en
224 \NOTes \loffset{0.5}{\zchar{12}{\scriptsize $\backslash$wqq}}%
225 \wqq{'b}\en
226 \NOTes \loffset{0.5}{\zchar{12}{\scriptsize $\backslash$wh}}%
227 \wh{'b}\en
228 \NOTes \loffset{1}{\zchar{12}{\scriptsize $\backslash$hu}}%
229 \zchar{-8}{\scriptsize $>$}\hu{>f}\en
230 \NOTes \loffset{0.5}{\zchar{12}{\scriptsize $\backslash$h1}}%
231 \h1{'e}\en
232 \NOTes \loffset{1}{\zchar{12}{\scriptsize $\backslash$qu}}%
233 \zchar{-8}{\scriptsize ^}}\qu{~f}\en
234 \NOTes \loffset{1}{\zchar{12}{\scriptsize $\backslash$ql}}%
235 \zchar{-8}{\scriptsize $\backslash$csh}}\csh{'e}}\ql{'e}\en
236 \NOTes \loffset{0.5}{\zchar{12}{\scriptsize $\backslash$cu}}%
237 \zchar{-8}{\scriptsize =}}\cu{=f}\en
238 \NOTes \loffset{1}{\zchar{12}{\scriptsize $\backslash$cl}}%
239 \zchar{-8}{\scriptsize $\backslash$cna}}\cna{'e}}\cl{'e}\en
240 \zendextract

```



```

241 \end{music}
242 \vspace{20pt}
243 \begin{music}
244 \smallmusicsize
245 \setclef1{\treble}
246 \parindent0pt
247 \nostartrule
248 \let\extractline\leftline
249 \startextract
250 \NOTes \zchar{-8}{\scriptsize \scriptsize Accidentals}\en
251 \NOTes \sk\loffset{1}{\zchar{12}{\scriptsize $\backslash$ccu}}%
252 \zchar{-8}{\scriptsize \_}}\ccu{e}\en
253 %\sk to reserve 1 noteskip space for the word Accidentals
254 \NOTes \loffset{1.8}{\zchar{12}{\scriptsize $\backslash$ccl}}%
255 \zchar{-8}{\scriptsize $\backslash$cfl}}{\cfl{'e}}\ccl{'e}\en
256 \NOTes \loffset{2}{\zchar{12}{\scriptsize $\backslash$cccu}}%
257 \zchar{-8}{\scriptsize $<$}}\cccu{<e}\en
258 \NOTes \loffset{2.5}{\zchar{12}{\scriptsize $\backslash$ccccl}}%
259 \zchar{-8}{\scriptsize $\backslash$cdfl}}{\cdf1{'e}}\ccc1{'e}\en
260 \NOTes \loffset{1}{\zchar{12}{\scriptsize $\backslash$ccccu}}%
261 \ccccu{e}\en
262 \NOTes \loffset{1}{\zchar{12}{\scriptsize $\backslash$cccccl}}%
263 \cccccl{'e}\en
264 \NOTes \loffset{1}{\zchar{12}{\scriptsize $\backslash$whp}}%
265 \whp{'b}\en
266 \NOTes \loffset{1}{\zchar{12}{\scriptsize $\backslash$qup}}%
267 \qup{'a}\en
268 \NOTes \loffset{1}{\zchar{12}{\scriptsize $\backslash$lsf}}%
269 {\lsf{f}}\qa{f}\en
270 \NOTes \loffset{1}{\zchar{12}{\scriptsize $\backslash$usf}}%
271 {\usf{'e}}\qa{'e}\en
272 \zendextract
273 \end{music}
274
275 \vspace{20pt}
276 \textbf{Chords}
277 \vspace{20pt}
278
279 %Line 1
280 \begin{music}
281 \normalmusicsize
282 \setclef1{\treble}
283 \nostartrule
284 \nobarnumbers
285 \let\extractline\leftline
286 \startextract
287 \NOTes \loffset{4}{\zchar{12}{1}}% Line number #
288 \zchar{9}{\tiny C or C maj}\zw{ceg}\en
289 \NOTes \zchar{12}{\tiny C/E}\zw{eg'c}\en
290 \NOTes \zchar{9}{\tiny C/G}\zw{g'ce}\en

```

```

291 \NOTes \zchar{9}{\tiny Cm or C min}\zw{c_eg}\en
292 \NOTes \zchar{12}{\tiny Cm/E\usym{266D}}\zw{_eg'c}\en
293 \NOTes \zchar{12}{\tiny Cm/G}\zw{g'c_e}\en
294 \NOTes \loffset{0.5}{\zchar{12}{\tiny C+ or C aug}}\zw{ce^g}\en
295 \NOTes \loffset{0.5}{\zchar{9}{\tiny C\usym{266D}5}}\zw{ce_g}\en
296 \NOTes \loffset{0.5}{\zchar{9}{\tiny C\textdegree or C dim}}%\
297 \zw{c_e_g}\en
298 \NOTes \loffset{0.5}{\zchar{12}{\tiny Csus2}}\rw{d}\zw{cg}\en
299 \NOTes \loffset{0.5}{\zchar{9}{\tiny Csus2\usym{266D}5}}\rw{d}%
300 \zw{c_g}\en
301 \zendextract
302 \end{music}
303
304 \vspace{20pt}
305
306 %Line 2
307
308 \begin{music}
309 \normalmusicsize
310 \setclef1{\treble}
311 \nostartrule
312 \nobarnumbers
313 \let\extractline\leftline
314 \startextract
315 \NOTes \loffset{4}{\zchar{12}{2}}% Line number #
316 \loffset{0.5}{\zchar{9}{\tiny Csus4}}\rw{g}\zw{cf}\en
317 \NOTes \zchar{9}{\tiny C5}\zw{cg}\en
318 \NOTes \loffset{0.5}{\zchar{12}{\tiny Csus24}}\rw{dg}\zw{cf}\en
319 \NOTes \loffset{0.5}{\zchar{9}{\tiny C2 or Cadd9}}\zw{ceg'd}\en
320 \NOTes \loffset{1}{\zchar{12}{\tiny Cm\usym{266F}5}}\lsh{g}%
321 \zw{c_eg}\en
322 \NOTes \loffset{0.5}{\zchar{12}{\tiny Cmsus2}}\rw{d}\zw{c_e}\en
323 \NOTes \loffset{0.5}{\zchar{9}{\tiny Cm2 or Cmadd9}}\zw{c_eg'd}\en
324 \NOTes \loffset{0.5}{\zchar{12}{\tiny C6}}\rw{'a}\zw{!ceg}\en
325 \NOTes \loffset{0.5}{\zchar{12}{\tiny C min6}}\rw{'a}\zw{!c_eg}\en
326 \NOTes \loffset{0.5}{\zchar{12}{\tiny C6/9}}\rw{'a}\zw{!ceg'd}\en
327 \NOTes \zchar{12}{\tiny CM\usym{266F}11}\zw{!ceg'^f}\en
328 \zendextract
329 \end{music}
330
331 \vspace{20pt}
332
333 %Line 3
334 \begin{music}
335 \normalmusicsize
336 \setclef1{\treble}
337 \nostartrule
338 \nobarnumbers
339 \let\extractline\leftline
340 \startextract

```

```

341 \NOTES \loffset{4}{\zchar{12}{3}}% Line number #
342 \zchar{9}{\tiny C7 or C dom}\zw{ceg'_b}\en
343 \NOTES \zchar{12}{\tiny C7/E}\zw{eg'_b}\rw{c}\en
344 \NOTES \zchar{12}{\tiny C7/G}\zw{g'_be}\rw{c}\en
345 \NOTES \zchar{12}{\tiny C7/B\usym{266D}}\zw{'_beg}\rw{c}\en
346 \NOTES \zchar{9}{\tiny CM7}\zw{ceg'b}\en
347 \NOTES \zchar{9}{\tiny CM7\usym{266D}5}\zw{ce_g'b}\en
348 \NOTES \zchar{9}{\tiny CM7sus2}\rw{d}\zw{cg'b}\en
349 \NOTES \zchar{9}{\tiny CM7sus4}\rw{g}\zw{cf'b}\en
350 \NOTES \zchar{9}{\tiny CM7sus24}\rw{dg}\zw{cf'b}\en
351 \NOTES \zchar{12}{\tiny Cm7}\lfl{'b}\zw{!c_eg'b}\en
352 \NOTES \zchar{9}{\tiny C57}\zw{cg'_b}\en
353 \zendextract
354 \end{music}
355
356 \vspace{20pt}
357
358 %Line 4
359 \begin{music}
360 \normalmusicsize
361 \setclef1{\treble}
362 \nostartrule
363 \nobarnumbers
364 \let\extractline\leftline
365 \startextract
366 \NOTES \loffset{4}{\zchar{12}{4}}% Line number #
367 \zchar{12}{\tiny CmM7}\zw{c_eg'b}\en
368 \NOTES \zchar{12}{\tiny CmM7\usym{266D}5}\lfl{e}\zw{ce_g'b}\en
369 \NOTES \loffset{0.5}{\zchar{12}{\tiny C+M7}}\zw{ce^g'b}\en
370 \NOTES \loffset{1}{\zchar{12}{\tiny C+7}}\lsh{g}\zw{ceg'_b}\sk\en
371 \NOTES \loffset{1}{\zchar{12}{\tiny C\emptyset}}\lfl{g}\zw{c_eg'_b}\en
372 \NOTES \loffset{1}{\zchar{12}{\tiny Cz7}}\lfl{e}\rw{'a}\zw{!ce_g}\en
373 \NOTES \zchar{12}{\tiny C7\usym{266D}5}\lfl{g}\zw{ceg'_b}\en
374 \NOTES \zchar{12}{\tiny C7\usym{266F}9}\lsh{'d}\zw{!ceg'_bd}\en
375 \NOTES \zchar{12}{\tiny CM7\usym{266F}9}\zw{ceg'b^d}\sk\en
376 \NOTES \loffset{2}{\zchar{12}{\tiny Cm7\usym{266F}9}}%
377 \loffset{1.6}{\fl{e}}\lsh{'d}\zw{!ceg'_bd}\en
378 \NOTES \zchar{12}{\tiny C7\usym{266D}9}\lfl{'b}\zw{!ceg'b_d}\en
379 \zendextract
380 \end{music}
381
382 \vspace{20pt}
383
384 %Line 5
385 \begin{music}
386 \normalmusicsize
387 \setclef1{\treble}
388 \nostartrule
389 \nobarnumbers
390 \let\extractline\leftline

```

