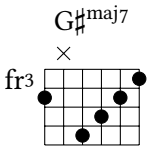

Chordbox

A LaTeX package for drawing string instrument chord diagrams

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`https://github.com/sfranzen/chordbox`

Contents

1 Package introduction

This package is the result of a search similar to the one undertaken by Clemens Niederberger for his `leadsheets`[1] package: over the years I have collected many textual guitar tabs and chord sheets that I finally wanted to put together and typeset properly using LaTeX, including guitar chord diagrams. The first part of my requirements is now more than fulfilled by `leadsheets`, which provides all the tools for putting together chords and lyrics. For the second part I found that there were only two relevant existing packages: `guitarchordschemes`[2] and `gchords`.[3] Neither of these achieved exactly what I wanted, so this package is my own attempt at providing that tool. It is a short collection of Ti*k*Z code snippets, wrapped in two LaTeX commands that are easy to use, with several options available to customise their output.

1.1 Loading the package

`chordbox` currently does not support LaTeX options, so it is loaded simply by putting

```
\usepackage{chordbox}
```

in your document's preamble.

1.2 License

2 Usage

The package provides two similar commands, `\chordbox` and `\bchordbox`. The latter extends the former to draw barred chords.

2.1 The `\chordbox` command

Syntax: `\chordbox[`⟨*base fret*⟩`]{`⟨*chord name*⟩`}{`⟨*fret positions*⟩`}`

The simplest form of the command requires you to specify only the ⟨*chord name*⟩ and ⟨*fret positions*⟩. The former can contain any text and math symbols (see below), the latter should be a comma-separated list of elements, one for each string, which may take the following values:

- ⟨*fret number*⟩[:⟨*fingering text*⟩]
  A (positive) ⟨*fret number*⟩ marks the current string as fretted at that position. It may

[1] Niederberger, *leadsheets*.
[2] Niederberger, *guitarchordschemes*.
[3] Peeters, *gchords*.

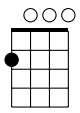
optionally be followed by a colon and a ⟨*fingering text*⟩ that will be displayed on the fret symbol or below the chord box.

- *o* (zero)
  Marks the current string as open (unfretted).

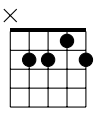
- *Anything else*
  An empty element or one starting with anything other than a number marks the current string as muted (not played).

It draws a grid resembling vertical strings crossing horizontal frets, with a black bar at the top figuring as the instrument's nut. The number of strings drawn is determined by the number of ⟨*fret positions*⟩ passed to the command, so generating chord diagrams for different instruments is no problem:

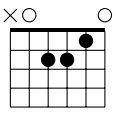
Ukulele
`\chordbox{Am}{2,0,0,0}`
Am



5-string banjo
`\chordbox{Am}{x,2,2,1,2}`
Am



6-string guitar
`\chordbox{Am}{x,0,2,2,1,0}`
Am

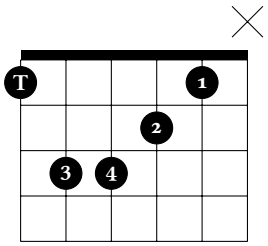


The number of frets drawn is initially 4, but this can be changed through the configuration key `/chordbox/numfrets=`⟨*number*⟩.

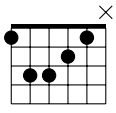
As mentioned, you can optionally provide text for display on a fretted string symbol or under the string. This can be used to describe the fingering of a chord and is particularly useful for writing chord charts and other training materials. Because text on the fret symbol has to be scaled to fit inside it and the default scale is small, `chordbox` is initially configured to put this text below the strings, where it can be rendered in the default font. Illustrations of both options follow, where the letter T is used for the thumb and the digits for the other fingers, starting at 1 for the index finger:

`\chordbox{F}{1:T,3:3,3:4,2:2,1:1,x}`

F



F



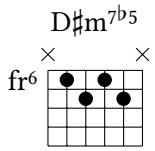
T 3 4 2 1

By default, the ⟨*chord name*⟩ is processed by a command that typesets it in math mode and roman type (see `/chordbox/name`). This allows the use of math symbols like `\flat` and `\sharp` as well as the ^ (superscript) operator to typeset decorated chord names:

```
\chordbox{B\flat m}{x,x,x,3,2,1}  \chordbox{F\sharp^{maj7}}{2,x,3,3,2,x}
```

For best results, make sure to select the same typeface for both text and math typesetting. Of course, if you are also using the `leadsheets` package, you could opt to use its `\writechord` command for typesetting chord names, see also subsection 3.2.

The ⟨*base fret*⟩ is the number that, although formally an optional argument, must be provided for chords extending past the number of frets in the chord box. It is used to position the box and fretted notes relative to this fret, for example `\chordbox[6]{D\sharp m^{7\flat 5}}{x,6,7,6,7,x}`:

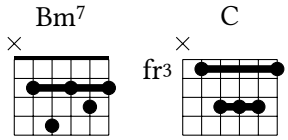


As can be seen, the nut is not drawn in these cases.