```

391 \startextract
392 \NOTEs \loffset{4}{\zchar{12}{5}}% Line number #
393 \zchar{12}{\tiny CM7\usym{266D}9}\zw{ceg'b_d}\en
394 \NOTEs \zchar{12}{\tiny CmM7\usym{266D}9}\zw{c_eg'b_d}\en
395 \NOTEs \loffset{0.5}{\zchar{12}{\tiny C+M7\usym{266D}9}}%
396 \lfl{'d}\zw{!ce^g'bd}\en
397 \NOTEs \loffset{0.5}{\zchar{12}{\tiny C+7\usym{266D}9}}%
398 \loffset{0.8}{\lsh{g}}\lfl{'d}\zw{!ceg'_bd}\sk\en
399 \NOTEs \loffset{1}{\zchar{12}{\tiny Cø\usym{266D}9}}%
400 \loffset{2.4}{\fl{g}}\loffset{1.6}{\fl{'d}}\lfl{!e}%
401 \zw{!ceg'_bd}\en
402 \NOTEs \zchar{12}{\tiny C7\usym{266D}5\usym{266D}9}%
403 \loffset{1.6}{\fl{'b}}\lfl{d}\zw{!ce_g'bd}\en
404 \NOTEs \zchar{12}{\tiny C7/6}\rw{a}\zw{!ceg'_b}\en
405 \NOTEs \zchar{12}{\tiny C7/6sus2}\rw{d'a}\zw{!ceg'_b}\sk\en
406 \NOTEs \zchar{12}{\tiny C7/6sus4}\rw{df'a}\zw{!ceg'_b}\sk\en
407 \NOTEs \zchar{12}{\tiny C7/6sus4/}\rw{df'a}\zw{!ceg'_b}\en
408 \NOTEs \zchar{9}{\tiny C7sus4}\rw{g}\zw{cf'_b}\en
409 \zendextract
410 \end{music}
411
412 \vspace{20pt}
413
414 %Line 6
415 \begin{music}
416 \normalmusicsize
417 \setclef1{\treble}
418 \nostartrule
419 \nobarnumbers
420 \let\extractline\leftline
421 \startextract
422 \NOTEs \loffset{4}{\zchar{12}{6}}% Line number #
423 \zchar{9}{\tiny C7sus2}\rw{d}\zw{cg'_b}\en
424 \NOTEs \zchar{9}{\tiny C7sus24}\rw{dg}\zw{cf'_b}\en
425 \NOTEs \zchar{12}{\tiny C7\usym{266F}11}\lsh{'f}\zw{!ceg'_bf}\en
426 \NOTEs \zchar{12}{\tiny C7\usym{266D}13}\zw{!ceg'_b'_a}\en
427 \NOTEs \zchar{12}{\tiny CM7\usym{266F}11}\zw{ceg'b^f}\en
428 \NOTEs \zchar{12}{\tiny Cm7\usym{266F}11}%
429 \lsh{'f}\lfl{!e}\zw{ceg'_bf}\en
430 \NOTEs \zchar{12}{\tiny C7sus4\usym{266D}13}\rw{g}\zw{cf'_b'_a}\en
431 \NOTEs \zchar{9}{\tiny CM9}\zw{ceg'bd}\en
432 \NOTEs \zchar{9}{\tiny C9}\zw{ceg'_bd}\en
433 \NOTEs \zchar{12}{\tiny CmM9}\zw{c_eg'bd}\en
434 \NOTEs \zchar{12}{\tiny Cm9}\lfl{e}\zw{ceg'_bd}\en
435 \zendextract
436 \end{music}
437
438 \vspace{20pt}
439
440 %Line 7

```

```

441 \begin{music}
442 \normalmusicsize
443 \setclef1{\treble}
444 \nostartrule
445 \nobarnumbers
446 \let\extractline\leftline
447 \startextract
448 \NOTES \loffset{4}{\zchar{12}{7}}% Line number #
449 \loffset{0.5}{\zchar{12}{\tiny C+M9}}\zw{ce^g'bd}\en
450 \NOTES \loffset{0.5}{\zchar{12}{\tiny C+M7\usym{266F}9}}%
451 \lsh{'d}\zw{!ce^g'bd}\en
452 \NOTES \loffset{1}{\zchar{12}{\tiny C+9}}\lsh{g}\zw{ceg'_bd}%
453 \sk\en
454 \NOTES \loffset{1}{\zchar{12}{\tiny Cø9}}\lfl{'b}%
455 \loffset{1.6}{\fl{!g}}\zw{c_eg'bd}\en
456 \NOTES \sk\loffset{1}{\zchar{12}{\tiny Cø\usym{266D}9}}%
457 \lfl{e}\loffset{2.4}{\fl{g}}%
458 \loffset{1.6}{\fl{'d}}\zw{!ceg'_bd}\sk\en
459 \NOTES \loffset{1}{\zchar{12}{\tiny Cz9}}\lfl{e}\rw{'a}%
460 \zw{!ce_g'd}\en
461 \NOTES \loffset{1}{\zchar{12}{\tiny Cz\usym{266D}9}}%
462 \lfl{g}\rw{'a}\zw{!c_eg'_d}\en
463 \NOTES \loffset{1}{\zchar{12}{\tiny C+7\usym{266F}9}}%
464 \loffset{1.6}{\sh{'d}}\lsh{!g}\zw{ceg'_bd}\sk\en
465 \NOTES \zchar{12}{\tiny CM11}\zw{ceg'bdf}\en
466 \NOTES \zchar{12}{\tiny Cm11}\lfl{e}\zw{ceg'_bdf}\en
467 \NOTES \loffset{1}{\zchar{12}{\tiny CmM11}}%
468 \zw{c_eg'bdf}\sk\en
469 \zendextract
470 \end{music}
471
472 \vspace{20pt}
473
474 %Line 8
475 \begin{music}
476 \normalmusicsize
477 \setclef1{\treble}
478 \nostartrule
479 \nobarnumbers
480 \let\extractline\leftline
481 \startextract \addspace\afterruleskip
482 \NOTES \loffset{4}{\zchar{12}{8}}% Line number #
483 \loffset{1}{\zchar{12}{\tiny C7\usym{266F}9\usym{266F}11}}%
484 \lsh{'f}\zw{!ceg'b^df}\en
485 \NOTES \loffset{2}{\zchar{12}{\tiny Cm11\usym{266D}5\usym{266D}9}}%
486 \lfl{e}\loffset{2.4}{\fl{g}}\loffset{0.8}{\lfl{'d}}%
487 \zw{!ceg'_bdf}\en
488 \NOTES \loffset{2}{\zchar{12}{\tiny Cm11\usym{266D}9}}%
489 \lfl{'b}\zw{!c_eg'b_df}\en
490 \NOTES \zchar{12}{\tiny CM9\usym{266F}11}\zw{ceg'bd^f}\en

```

```

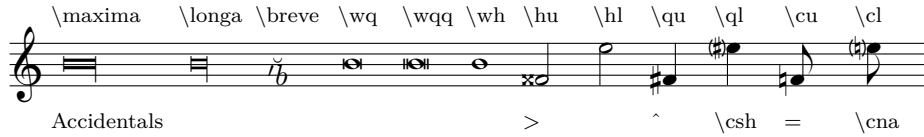
491 \NOTEs \zchar{12}{\tiny C11}\zw{ceg'_bdf}\en
492 \NOTEs \zchar{12}{\tiny CM13}\zw{ceg'bdf'a}\en
493 \NOTEs \zchar{12}{\tiny Cm13}\lfl{e}\zw{ceg'_bdf'a}\en
494 \NOTEs \zchar{12}{\tiny C13}\zw{ceg'_bdf'a}\en
495 \NOTEs \zchar{12}{\tiny C13no9}\zw{ceg'_bf'a}\en
496 \NOTEs \zchar{12}{\tiny Cm13}\zw{c_eg'bdf'a}\en
497 \zendextract
498 \end{music}
499
500 \vspace{20pt}
501 \textbf{Rests and others}
502 \vspace{20pt}
503
504 \begin{music}
505 \smallmusicsize
506 \setclef1{\treble}
507 \nostartrule
508 \nobarnumbers
509 \let\extractline\leftline
510 \startextract
511 \NOTEs \zchar{-6}{\scriptsize $\backslash$metron{$\backslash$qu}{80}}}%
512 \uptext{\metron{qu}{80}}\sk\sk\sk\en % Tempo, or beats per minute
513 \bar
514 \NOTEs \loffset{3}{\zchar{-6}{\scriptsize $\backslash$bar}}\en
515 \NOTEs \loffset{1}{\zchar{12}{\scriptsize $\backslash$pause}}\pause\en
516 \NOTEs \loffset{0.5}{\zchar{12}{\scriptsize $\backslash$hp}}\hp\en
517 \NOTEs \loffset{0.5}{\zchar{12}{\scriptsize $\backslash$qp}}}%
518 \qp\en
519 \doublebar
520 \NOTEs \loffset{4}{\zchar{-6}{\scriptsize $\backslash$doublebar}}\en
521 \NOTEs \loffset{0.5}{\zchar{12}{\scriptsize $\backslash$ds}}\ds\en
522 \NOTEs \loffset{0.5}{\zchar{12}{\scriptsize $\backslash$q}}\q\en
523 \NOTEs \loffset{0.5}{\zchar{14}{\scriptsize $\backslash$tr}}\tr{'g}\en
524 \NOTEs \loffset{0.5}{\zchar{14}{\scriptsize $\backslash$shake}}\shake{'g}\en
525 \leftrepeat
526 \NOTEs \loffset{4}{\zchar{-6}{\scriptsize $\backslash$leftrepeat}}\en
527 \rightrepeat
528 \NOTEs \loffset{3}{\zchar{-6}{\scriptsize $\backslash$rightrepeat}}\en
529 \setdoubleBAR
530 \NOTEs \loffset{4}{\zchar{-10}{\scriptsize $\backslash$setdoubleBAR}}\en
531 \endextract
532 \end{music}

```

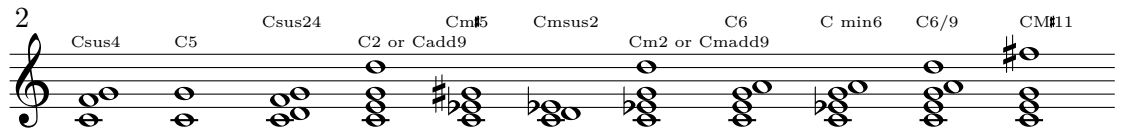
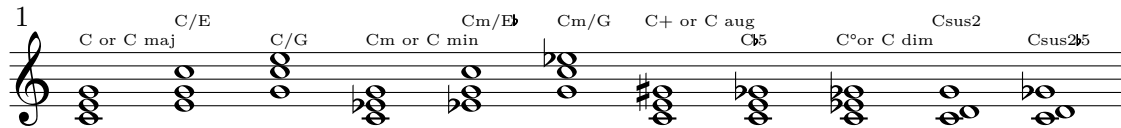
A B C D E F G A B C D E F G a b c  
 6 7 1 2 3 4 5 6 7 1 2 3 4 5 6 7 1



## Notes and Accidentals



## Chords



## Rests and others

## 5 Beams

### 5.1 Starting a beam

The basic beam word is:

`\ibu{n}{p}{s}\qb{n}{p1p2p3}\tbu{n}\qb{n}{p4}`

`\ibu{n}{p}{s}`: to initiate a beam upside.  $n$  is the reference number of the instrument.  $p$  is the head location which is a reference pitch for the beam. The whole beam looks like quarter note together.  $s$  is the slope since if notes heads are connected by a line there might be a slope.

`\qb{n}{p1p2p3}`: indicates eighth notes  $p_1$ ,  $p_2$  and  $p_3$  belonging to a beam. A beam is kind of a simplified form of the flag of the quaver (=the 8th note) whose duration is half a beat. And a two-line beam stands for 2 flags so the notes connected by the two-line beam are semiquavers(16th notes).

`\tbu{n}`: to terminate the upper beam.

Let's look at the 1st example of C-major KV545 and its demonstration of beam tokens.

```

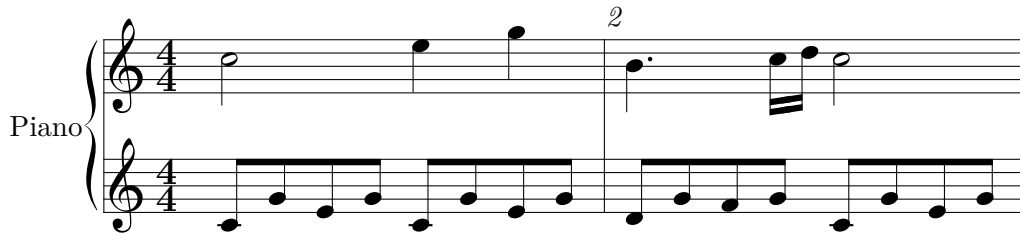
1 \begin{music}
2 \normalmusicsize
3 \instrumentnumber{1}
4 \parindent10mm % placeholder for the instrument name.
5 \setname1{Piano}
6
7 %\setname1{\vbox{%
```



```

8 %\hbox to\parindent{\hss Piano\hss}%
9 %\hbox to\parindent{\hss Guitar\hss}}}%
10 %% vertical box
11 %% \hbox horizontal box, the maximum width is \parindent
12 %% \hss to fulfill the space, centering. \hss has a minimum space width.
13
14 \setstoffs1{2}
15 \generalmeter{\meterfrac44} % 4/4 meter chosen
16 \startextract % starting real score
17 \Notes\ibu0f0\qb0{cge}\tbu0\qb0g|\hl j\en
18 \Notes\ibu0f0\qb0{cge}\tbu0\qb0g|\ql{1*n}\en%\ql 1\sk\ql n = \ql{1*n}
19 \bar
20 \Notes\ibu0f0\qb0{dgf}|\qlp i\en
21 \notes\tbu0\qb0g|\ibbl1j3\qb1j\tbl1\qb1k\en
22 \Notes\ibu0f0\qb0{cge}\tbu0\qb0g|\hl j\en
23 \zendextract % terminate excerpt without the end bar
24 \end{music}

```



The first beam `\ibu0f0\qb0{cge}\tbu0\qb0g` in the bottom first staff, `\ibu0f0=\ibu{0}{f}{0}`, the curly brace is sometimes omitted if the parameter is fixed to be one letter.

By analogy, `\ibbl1j3` is `\ibbl{1}{j}{3}`, to initiate a double beam located on the reference pitch `j` (`=c`) with slope 15%.

## 5.2 Adding notes to a beam

For a single beam or a double beam actually defines the notes' duration, quarter or quaver, it's possible to use command like `\ql\qa\qu` to add notes to a beam.

`\Dqbu\Dqbl`: double notes single beam, adding up to 1 beat

`\Dqbbu\Dqbb1`: double notes double beam, adding up to half a beat

`\Tqbu\Tqbl`: triple notes single beam, adding up to 1 beat

`\Tqbbu\Tqbb1`: triple notes double beam, adding up to half a beat

`\Qqbu\Qqbl`: quadra notes single beam

`\Qqbbu\Qqbb1`: quadra notes double beam

```

1 \begin{music}
2 \smallmusicsize
3 \let\extractline\leftline
4 \startextract
5 \Notes\Dqbu gh\Dqbl jh\en
6 \bar
7 \notes\Dqbbu fg\Dqbb1 hk\en

```

```

8 \doublebar
9 \Notes\Tqbu ghi\Tqbl mmj\en
10 \leftrepeat
11 \notes\Tqbbu fgj\Tqbbl njh\en
12 \rightrepeat
13 \Notes\Qqbu ghjh\Qqbl jifh\en
14 \notes\Qqbhu fgge\Qqbbl jhgi\en
15 \setdoubleBAR
16 \endextract
17 \end{music}

```



Bar settings are woven in this example.

If I set the music size to `\normalmusicsize`, it couldn't split in lines and there is a transgression.

And irregular beams:

```

1 \begin{music}
2 \let\extractline\leftline
3 \startextract
4 \Notes\ibbbu0h0\qb0e\tbbbu0\qb0e\tbbu0\qb0e\tbu0\qb0e\en
5 \Notes\ibu0e0\qbp0e\roff{\tbbu0\tqh0e}\en%the 2nd beam note
6 \Notes\ibu0e0\qbp0e\roff{\tbbbu0\tbbu0\tqh0e}\en
7 \Notes\ibbl0j0\roff{\tbb10}\qb0j\tb10\qbp0j\en
8 \notes\ibbbu0e0\roff{\tbbbu0}\qb0f\en
9 \notesp\tbbu0\qbp0f\en
10 \Notes\tbu0\qb0f\en
11 \notesp\ibbu0f0\roff{\tbbu0}\qbp0f\en
12 \Notes\qb0f\en
13 \notes\tbbbu0\tbbu0\tbu0\qb0f\en
14 \zendextract
15 \end{music}

```



## 10 Font-based Slurs, Ties and Hairpins

### 10.1 Font-based slur initiation

The basic slur initiation macro is `\isluru{n}{p}`, which initiates an upper slur, with reference number  $n$ , beginning on a note at pitch  $p$ . The starting point of the slur is centered above a virtual quarter note head at pitch  $p$ . Similarly, `\islurd{n}{p}` initiates a lower slur. These slurs are terminated by coding `\tslur{n}{p}` where  $n$  is the reference number and  $p$  is the termination pitch. A slur or beam initiates or terminates before the  $p$  note is written.

What is the reference number? Normally one writes a musical piece bar-wise, a matrix of 3 or 4 sentences of `\notes...\en`, if the meter fraction is 3/4 or 4/4. Within a bar even within one `\notes...\en`, especially for piano staves, say one note in the treble staff is the terminal note of a slur, and another note in the bass staff is the initial note of a slur which composes a chord. Slurs are the de facto measure of a song, notes in a slur are sung together which are a sentence of the lyrics or in real language. So the reference number is the identification of multiple slurs in this bar. The domain of the reference number is 0 5. the example "Lullaby" bar 3 and 4.

If a note is stem up, including a upper beam, and it is a over slur, use `\ibsluru{n}{p}`.

No space is allowed between slur command and the note command, otherwise it doesn't work properly.

```

1 \begin{music}
2 \let\extractline\leftline
3 \startextract
4 \Notes\islurd0g\qu g\tslur0{'c}\qu c\en
5 \Notes\isluru0{'e}\ib10e{-2}\qb0{edc}\tslur0b\tqb0b\en
6 %slur or beam terminates before the last note is written.
7 \bar
8 \Notes\islurd0{'a}\qu a\tslur0{'f}\qu f\en
9 \NOTes\hu g\en
10 \bar
11 \Notes\ibsluru1g\qa g\ha l\sk\tslur1e\zq g\zq i\qu k\en
12 \Notes\islurd1h\qu h\ha f\sk\tbslurd1c\zq h\zq j\ql l\en
13 \endextract
14 \end{music}

```



## 10.5 Modifying font-based slur properties

If a slur goes across lines, it's broken. `\breakslur{r}` at the start note and `\Liftslur{r}{d} \tslur{r}{p}` are used to hold the breakpoint. See "Lullaby" bar 5 and 6.

## 10.7 Font-based hairpins (crescendos and decrescendos)

`\icresc`: initiate a crescendo symbol from the following note.

`\tcresc`: terminate a crescendo symbol to the following note. We have to name the position to put the crescendo symbol: the position `\cmidstaff` is above the current staff as shown in 1st example. `\zcharnote{n}{\tcresc}` is the vertical position of the current staff as shown in the second example.

```

1 \begin{music}
2 \smallmusicsize
3 \instrumentnumber{1}
4 \parindent10mm % placeholder for the instrument name.

```

```

5 \setname1{Piano}
6 \setstaffs1{2}
7 \setclef1\bass
8 \generalmeter{\meterfrac44} % 4/4 meter chosen
9 \startextract % starting real score
10 \Notes\cmidstaff\ppp|\ca c\en
11 \Notes\icresc|\ca{defgh'abcde}\en
12 \Notes\zmidstaff{\loff\tcresc}\cmidstaff\fff|\ca{'f}\en
13 \zendextract % terminate excerpt without the end bar
14 \end{music}

```



```

1 \begin{music}
2 \smallmusicsize
3 \instrumentnumber{1}
4 \parindent10mm % placeholder for the instrument name.
5 \setname1{Piano}
6 \setstaffs1{2}
7 \generalmeter{\meterfrac44} % 4/4 meter chosen
8 \startextract % starting real score
9 \Notes\cmidstaff\ppp|\ca c\en
10 \Notes\icresc|\ca{defgh'abcde}\en
11 \Notes\zcharnote N{\tcresc}\cmidstaff\fff|\zcharnote q{\tcresc}\ca{'f}\en
12 % \zcharnote{p}{text} is to write text at the location of pitch p.
13 \zendextract % terminate excerpt without the end bar
14 \end{music}

```



## 14 Managing the Layout of your Score

### 14.1 Line and page breaking

How to break a line inside a piece? Replace `\bar` with `\alalign` to break a line, and to force page break using `\alapage` instead of `\bar`.

`\stoppiece\contpiece` also works for line break, but these command might be designed for big changes at the level that the framework parameters change, for instance the key signature is modified. Besides,

we execute 3-pass commands in the Terminal window to get the right layout of `\startpiece\endpiece` content, then `\contpiece` may not pass the interpretation of texmaker.

## 15 Changing Clefs, Keys and Meters

### 15.3 Clefs

If one changes the clefs somewhere in the piece, MusiX<sub>TEX</sub> only shows the one that is different from the former one. How to force showing the clefs? `\setclef` twice. First set to the clefs other than the targeted ones or reset to empty and secondly set to the targeted ones.

If one changes key signature the new one will show naturals, using `\ignorenats`(ignore naturals) to remove the naturals. But if the former one is not C major and the targeted one is C major, and C major has no symbols in key signature, we need the naturals to show, otherwise it looks like the key signature doesn't change.