2.2 The `\bchordbox` command

Syntax: `\bchordbox[`⟨*base fret*⟩`]{`⟨*chord name*⟩`}{`⟨*fret positions*⟩`}{`⟨*barre frets*⟩`}`

As mentioned, this command is for drawing barre chords, for which it requires an additional comma-separated list of fret numbers. A thick line is drawn over the string symbols at these frets. The other arguments are identical to those of `\chordbox`, see for example `\bchordbox{Bm^7}{x,2,4,2,3,2}{2}` and `\bchordbox[3]{C}{x,3,5,5,5,3}{3,5}`:



3 Settings

Because `chordbox` relies on PGF/Ti*k*Z for drawing, it makes sense to use the powerful PGF key management system that comes with it. Therefore this package stores its code and style settings as keys, some of which may be modified to customise the output. This can be done in the preamble or in any part of the document by means of `\tikzset` and the more generic `\pgfkeys` command. Some examples of usage will be given below, but for more reading about PGF keys and their handling please refer to Section 82 of the PGF manual[4] where everything is documented in full detail. In any case, modifying a key stores its value for the LaTeX group

[4] Tantau, *The TikZ and PGF Packages*.

where the command is issued and its child groups, which can override it again, but it does not propagate up to parent groups.

3.1 Ti*k*Z keys

The items described in this section are called *styles* in Ti*k*Z terminology and contain (lists of) keys and values that can be applied to various drawing commands. Most importantly, the `chordbox` style applies to the whole `{tikzpicture}` environment of every chord box produced. The default setting is to scale all coordinates by a quarter, because the drawing is done in PGF's "natural" units that, though convenient to use, result in an impractically large picture. Note that this scaling only influences the Ti*k*Z coordinates; in particular, fonts are not affected by default[5].

Because these keys are all stored in the `/tikz` path, it is most convenient to change them using the `\tikzset` command, for example `\tikzset{chordbox/.style={scale=0.4, thick}}`.

`/tikz/chordbox` (style, initially `{scale=0.25}`)
: This style is applied to every `{tikzpicture}` environment produced by this package.

`/tikz/fret node text` (style, initially `{font=\Large\bfseries,text=white}`)
: This style is applied to text drawn on fretted string nodes. It aims to make the text as clear and as big as possible without increasing the node size, which will occur if the text is too tall or wide.

The rest of the styles define the three symbol shapes used for the fretted (●), open (○) and muted (×) string positions.

`/tikz/string/base` (style, initially `{circle, draw, inner sep=0, minimum size=20, transform shape}`)
: Common options for all three symbols. The `transform shape` option is required to correctly scale the symbols, which are implemented as Ti*k*Z nodes, with the rest of the picture.

`/tikz/string/fretted` (style, initially `{string/base, fill}`)

`/tikz/string/open` (style, initially `{string/base, above}`)

`/tikz/string/muted` (style, initially `{string/open, cross out, minimum size=19}`)

3.2 Other keys

The following keys are not passed directly to Ti*k*Z commands, but used to store various other settings and code. They are all in the `/chordbox` path and should be set using the `\pgfkeys` command, for example `\pgfkeys{/chordbox/name/.code=\writechord{#1}}`. Keys that execute code, like this example, produce output with occurrences of `#1` replaced by the relevant value. If you want to change more than one of these settings at once, it is shorter to

[5] This is because text is put in nodes, which are scaled independently of the picture and require the `scale` and/or `transform shape` options to be supplied.

issue a command like the following: `\pgfkeys{/chordbox/.cd, numfrets=5, fingering text=on node}`.

`/chordbox/numfrets=`⟨*number*⟩ (initially 4)
: The number of frets drawn in each chord box.

`/chordbox/base fret` (initially `{fr\raisebox{.5ex}{\scriptsize#1}}`)
: This key stores the code used to typeset the base fret position of a chord box, if provided and greater than 1.

`/chordbox/name` (initially `\ensuremath{\mathrm{#1}}`)
: The code that is used to typeset the name of the chord.

`/chordbox/fingering text=on node|below` (initially `below`)
: Whether to draw the fingering text, if provided, on the fret nodes or underneath the string.

References

Clemens Niederberger. *guitarchordschemes*. Version 0.7. Aug. 16, 2016. URL: https://ctan.org/pkg/guitarchordschemes/.

Clemens Niederberger. *leadsheets*. Version 0.5b. Sept. 26, 2017. URL: https://ctan.org/pkg/leadsheets/.

Kasper Peeters. *gchords*. Version 1.20. Feb. 3, 2008. URL: https://ctan.org/pkg/gchords/.

Till Tantau. *The TikZ and PGF Packages. Manual for version 3.0.1a*. Aug. 29, 2015. URL: http://sourceforge.net/projects/pgf/.