```

1 \begin{music}
2 \nostartrule% no start bar
3 %\nobarnumbers % no bar numbering
4 \smallmusicsize
5 \instrumentnumber2
6 \generalmeter{\meterfrac{4}{4}}
7 \generalsignature{0}% C major
8 \setclef1\bass
9 \setstaves1{2}
10 \parindent0pt
11 \startpiece
12 \NOtes\ql{c}|\zqu{eg}&\zql{'ceg}\zchar{15}{C major}\en
13 %\zchar{p}{text}, \lchar{p}{text}, and \cchar{p}{text},
14 %which differ from the previous three in that the pitch
15 %must be given with a number (representing the number
16 %of staff positions up from the lowest line). The lowest
17 %line is #0.
18 \NOtes \pt{b}|\lh{c}\zhlp{d`g}|\rq{d}\zqu{cf}&\rq{g}%
19 \zqu{bf}\sk\sk\en
20 \NOtes |\lna{c}\zhu{c_g}&\lsh{g}\zhl{g'=b} \en
21 \bar
22 \NOtes \zhlp{`fdb}|\lw{d}\zw{ae}&\zw{ace}\en
23 \NOtes \lq{b}\zql{c`g}|\&\en
24 % bar 3
25 % How to force showing the bass clef?
26 \setclef{1}{88}\setclef{2}{8}\changeClefs% reset the clefs to be empty
27 \setclef{1}{60}\setclef{2}{0}%
28 \generalmeter{\meterfrac{4}{4}}%
29 \generalsignature{1}%
30 \ignorenats\Changecontext
31 % Without \ignorenats, the natural marks will show.
32 % \changecontext will add a bar before these framework symbols.
33 % \Changecontext double bar, zchangecontext no bar.

```

```

34 \Notes\ha{`g}|\zhu{bd}&\zhu{bd}\zchar{15}{G major}\en
35 \Notes\ha{`f}|\rh{d}\zhu{c}&\rh{d}\zhu{c}\en
36 \bar
37 % bar 4
38 \Notes \zql{`eg}|\zqu{eg'b}&\lq{`f}\zql{gb} \en
39 \Notes \lq{a}\zql{bd}|\zql{g'bd}&\upz{`g}\lq{f}\zql{g} \en
40 %bar 5
41 \setclef{1}{88}\setclef{2}{8}\changepclefs%
42 \setclef1{\treble\treble}\setclef2\treble%
43 \setsign{1}{-1}\setsign{2}{-1}%
44 \ignorenats\Changecontext%
45 \Notes\ha{f}|\zhu{'ac}&\zhu{'ac}\zchar{15}{F major}\en
46 \Notes\ha{e}|\lh{'b}\zhl{c}&\lh{'b}\zhl{c}\en
47 \bar
48 \Notes \hup{`g}|\hp \qp &\pause\en
49 \Notes \qu{`f}|\rq{f}\zqu{cg}&\en
50 \zendpiece
51 \end{music}

```



## 18 Miscellaneous Other Notations

### 18.10 Tablature

Here is an example to draw piano and guitar sheet music together. It need the extension library musixps.

It doesn't work interpreting by pdf<sub>l</sub>atex. One way<sup>[7]</sup> to interpret it is to save this piece of codes independently as test.ltx (ltx is the suffix of latex). And in Terminal execute `musixtex test.ltx`. Another way is to interpret by xelatex.

For your reference:

`\zltab{n}{p}\ltab{n}{f}` n is the nth string counting from top down. The first string is 1, and the second string is 2, and 3, 4, 5, 6.

`\zchar{m}{f}` m is the mth space and line position counting from bottom up, the bottom line m=-1, the bottom second line is 1 (the space between is position 0), and count up 3, 5, 7, 9. The mapping formulas is  $m=11-2n$ .

For `\zcharnote{p}{s}` the pitch of the bottom line is d, the second bottom is f, since the space is skipped. And go on with h, j, l, n. This is used in drawing beams, slurs and ties.

```

1 \begin{music}
2 \input musixps
3 \instrumentnumber{2}
4 \songbottom1\songtop2
5 \generalmeter{\meterfrac34}
6 \interinstrument=4\internote
7 \nobarnumbers
8 \setlines16\setclefsymbol1\tabclef\setsize1{1.2}\setsign10
9 \setsign2{-1}\setclefsymbol2\treblelowoct
10 \parindent=2ex
11 \setname1{\tabstringfnt\baselineskip=1.2\internote%
12 \vbox{\hbox{E}\hbox{B}\hbox{G}\hbox{D}\hbox{A}\hbox{E}}}
13 \let\extractline\leftline
14 \startextract
15 \N0tes\qa{*}&\qp\en
16 \N0tesp\zltab50\zltab40\ltab30&\zhl{d}\zhu{f}\qu{.h}\en
17 \Notes\ltab30&\cu{h}\en
18 \bar%
19 \N0tes\zltab50\zltab42\zltab31\ltab22&\zql d\zqu g\zq i\qu l\en
20 \N0tesp\zltab64\zltab55\zltab30\ltab22&\rhl{^c}\rhu{g}\zh{h}\qu{.l}\en
21 \Notes\ltab22&\cu{l}\en
22 \bar%
23 \N0tes\zltab50\zltab40\zltab30\ltab10&\zql d\zq f\zq h\qu{m}\en
24 \N0tes\zltab61\zltab40\ltab20&\zhl b\zh f\qu{k}\en
25 \Notes\ltab33&\cu{j}\en
26 \bar%
27 \N0tes\zltab70\zltab55\ltab45&\zql N\zq g\qu i\en
28 \N0tes\zltab60\zltab53\ltab44&\zql a\zq f\qu h\en
29 \notes\zltab64\ltab42\ilsluru03\ltab53\ltab52\tlslur03\ltab53%
30 &\zql{^c}\ibbu0g{-1}\qb0g\slur eed2\qb0{fe}\tqu0f\en
31 \bar%
32 \notes\ztab{10}0\ltab42\ilsluru03\ltab52\ltab53\tlslur03\ltab50%
33 &\zql K\ibbu0g{-1}\qb0g\slur edd2\qb0e\qb0f\tqu0d\en
34 \N0tesp\zltab50\zltab40\ltab30&\zhl{d}\zhu{f}\qu{.h}\en
35 \Notes\ltab30&\cu{h}\en
36 \bar\zendextract
37 \end{music}

```

EBGD ATE

3 4 0 0 2 2 2 0 0 3 5 4 2 3 2 3 2 2 3 0 0 0

4 0 4 1 0 4 4 4

/0 4

## 23 Lyrics

### 23.2 Musixlyr

I found a song example from L<sup>A</sup>T<sub>E</sub>X forum[8].

Maybe it's necessary to reset the variables, i.e. `\resetlyrics` before `\setlyrics{var}{lyric text}` and `\assignlyrics1{}` before `\assignlyrics1{var}` just as the “Au Clair” example goes, otherwise the same "music" code might not pass in another L<sup>A</sup>T<sub>E</sub>X documents with same document preamble.

```

1 \begin{music}
2 \input musixlyr
3 % general settings:
4 \setlength\parindent{0pt}
5 \generalsignature{2}
6 % more vertical space above of staves, default is 3\Interligne:
7 \stafftopmarg=5\Interligne
8 \smallmusicsize
9 % hide bar number if bar number is 1, use systemnumbers:
10 \def\mybarno{\ifnum\barno=1\relax\else\the\barno\fi}
11 \def\writebarno{\llap{\mybarno\barnoadd}}
12 \def\raisebarno{2\internote}
13 \def\shiftbarno{1.3\Interligne}
14 \systemnumbers
15 % lyrics:
16 \resetlyrics
17 \setlyrics{text}{Ra-dos krás-na isk-ra bo-hov E-ly-zej-ská dcé-ra ty, o-má-me-ní
18   ia-rou oh-ov po-me ktvo-jej svä-to-sti. Tvo-je a-ro zno-vu_ zvia-e
19   to o_ mó-da de-lí dnes vet - kým u-om brat-mi ká-e sta sa tvo-jich
20   krí-del let tvo-je a-ro zno-vu_ zvia-e to o_ mó-da
21   de-lí dnes vet - kým u-om brat-mi ká-e sta sa tvo-jich krí-del let.}
22 \assignlyrics1{}\assignlyrics1{text}
23 % the actual piece:
24 \startpiece
25 \notes\Uptext{\metron{\qu}{100}}\en
26 \NOTes\qu{ffgh}\enotes
27 \bar
28 \NOTes\qu{hgfe}\enotes
29 \bar
30 \NOTes\qu{ddef}\enotes
31 \bar
32 \NOTes\qup f\cu e\hu e\enotes
33 \bar
34 \NOTes\qu{ffgh}\enotes
35 \bar
36 \NOTes\qu{hgfe}\enotes
37 \bar
38 \NOTes\qu{ddef}\enotes
39 \bar
40 \NOTes\qup e\cu d\hu d\enotes

```



```

41 % get a double bar line to indicate that a new part starts
42 % and force line break:
43 \setdoublebar\alaligne
44 \NOTes\upertext{REF.:}\qu{e}\enotes
45 \NOTes\qu{efd}\enotes
46 \bar
47 \NOTes\qu{e}\enotes
48 \Notes\Dqbu fg\en
49 \NOTes\qu{fd}\enotes
50 \bar
51 \NOTes\qu{e}\enotes
52 \Notes\Dqbu fg\en
53 \NOTes\qu{fe}\enotes
54 \bar
55 \NOTes\qu{dea}\enotes
56 \NOTes\isslurd0e\qu f\enotes
57 \bar
58 \NOTes\tsslur0e\qu f\enotes
59 \NOTes\qu {fgh}\enotes
60 \bar
61 \NOTes\qu{hgfe}\enotes
62 \bar
63 \NOTes\qu{ddef}\enotes
64 \bar
65 \NOTes\qup e\cu d\hu d\enotes
66 \setdoublebar\alaligne
67 \NOTes\upertext{REF.:}\qu{e}\enotes
68 \NOTes\qu{efd}\enotes
69 \bar
70 \NOTes\qu{e}\enotes
71 \Notes\Dqbu fg\en
72 \NOTes\qu{fd}\enotes
73 \bar
74 \NOTes\qu{e}\enotes
75 \Notes\Dqbu fg\en
76 \NOTes\qu{fe}\enotes
77 \bar
78 \NOTes\qu{dea}\enotes
79 \NOTes\isslurd0e\qu f\enotes
80 \bar
81 \NOTes\tsslur0e\qu f\enotes
82 \NOTes\qu {fgh}\enotes
83 \bar
84 \NOTes\qu{hgfe}\enotes
85 \bar
86 \NOTes\qu{ddef}\enotes
87 \bar
88 \NOTes\qup e\cu d\hu d\en
89 \Endpiece

```

90 \end{music}

$\text{♩} = 100$



Rados krásna isk-ra bohov E-lyzejská dcéra ty, omámení iarou ohov pome ktvojej svätosti.

9 REF.:  
Tvo - je a - ro zno - vu\_\_ zvia - e to o\_\_ mó - da de - lí dnes vet

13  
- kým u - om brat - mi ká - e sta sa tvo - jich krí - del let

17 REF.:  
tvo - je a - ro zno - vu\_\_ zvia - e to o\_\_ mó - da de - lí dnes vet

21  
- kým u - om brat - mi ká - e sta sa tvo - jich krí - del let.

## 24 Embedding Musical Excerpts in Text Documents

### 24.1 Directly embedding excerpts in LATEX documents

Inline notes instance and code:

```



1 \begin{music}
2 \nostartrule
3
4 %%%%%%%%%%% The macro of inline note %%%%%%%%%%%
5 \makeatletter
6 \def\notesintext#1{%
7 {\let\extractline\relax
8 \setlines10\smallmusicsize \nobarnumbers \nostartrule
9 \staffbotmarg0pt \setclefsymbol1\empty \global\clef@skip0pt
10 \startextract\addspace{-\afterruleskip}\#1\zendextract}}
11 \makeatother
12 %%%%%%%%%%% End of the marco %%%%%%%%%%%
13
14 Use \raisebox{0ex}[0ex][0ex]{\notesintext{\notes\rql1\qu2\en}},
15 not \raisebox{0ex}[0ex][0ex]{\notesintext{\notes\ql2\lqu1\en}}.\
16
17 A sharp symbol \raisebox{0ex}[0ex][0ex]{
18 {\notesintext{\notes\sk\sh1\en}},
19 a flat symbol \raisebox{0ex}[0ex][0ex]{

```

```

20 {\notesintext{\notes\sk\fl1\en}} and the natural symbol %
21 \raisebox{0ex}[0ex][0ex]{\notesintext{\notes\na1\en}}.\
22
23 A whole note \raisebox{0ex}[0ex][0ex]{\notesintext{\notes\zw1\en}},%
24 a half note \raisebox{0ex}[0ex][0ex]{\notesintext{\notes\hu1\en}}%
25 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0{\tabfnt Do}\en}}%
26 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0{Do}\en}}%
27 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0{Re}\en}}%
28 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0{Mi}\en}}%
29 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0{$\dot{1}$}\en}}%
30 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0{$\dot{\dot{2}}$}\en}}%
31 \en}}
32 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0%
33 {$\dot{\dot{\dot{3}}}$}\en}}
34 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0%
35 {$\underline{12}$}\en}}
36 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0%
37 {$\underline{\underline{1234}}$}\en}}
38 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0%
39 {$\underset{\dot{}}{1}$}\en}}
40 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0%
41 {$\underset{\dot{\dot{}}}{2}$}\en}}
42 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0%
43 {$\underset{\dot{\dot{\dot{}}}}{3}$}\en}}
44 \raisebox{0ex}[0ex][0ex]{\notesintext{\Notes\zchar0%
45 {$\underset{\dot{\dot{\dot{\dot{}}}}}{4}$}\en}}.
46 \end{music}

```

Use , not .

A sharp symbol  $\sharp$ , a flat symbol  $\flat$  and the natural symbol  $\natural$ .

A whole note , a half note  Do Re Mi  $\dot{1}$   $\dot{2}$   $\dot{3}$   $\underline{12}$   $\underline{1234}$   $\dot{1}$   $\dot{2}$   $\dot{3}$   $\dot{4}$ .

In other words, we can write text within the `\begin{music}` and `\end{music}` pair. The text font is the same.

## 25 Extension Library

### 25.16 musixgui

I partially copied the example as follows.

```

1 \begin{music}
2 \input musixlyr
3 \input musixgui
4 \def\Dmajor{\guitar D{x-----\gdot42\gdot53\gdot62}%
5 \def\Gmajor{\guitar G{o-----\gbarre3\gdot25\gdot35\gdot44}%
6 \nostartrule% no start bar
7 \nobarnumbers % no bar numbering

```

```

8 \smallmusicsize
9 \generalmeter{\meterfrac34}
10 \generalsignature{1}% G major
11 \parindent0pt
12 % lyrics:
13 \resetlyrics
14 \setlyrics{text}{We wish you a mer-ry christ-mas,
15 we wish you a mer-ry christ-mas,
16 we wish you a mer-ry christ-mas,
17 and a hap-py new year.}
18 \assignlyrics1{}\assignlyrics1{text}
19 \startpiece
20 \Notes\qu{d}\en\bar
21 \Notes\raiseguitar{20}\Gmajor\qu{g}\cu{g'a!gf}\en\bar
22 \Notes\qu{eee}\en\bar
23 \Notes\qu{'a}\ca{aba!g}\en\bar
24 \Notes\raiseguitar{20}\Dmajor\qu{fd}\en
25 \alaligne
26 \Notes\qu{d}\en\bar
27 \Notes\ql{'b}\ca{bcba}\en\barre
28 \Notes\qu{ge}\cu{dd}\en\barre
29 \Notes\qu{e'a!f}\en\barre
30 \Notes\hu{g}\en
31 \doublebar
32 \zendpiece
33 \end{music}

```

We wish you a mer - ry christmas, we wish you a mer - ry christmas,

we wish you a mer-ry christmas, and a hap-py new year.

Here is another style of guitar chords with finger number[9].<sup>3</sup>

```

1 \newcounter{chords-string}
2 \newcounter{chords-fret}
3
4 % Variables
5 \newcommand{\chordreset}{
6   \def\chordtuning{E, B, G, D, A, E}
7   \def\chordfretstart{1}
8   \def\chordfretend{4}
9 }
10 \chordreset

```

<sup>3</sup>I haven't learned guitar and I'm not familiar with the pitches, which is which. The chords may be wrong musically.

```

11 % to raise the chords (steps of internote)
12 \def\raisech#1{\edef\r@gu{#1}}
13
14 % The chord environmant
15 % \begin{chord}
16 % \begin{chord}[D,G,D,G,H,E]
17 \newenvironment{chord}[1]
18 {
19   % A single note
20   % \single <string> <fret> <finger>
21   \newcommand{\single}[3]{
22     \draw node[single] at (##2+0.5, {7-##1}) {\tiny ##3};
23   }
24   % A bar
25   % \bar <startstring> <fret> <finger>
26   \renewcommand{\bar}[3]{
27     \draw[bar] (##2 +.5, {7-##1}) -- node[midway] {\tiny ##3} (##2 +.5,6);
28   }
29   % No strike
30   % \nostrike <string>
31   \newcommand{\nostrike}[1]{
32     \draw[nostrike] (\chordfretstart, {7-##1}) +(-135:.2cm) -- +(45:.2cm);
33     \draw[nostrike] (\chordfretstart,{7-##1}) +(135:.2cm) -- +(-45:.2cm);
34   }
35   \begin{tikzpicture}[scale=0.23,
36     single/.style={draw,circle,fill=white,inner sep=0.01pt},
37     bar/.style={cap=round,double,double distance=4.6pt},
38     nostrike/.style={line width=.8pt},
39     cm={0,-1.2,0.8,0,(0,0)}
40   ]
41   \setcounter{chords-string}{6}
42   \node at (\chordfretstart-.5, 3.5) {\tiny #1};
43   \foreach \tuning in \chordtuning
44   {
45 %     \node at (\chordfretstart-.5, \value{chords-string}) {\tiny \tuning};
46     \addtocounter{chords-string}{-1}
47   }
48   \draw (\chordfretstart, 1) grid ({\chordfretend+1}, 6);
49
50   \foreach \fret in {\chordfretstart,...,\chordfretend}
51   {
52     \setcounter{chords-fret}\fret
53     \ifnum \fret=\chordfretstart %
54       \draw node[anchor=west] at (\fret+0.5, 5.8) %
55       {\tiny \Roman{chords-fret}}\fi;
56   }
57 }
58 {
59   \end{tikzpicture}
60 }

```

```

61 \newcommand{\Fmaj}{
62 \def\chordfretstart{1} % start diagram at 5th fret
63 \def\chordfretend{4} % end diagram at 8th fret
64 \begin{chord}{\Fmaj}%
65 \bar 6 1 1 % bar from 1th string down with index finger on 1st fret
66 \single 5 3 3 % ringfinger on 5th string 3rd fret
67 \single 4 3 4 % pinky on 4th string 3rd fret
68 \single 3 2 2 % middle finger on 3rd string 2nd fret
69 \end{chord}%
70 \chordreset}
71
72 \newcommand{\Dmaj}{
73 \def\chordfretstart{5} % start diagram at 5th fret
74 \def\chordfretend{8} % end diagram at 8th fret
75 \begin{chord}{\Dmaj}
76 \bar 5 5 1 % bar from 6th string down with index finger on 1st fret
77 \single 2 7 4
78 \single 3 7 3
79 \single 4 7 2
80 \nostrike 6 % do not strike 6th string
81 \end{chord}
82 \chordreset}
83 \begin{music}
84 \input{musixlyr}
85 \nostartrule% no start bar
86 \nobarnumbers % no bar numbering
87 \smallmusicsize
88 \generalmeter{\meterfrac{3}{4}}
89 \generalsignature{1}% G major
90 \parindent0pt
91 % lyrics:
92 \resetlyrics
93 \setlyrics{text}{We wish you a mer-ry christ-mas,
94 we wish you a mer-ry christ-mas,
95 we wish you a mer-ry christ-mas,
96 and a hap-py new year.}
97 \assignlyrics1{}\assignlyrics1{text}
98 \startpiece
99 \NOTes\qu{d}\en\bar
100 \NOTes\cchar{10}{\Fmaj}\qu{g}\cu{g'a!gf}\en\bar
101 \NOTes\qu{eee}\en\bar
102 \NOTes\qu{'a}\ca{aba!g}\en\bar
103 \NOTes\cchar{10}{\Dmaj}\qu{fd}\en
104 \alaligne
105 \NOTes\qu{d}\en\bar
106 \NOTes\ql{'b}\ca{bcba}\en\barre
107 \NOTes\qu{ge}\cu{dd}\en\barre
108 \NOTes\qu{e'a!f}\en\barre
109 \NOTes\hu{g}\en
110 \doublebar

```

```

111 \zendpiece
112 \end{music}

```

The image shows a musical score for a Christmas song. It consists of two staves. The first staff has a treble clef, a key signature of one sharp (F#), and a 3/4 time signature. Above the staff, there are two guitar chord diagrams: 'Fmaj I' and 'Dmaj V'. The lyrics are: 'We wish you a mer-ry christmas, we wish you a mer-ry christmas, we wish you a mer-ry christmas, and a hap-py new year.' The second staff continues the melody with a double bar line at the end.

### 25.23 musixmtab

```

1 \begin{music}
2 \input musixmtab
3 \nobarnumbers
4 \setlines16\setclefsymbol1\tabclef\setsize1{1.2}\setsign10
5 \parindent=2ex
6 \setname1{\tabstringfnt\baselineskip=1.2\internote%
7 \vbox{\hbox{E}\hbox{B}\hbox{G}\hbox{D}\hbox{A}\hbox{E}}}
8 \startpiece
9 \Notes \uh{1}{1}\en
10 \Notes \zuh{2}{2}\en
11 \Notes \uq33\en
12 \Notes \uc44\en
13 %\Notes \ucc11\en
14 \Notes \zu55\en
15 \Notes \uib40\ub45\utb\ub22\en
16 \Notes \uib{4}{0}\ub45\utq22\en
17 \Notes \uibb{4}{0}\ub45\ub22\ub23\utq10\en
18 \Notes \uib{4}{0}\ub35\utb\ub50\en
19 \endpiece
20 \end{music}

```

The image shows a musical score for a Christmas song. It consists of two staves. The first staff has a treble clef, a key signature of one sharp (F#), and a 3/4 time signature. Above the staff, there are two guitar chord diagrams: 'Fmaj I' and 'Dmaj V'. The lyrics are: 'We wish you a mer-ry christmas, we wish you a mer-ry christmas, we wish you a mer-ry christmas, and a hap-py new year.' The second staff continues the melody with a double bar line at the end.

### 25.24 musixper

```

1 \begin{music}
2 \input musixper
3 \input musixgre
4 \parindent 19mm
5 \instrumentnumber{3}
6 \setname1{keyboard}

```

```

7 \setname2{drum}
8 \setname3{monks}
9 \setlines2{1}
10 \setlines3{4}
11 \setinterinstrument1{-2\Interligne}% less vertical space above
12 \setinterinstrument2{-2\Interligne}% and below the percussion
13 \sepbarrules
14 \setsign1{-1} % one flat at keyboard
15 \generalmeter{\meterfrac24}
16 \setmeter3{\empty}
17 \setclef3{\alto}
18 \setclef1{\bass}
19 \setstaves1{2} % 2 staves at keyboard
20 \setclefsymbol3{\gregorianCclef} % gregorian C clef at instrument 3
21 \setclefsymbol2{\drumclef} % cancel G clef at instrument 2
22 \startextract
23 \Notes\hu F|\zh c\hu h&\dnq4&\squ{acd}\en\bar
24 \N0tes\qu I|\zq N\qu d&\qp&\diapunc f\en
25 \N0tes\qu J|\zq a\qu e&\ynq4&\diapunc f\en\bar
26 \notes\hu G|\zh b\hu d&\dnq4&\zsqu d\rsqu g\squ{hgh}\en
27 \endextract
28 \end{music}

```

monks

drum

keyboard

## 26 MusiXTEX Examples

2 examples: 1) Twinkle Twinkle Little Star, 2) Lullaby by Johannes Brahms.

```

1 \pagebreak
2 \thispagestyle{empty}% to hide the page number this page
3 \begin{center}
4 \Large\textbf{Twinkle Twinkle Little Star}
5 \end{center}
6 \vspace{20pt}
7 \begin{music}
8 \input musixlyr
9 \smallmusicsize

```



```

10 \instrumentnumber{1} % 1 instrument
11 \setstafs1{2} % 2 staff
12 \setclefs1{\bass} % the clef in the bottom staff
13 \generalsignature{0} % C major
14 %\generalsignature and \generalmeter don't
15 % use the parameter of instrument number
16 \generalmeter{\meterfrac44} % meter
17 \stafftopmarg=6\Interligne
18 % \stafftopmarg : more margin above the last (uppermost) staff of last
19 % (uppermost) instrument to write the chords. Default is 3\Interligne.
20 \interstaff{11} % to enlarge the space between the staves
21 % in order to write the lyrics. Default is 9, in unit of 2\internote.
22
23 % store \barno in a new variable \currbarno
24 \def\currbarno{\ifnum\barno=1\relax\else\the\barno\fi}
25 \def\writebarno{\llap{\tenbf\currbarno\barnoadd}}%
26 \def\raisebarno{2\internote}%
27 \def\shiftbarno{1.3\Interligne}%
28 \systemnumbers
29 \resetlyrics
30 \setlyrics{text}{Twin-kle, twin-kle lit-tle star.
31   How I won-der what you are.
32   Up a-bove the world so high,
33   Like a dia-mond in the sky
34   Twin-kle, twin-kle lit-tle star.
35   How I won-der what you are.
36 }
37
38 %assign alto lyrics to staff 2 of instrument 1
39 \assignlyricsmulti12{}
40 \assignlyricsmulti{1}{2}{text}
41 \setlength\parindent{0pt}
42 \startpiece
43 % Twinkle, twinkle, little star.
44 \NOTEs \zhl{\`ceg}|\zchar{12}{C}\qu{c}\en
45 \NOTEs |\qu{c}\en
46 \NOTEs \zhl{\`ceg}|\zchar{12}{C}\qu{g}\en
47 \NOTEs |\qu{g}\en\bar
48 \NOTEs \zhl{\`cf'a}|\zchar{12}{F/C}\qu{'a}\en
49 \NOTEs |\qu{'a}\en
50 \NOTEs \zhl{\`ceg}|\zchar{12}{C}\hu{g}\en
51 \alaligne% replacing \bar with \alaligne to force a line break
52 % How I wonder what you are.
53 \NOTEs \zhl{\`cf'a}|\zchar{12}{F/C}\qu{g}\en
54 \NOTEs |\qu{g}\en
55 \NOTEs \zhl{\`ceg}|\zchar{12}{C}\qu{f}\en
56 \NOTEs |\qu{f}\en\bar
57 \NOTEs \zhl{\`g'bdf}|\zchar{12}{G7}\qu{e}\en
58 \NOTEs |\qu{e}\en
59 \NOTEs \zhl{\`ceg}|\zchar{12}{C}\hu{d}\en

```

```

60 \alaligne
61 % Up above the world so high.
62 \NOTES \zhl{\`ceg}|\zchar{12}{C}\qu{g}\en
63 \NOTES |\qu{g}\en
64 \NOTES \zhl{\`cf'a}|\zchar{12}{F/C}\qu{f}\en
65 \NOTES |\qu{f}\en\bar
66 \NOTES \zhl{\`ceg}|\zchar{12}{C}\qu{e}\en
67 \NOTES |\qu{e}\en
68 \NOTES \zhl{\`g'bdf}|\zchar{12}{G7}\hu{d}\en
69 \alaligne
70 % Like a diamond in the sky.
71 \NOTES \zhl{\`ceg}|\zchar{12}{C}\qu{g}\en
72 \NOTES |\zsong{a}\qu{g}\en
73 \NOTES \zhl{\`cf'a}|\zchar{12}{F/C}\qu{f}\en
74 \NOTES |\qu{f}\en\bar
75 \NOTES \zhl{\`ceg}|\zchar{12}{C}\qu{e}\en
76 \NOTES |\qu{e}\en
77 \NOTES \zhl{\`g'bdf}|\zchar{12}{G7}\hu{d}\en
78 \alaligne
79 % Twinkle, twinkle, little star.
80 \NOTES \zhl{\`ceg}|\zchar{12}{C}\qu{c}\en
81 \NOTES |\qu{c}\en
82 \NOTES \zhl{\`ceg}|\zchar{12}{C}\qu{g}\en
83 \NOTES |\qu{g}\en\bar
84 \NOTES \zhl{\`cf'a}|\zchar{12}{F/C}\qu{'a}\en
85 \NOTES |\qu{'a}\en
86 \NOTES \zhl{\`ceg}|\zchar{12}{C}\hu{g}\en
87 \alaligne
88 % How I wonder what you are.
89 \NOTES \zhl{\`cf'a}|\zchar{12}{F/C}\qu{g}\en
90 \NOTES |\qu{g}\en
91 \NOTES \zhl{\`ceg}|\zchar{12}{C}\qu{f}\en
92 \NOTES |\qu{f}\en\bar
93 \NOTES \zhl{\`g'bdf}|\zchar{12}{G7}\qu{e}\en
94 \NOTES |\qu{e}\en
95 \NOTES \zhl{\`ceg}|\zchar{12}{C}\hu{d}\en
96 \Endpiece
97 \end{music}

```

# Twinkle Twinkle Little Star

This musical score is for the song "Twinkle Twinkle Little Star" in 4/4 time. It consists of six systems of music, each with a vocal line and a piano accompaniment. The piano part uses a simple harmonic accompaniment with chords in the right hand and single notes in the left hand. The vocal line is written in a single treble clef. The lyrics are written below the vocal line. The score includes measure numbers 1 through 11. The key signature is one flat (B-flat), and the time signature is 4/4. The score ends with a double bar line at measure 11.

1 C C F/C C  
Twin - - kle, twin - - kle lit - - tle star.

3 F/C C G7 C  
How I won - - der what you are.

5 C F/C C G7  
Up a - - bove the world so high,

7 C F/C C G7  
Like a dia - - mond in the sky

9 C C F/C C  
Twin - - kle, twin - - kle lit - - tle star.

11 F/C C G7 C  
How I won - - der what you are.

```

1 \pagebreak
2 \thispagestyle{empty} % no page number
3 \begin{center}
4 \Large\textbf{搖籃曲}
5 \end{center}
6 % Left-lined tempo,meter,mood. Right-lined songwriters
7 % \hbox means to draw a horizontal box with one line inside.
8 % \hss is a push seperating force,
9 % to push the content near it to the extreme of the box.
10 % For example \hss composer \hss, then the word "composer"
11 % is rendered in the center of the box.
12 \hbox to \hsize{1 = C $\displaystyle \frac{3}{4}$\hss 作曲：勃拉姆斯}
13 \hbox to \hsize{溫柔地 \hss 作詞：未知}
14 \vspace{20pt}
15 % Numbered Music Notation
16 \begin{music}
17 \instrumentnumber{2}
18 \def\Numbersheet{1}%
19 \def\Piano{2}%
20 \setstaves\Piano{2}
21 \setclef\Piano{\bass}
22 \setmeter\Piano{{\meterfrac{3}{4}}{\meterfrac{3}{4}}}
23 \setlines\Numbersheet{0} % Numbered music sheet doesn't have a line.
24 \setmeter\Numbersheet{}
25 \setclefsymbol\Numbersheet\empty
26 \nostartrule
27 \sepbarrules
28 \staffbotmarg8pt
29 % bar number at the beginning of each system. By default the number
30 %is wrapped by a square box.
31 % a system =a line of the whole piece.
32 \startpiece
33 %%%%%%%%% Begin drawing the starting bar %%%%%%%%%%
34 %% The first bar can't be seperated, so it is drawn manually.
35 \nobarnumbers
36 \loffset{6}{\barre}
37 % the system variable \barno = 2 now, reset it to be 1
38 \barno=1
39 \barnumbers
40 %%%%%%%%%% End drawing the starting bar %%%%%%%%%%
41 % bar 1
42 %% \cchar1{number musical note}\cchar{-4}{lyric of 1st paragraph}
43 %% \cchar{-9}{lyric of 2nd paragraph}.
44 \Notes\selectinstrument\Piano \qp|\islurd0e\ibu0e0\qb0e%
45 \selectinstrument\Numbersheet \zchar1{3}\zchar{-4}{快}%
46 \zchar{-9}{快}\hbox{\line(1,0){4\elemskip}}\en %
47 \Notes\selectinstrument\Piano|tbu0\qb0e %
48 \selectinstrument\Numbersheet \zchar1{3}\zchar{-4}{安}%
49 \zchar{-9}{安}\hbox{\line(1,0){1\elemskip}}\en %

```

```

50 \bar
51 % bar 2
52 \Notes\selectinstrument\Piano \zchar{-4}{C}\ibsluru1{`c}\qu{c}|%
53 \tslur0g\qup{g}%
54 \selectinstrument\Numbersheet \zchar1{5$\cdot$}\zchar{-4}{睡,}%
55 \zchar{-9}{睡,}\enotes
56 \Notes\selectinstrument\Piano \ql{`e}|\cu{e}%
57 \selectinstrument\Numbersheet \zchar1{\underline{3}}\zchar{-4}{小}%
58 \zchar{-9}{小}\enotes
59 \Notes\selectinstrument\Piano \tslur1{`b}\ql{g}|\qu{e}%
60 \selectinstrument\Numbersheet \zchar1{3}\zchar{-4}{賣}%
61 \zchar{-9}{賣}\enotes
62 \bar
63 % bar 3
64 \Notes\selectinstrument\Piano \zchar{-4}{C}\ibsluru1{`c}\qu{c}|%
65 \ql{g}%
66 \selectinstrument\Numbersheet \zchar1{5}\zchar{-4}{貝,}%
67 \zchar{-9}{貝,}\en
68 \Notes\selectinstrument\Piano \ql{`e}|\qp %
69 \selectinstrument\Numbersheet \zchar1{0}\zchar{-4}{}%
70 \zchar{-9}{}\en
71 \Notes\selectinstrument\Piano \tslur1{`b}\ql{g}|%
72 \ibsluru2f\ibu0e5\qb0 e%
73 \selectinstrument\Numbersheet \zchar1{3}\zchar{-4}{夜}%
74 \zchar{-9}{夜}\hbox{\line(1,0){4.2\elemskip}}\en
75 \Notes\selectinstrument\Piano|\tbu0\qb0 g%
76 \selectinstrument\Numbersheet \zchar1{5}\zchar{-4}{}%
77 \zchar{-9}{}\hbox{\line(1,0){1\elemskip}}\en
78 \bar
79 % bar 4
80 \Notes\selectinstrument\Piano \zchar{-4}{Em/B}\ibsluru1{`b}\qu{b}|%
81 \ql{`c}%
82 \selectinstrument\Numbersheet \zchar1{$\dot{1}$}\zchar{-4}{幕}%
83 \zchar{-9}{幕}\en
84 \Notes\selectinstrument\Piano \ql{`e}|\qlp{`b}%
85 \selectinstrument\Numbersheet \zchar1{7$\cdot$}\zchar{-4}{已}%
86 \zchar{-9}{已}\en
87 \Notes\selectinstrument\Piano \tslur1{`b}\ql{g}|\cu{'a}%
88 \selectinstrument\Numbersheet \zchar1{\underline{6}}\zchar{-4}{低}%
89 \zchar{-9}{低}\en
90 \bar
91 % bar 5
92 %\def\atnextline{\Liftslur3{-1}}% there is a break bar
93 \Notes\selectinstrument\Piano \isluru1{`d}\ql{d}|\tslur2{'a}\qu{a}%
94 \selectinstrument\Numbersheet \itenu0j\zchar1{6}\zchar{-4}{垂。}%
95 \zchar{-9}{垂。}\en
96 \Notes\selectinstrument\Piano \ql{`f}|\qu g%
97 \selectinstrument\Numbersheet \tten0\zchar1{5}\zchar{-4}{}\zchar{-9}{}\en
98 \Notes\selectinstrument\Piano \tslur1{`g}\ql{g}|\islurd3d\ibu0d3\qb0 d%
99 \selectinstrument\Numbersheet \zchar1{2}\zchar{-4}{床}%

```

```

100 \zchar{-9}{月}\hbox{\line(1,0){4.1\elemskip}}\en
101 \Notes\selectinstrument\Piano\tbu0\qb0 e%
102 \selectinstrument\Numbersheet \zchar1{3}\zchar{-4}{頭}%
103 \zchar{-9}{光}\hbox{\line(1,0){1\elemskip}}\breakslur3{a}\en
104 % bar 6, a new line
105 %%%% begin drawing the starting rule%%%%
106 \nobarnumbers
107 \alalignc
108 \loffset{4.6}{\barre}
109 \advance\barno-1
110 \barnumbers
111 %%%% end drawing the starting rule%%%%
112 \Notes\selectinstrument\Piano \isluru1{`d}\ql{d}|\qu f %
113 \selectinstrument\Numbersheet \zchar1{4}\zchar{-4}{佈}\zchar{-9}{撒}\en
114 \Notes\selectinstrument\Piano \ql{`f}|\tslur3d\qu d%
115 \selectinstrument\Numbersheet \zchar1{2}\zchar{-4}{滿}\zchar{-9}{滿}\en
116 \Notes\selectinstrument\Piano \tslur1{`g}\ql{g}|\islurd4d\ibu0d3\qb0 d%
117 \selectinstrument\Numbersheet \zchar1{2}\zchar{-4}{玫}%
118 \zchar{-9}{大}\hbox{\line(1,0){4.1\elemskip}}\en
119 \Notes\selectinstrument\Piano\tbu0\qb0 e%
120 \selectinstrument\Numbersheet \zchar1{3}\zchar{-4}{}%
121 \zchar{-9}{}\hbox{\line(1,0){1\elemskip}}\en
122 \bar
123 % bar 7
124 \Notes\selectinstrument\Piano \isluru1{`d}\ql{d}|\tslur4f\hu f %
125 \selectinstrument\Numbersheet \zchar1{4}\zchar{-4}{瑰, }\zchar{-9}{地, }\en
126 \Notes\selectinstrument\Piano \ql{`f}|\%
127 \selectinstrument\Numbersheet \zchar1{0}\zchar{-4}{}\zchar{-9}{}\en
128 \Notes\selectinstrument\Piano \tslur1{`g}\ql{g}|\ibsluru0d\ibu0d3\qb0 d %
129 \selectinstrument\Numbersheet \zchar1{2}\zchar{-4}{陪}%
130 \zchar{-9}{微}\hbox{\line(1,0){4.1\elemskip}}\en
131 \Notes\selectinstrument\Piano\tbu0\qb0 f%
132 \selectinstrument\Numbersheet \zchar1{4}\zchar{-4}{}%
133 \zchar{-9}{}\hbox{\line(1,0){1\elemskip}}\en
134 \bar
135 % bar 8
136 \Notes\selectinstrument\Piano \isluru1{`d}\ql{d}|\ibu0{'b}{-3}\qb0{b}%
137 \selectinstrument\Numbersheet \zchar1{7}\zchar{-4}{伴}%
138 \zchar{-9}{風}\hbox{\line(1,0){4.1\elemskip}}\en
139 \Notes\selectinstrument\Piano \ql{`f}|\icresc\tbu0\qb0{'a}%
140 \selectinstrument\Numbersheet \zchar1{6}\zchar{-4}{}%
141 \zchar{-9}{}\hbox{\line(1,0){1\elemskip}}\en
142 \Notes\selectinstrument\Piano \tslur1{`g}\ql{g}|\qu g%
143 \selectinstrument\Numbersheet \zchar1{5}\zchar{-4}{你}\zchar{-9}{輕}\en
144 \Notes\selectinstrument\Piano\zcharnote{N}\tcresc\ql{'b}%
145 \selectinstrument\Numbersheet \zchar1{7}\zchar{-4}{入}\zchar{-9}{輕}\en
146 \bar
147 % bar 9
148 \Notes\selectinstrument\Piano \isluru1{`d}\ql{d}|\tslur0{'c}\hl{c}%
149 \selectinstrument\Numbersheet \zchar1{$\dot{1}$}\zchar{-4}{睡。}%

```

```

150 \zchar{-9}{吹。}\en
151 \Notes\selectinstrument\Piano \ql{`f}|%
152 \selectinstrument\Numbersheet \zchar1{-}\zchar{-4}{}\zchar{-9}{}\en
153 \Notes\selectinstrument\Piano \tslur1{`g}\ql{g}|%
154 \ibsluru0c\icresc\ibu0c0\qb0c%
155 \selectinstrument\Numbersheet \zchar1{1}\zchar{-4}{小}%
156 \zchar{-9}{小}\hbox{\line(1,0){4.1\elemskip}}\breakslur0g\en
157 \Notes\selectinstrument\Piano\zcharnote{N}\tcresc\tbu0\qb0c%
158 \selectinstrument\Numbersheet \zchar1{1}\zchar{-4}{寶}%
159 \zchar{-9}{寶}\hbox{\line(1,0){1\elemskip}}\en
160 % bar 10, a new line
161 %%%% begin drawing the starting rule%%%%%
162 \nobarnumbers
163 \alaligne
164 \loffset{4.6}{\barre}
165 \advance\barno-1
166 \barnumbers
167 %%%% end drawing the starting rule%%%%%
168 \Notes\selectinstrument\Piano \zchar{-4}{C}\ibsluru1{`c}\qu{c}|\hl{`c}%
169 \selectinstrument\Numbersheet \zchar1{1}\zchar{-4}{貝, }\zchar{-9}{貝, }\en
170 \Notes\selectinstrument\Piano \ql{`e}|%
171 \selectinstrument\Numbersheet \zchar1{-}\zchar{-4}{}\zchar{-9}{}\en
172 \Notes\selectinstrument\Piano \tslur1{`b}\ql{g}|%
173 \icresc\ibu0{`a}{-3}\qb0{a}%
174 \selectinstrument\Numbersheet \zchar1{6}\zchar{-4}{小}%
175 \zchar{-9}{小}\hbox{\line(1,0){4.1\elemskip}}\en
176 \Notes\selectinstrument\Piano\zcharnote{N}\tcresc\tbu0\qb0 f%
177 \selectinstrument\Numbersheet \zchar1{4}\zchar{-4}{寶}%
178 \zchar{-9}{寶}\hbox{\line(1,0){1\elemskip}}\en
179 % bar 11
180 \bar
181 \Notes\selectinstrument\Piano \zchar{-4}{C}\ibsluru1{`c}\qu{c}|%
182 \Liftslur0{4}\tslur0c\hl g %
183 \selectinstrument\Numbersheet \zchar1{5}\zchar{-4}{貝, }\zchar{-9}{貝, }\en
184 \Notes\selectinstrument\Piano \ql{`e}|%
185 \selectinstrument\Numbersheet \zchar1{-}\zchar{-4}{}\zchar{-9}{}\en
186 \Notes\selectinstrument\Piano \tslur1{`b}\ql{g}|\ibsluru4e\ibu0e{-3}\qb0e%
187 \selectinstrument\Numbersheet \zchar1{3}\zchar{-4}{歌}%
188 \zchar{-9}{歌}\hbox{\line(1,0){4.1\elemskip}}\en
189 \Notes\selectinstrument\Piano\tbu0\qb0c%
190 \selectinstrument\Numbersheet \zchar1{1}\zchar{-4}{聲}%
191 \zchar{-9}{聲}\hbox{\line(1,0){1\elemskip}}\en
192 \bar
193 % bar 12
194 \Notes\selectinstrument\Piano \ibsluru1{`b}\qu{b}|\qu f%
195 \selectinstrument\Numbersheet \zchar1{4}\zchar{-4}{催}\zchar{-9}{陪}\en
196 \Notes\selectinstrument\Piano \ql{`f}|\qu g%
197 \selectinstrument\Numbersheet \zchar1{5}\zchar{-4}{你}\zchar{-9}{你}\en
198 \Notes\selectinstrument\Piano \tslur1{`b}\ql{!a}|\qu{`a}%
199 \selectinstrument\Numbersheet \zchar1{6}\zchar{-4}{入}\zchar{-9}{入}\en

```

```

200 \bar
201 % bar 13
202 \Notes\selectinstrument\Piano \ibsluru1{`c}\qu{c}|\tslur4{`c}\hu{!g}%
203 \selectinstrument\Numbersheet \zchar1{5}\zchar{-4}{睡, }\zchar{-9}{睡, }\en
204 \Notes\selectinstrument\Piano \ql{`e}|\%
205 \selectinstrument\Numbersheet \zchar1{-}\zchar{-4}{ }\zchar{-9}{ }\en
206 \Notes\selectinstrument\Piano \tslur1{`b}\ql{g}|\ibsluru5c\ibu0c0\qb0c%
207 \selectinstrument\Numbersheet \zchar1{1}\zchar{-4}{小}%
208 \zchar{-9}{小}\hbox{\line(1,0){4.1\elemskip}}\breakslur5g\en
209 \Notes\selectinstrument\Piano|\tbu0\qb0c%
210 \selectinstrument\Numbersheet \zchar1{1}\zchar{-4}{寶}%
211 \zchar{-9}{寶}\hbox{\line(1,0){1\elemskip}}\en
212 % bar 14, a new line
213 %%%% begin drawing the starting rule%%%%%
214 \nobarnumbers
215 \alalignc
216 \loffset{4.8}{\barre}
217 \advance\barno-1
218 \barnumbers
219 %%%% end drawing the starting rule%%%%%
220 \Notes\selectinstrument\Piano \ibsluru1{`c}\qu{c}|\hl{`c}%
221 \selectinstrument\Numbersheet \zchar1{$\dot{1}$}\zchar{-4}{貝, }\zchar{-9}{貝, }\en
222 \Notes\selectinstrument\Piano \ql{`f}|\%
223 \selectinstrument\Numbersheet \zchar1{-}\zchar{-4}{ }\zchar{-9}{ }\en
224 \Notes\selectinstrument\Piano \tslur1{`b}\ql{!a}|\ibu0{`a}{-3}\qb0{a}%
225 \selectinstrument\Numbersheet \zchar1{6}\zchar{-4}{小}\zchar{-9}{小}\en
226 \Notes\selectinstrument\Piano|\tbu0\qb0f%
227 \selectinstrument\Numbersheet \zchar1{4}\zchar{-4}{寶}\zchar{-9}{寶}\en
228 % bar 15
229 \bar
230 \Notes\selectinstrument\Piano \ibsluru1{`c}\qu{c}|\%
231 \Liftslur5{4}\tslur5c\hl g%
232 \selectinstrument\Numbersheet \zchar1{5}\zchar{-4}{貝, }\zchar{-9}{貝, }\en
233 \Notes\selectinstrument\Piano \ql{`e}|\%
234 \selectinstrument\Numbersheet \zchar1{-}\zchar{-4}{ }\zchar{-9}{ }\en
235 \Notes\selectinstrument\Piano \tslur1{`b}\ql{g}|\ibsluru4e\ibu0e{-3}\qb0e%
236 \selectinstrument\Numbersheet \zchar1{3}\zchar{-4}{歌}%
237 \zchar{-9}{歌}\hbox{\line(1,0){4.1\elemskip}}\en
238 \Notes\selectinstrument\Piano|\tbu0\qb0c%
239 \selectinstrument\Numbersheet \zchar1{1}\zchar{-4}{聲}%
240 \zchar{-9}{聲}\hbox{\line(1,0){1\elemskip}}\en
241 % bar 16
242 \bar
243 \Notes\selectinstrument\Piano \isluru1{a}\ql{a}|\ibu0f0\qb0f\nbbu0\qb0g\tbu0\qb0e%
244 \selectinstrument\Numbersheet \zchar1{4}\zchar{-4}{催}\zchar{-9}{陪}\en
245 \Notes\selectinstrument\Piano \ql{`g}|\qu{e}%
246 \selectinstrument\Numbersheet \zchar1{3}\zchar{-4}{你}\zchar{-9}{你}\en
247 \Notes\selectinstrument\Piano \ql{`f}|\qu{d}%
248 \selectinstrument\Numbersheet \zchar1{2}\zchar{-4}{入}\zchar{-9}{入}\en
249 % bar 17

```



```
250 \bar
251 \Notes\selectinstrument\Piano \tslur1{`e}\zhl{ce}|\tslur4c\hu c%
252 \selectinstrument\Numbersheet \zchar1{1}\zchar{-4}{睡。}\zchar{-9}{睡。}\en
253 \Notes\selectinstrument\Piano|%
254 \selectinstrument\Numbersheet \zchar1{-}\zchar{-4}{ }\zchar{-9}{ }\en
255 \setrightrepeat
256 \endpiece
257 \end{music}
```

# 搖籃曲

1 = C  $\frac{3}{4}$   
溫柔地

作曲：勃拉姆斯

作詞：未知

2 3 4 5

C C Em/B

3 3 5· 3 3 5 0 3 5 i 7· 6 6 5 2 3  
快 安 睡, 小 寶 貝, 夜 幕 已 低 垂。 床 頭  
快 安 睡, 小 寶 貝, 夜 幕 已 已 低 垂。 月 光

6 7 8 9

4 2 2 3 4 0 2 4 7 6 5 7 i - 1 1  
佈 滿 玫 瑰, 陪 伴 你 入 睡。 小 寶  
撒 滿 大 地, 微 風 輕 輕 吹。 小 寶

10 11 12 13

C C

1 - 6 4 5 - 3 1 4 5 6 5 - 1 1  
貝, 小 寶 貝, 歌 聲 催 你 入 睡, 小 寶  
貝, 小 寶 貝, 歌 聲 催 你 入 睡, 小 寶

14 15 16 17

i - 6 4 5 - 3 1 4 3 2 1 -  
貝, 小 寶 貝, 歌 聲 催 你 入 睡。  
貝, 小 寶 貝, 歌 聲 催 你 入 睡。

## About numbered musical notation

For number sheet, there is no staff line like inline notes.

- 1) Library musixlyr doesn't support an instrument with 2 staves like a piano.
- 2) A number sheet is a staff with no lines but a separated start rule. Now the start rules of all the staves, if it exists, are connected together.
- 3) A number sheet doesn't have note input commands, now it is just `\zchar{position}{text}`. There are underlines like beams in number sheet, but no support.

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