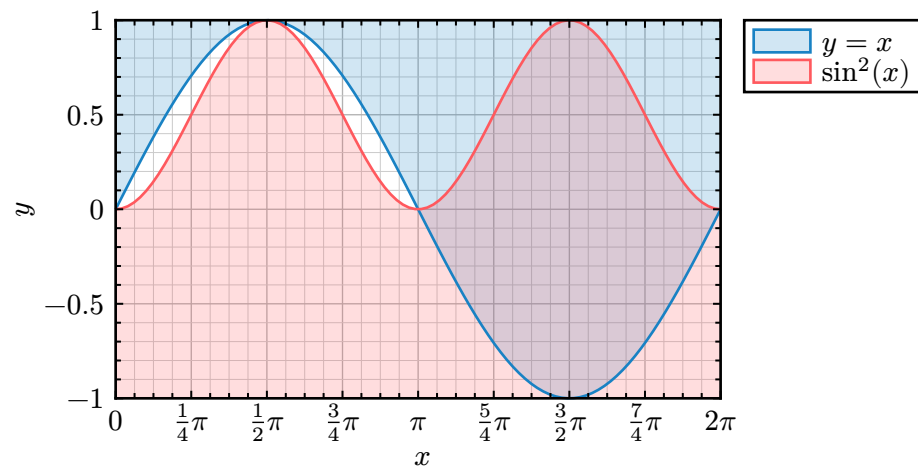


CeTZ Plot

Johannes Wolf
fenjalien

Version 0.1.0



1 Introduction	3
2 Usage	3
3 Plot	3
3.1 plot	3
3.1.1 Parameters	3
3.1.2 Options	5

1 Introduction

CeTZ-Plot is a package for making plots in Typst using CeTZ.

2 Usage

This is the minimal starting point:

```
#import "@preview/cetz:0.2.2"
#import "@preview/cetz-plot:0.1.0"
#cezt.canvas({
  cetz-plot.plot(...,{
    })
})
```

Note that plot functions are imported inside the scope of the canvas block. All following example code is expected to be inside a canvas block, with the cetz-plot module imported into the namespace.

3 Plot

3.1 plot

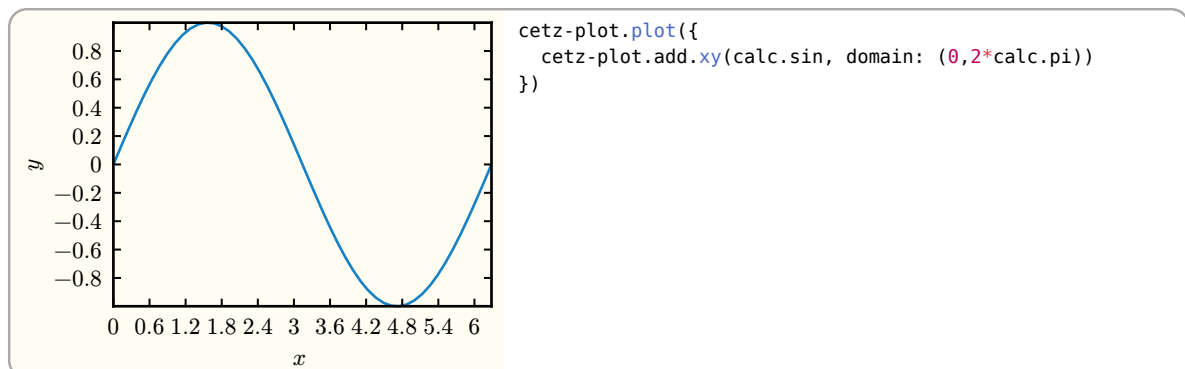
Create a plot environment. Data to be plotted is given by passing it to the `plot.add` or other plotting functions. The plot environment supports different axis styles to draw, see its parameter `axis-style`.

3.1.1 Parameters

```
plot(
  body: body,
  size: array,
  axis-style: axis-style-module,
  name: string none,
  plot-style: style function,
  mark-style: style function,
  legend: none auto coordinate,
  legend-anchor: auto string,
  legend-style: style,
  ..options: any
)
```

body: body

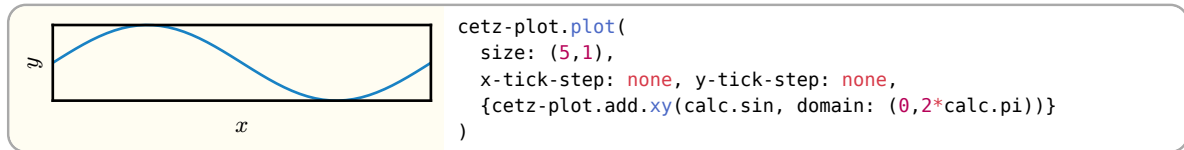
Calls of `plot.add` or `plot.add-*` commands. Note that normal drawing commands like `line` or `rect` are not allowed inside the plots body, instead wrap them in `plot.annotate`, which lets you select the axes used for drawing.



size: array

Default: (5, 5 * 3/4)

Plot size tuple of (<width>, <height>) in canvas units. This is the plots inner plotting size without axes and labels. this value, as it doesn't include axis labels, ticks, or the legend.



axis-style: `axis-style-module`

Default: `axis-style.orthorect-2d`

TODO: Make this link to the axis-style section

name: `string` or `none`

Default: `none`

The plots element name to be used when referring to anchors

plot-style: `style` or `function`

Default: `default-plot-style`

Styling to use for drawing plot graphs. This style gets inherited by all plots and supports palette functions. The following style keys are supported:

stroke: `none` or `stroke`

Default: `1pt`

Stroke style to use for stroking the graph.

fill: `none` or `paint`

Default: `none`

Paint to use for filled graphs. Note that not all graphs may support filling and that you may have to enable filling per graph, see `plot.add(fill: ..)`.

mark-style: `style` or `function`

Default: `default-mark-style`

Styling to use for drawing plot marks. This style gets inherited by all plots and supports palette functions. The following style keys are supported:

stroke: `none` or `stroke`

Default: `1pt`

Stroke style to use for stroking the mark.

fill: `none` or `paint`

Default: `none`

Paint to use for filling marks.

legend: `none` or `auto` or `coordinate`

Default: `auto`

The position the legend will be drawn at. See plot-legends for information about legends. If set to <auto>, the legend's "default-placement" styling will be used. If set to a <coordinate>, it will be taken as relative to the plot's origin.

legend-anchor: `auto` or `string`

Default: `auto`

Anchor of the legend group to use as its origin. If set to auto and legend is one of the predefined legend anchors, the opposite anchor to legend gets used.

legend-style: `style`

Default: `(:)`

Style key-value overwrites for the legend style with style root legend.

..options: `any`

Axis options, see *options* below.

To draw elements inside a plot, using the plots coordinate system, use the `plot.annotate(..)` function.

3.1.2 Options

You can use the following options to customize each axis of the plot. You must pass them as named arguments prefixed by the axis name followed by a dash (-) they should target. Example: x-min: 0, y-ticks: (...) or x2-label: [...].

label: `none` or `content`

Default: `none`

The axis' label. If and where the label is drawn depends on the `axis-style`.

min: `auto` or `float`

Default: `auto`

Axis lower domain value. If this is set greater than `max`, the axis' direction is swapped

max: `auto` or `float`

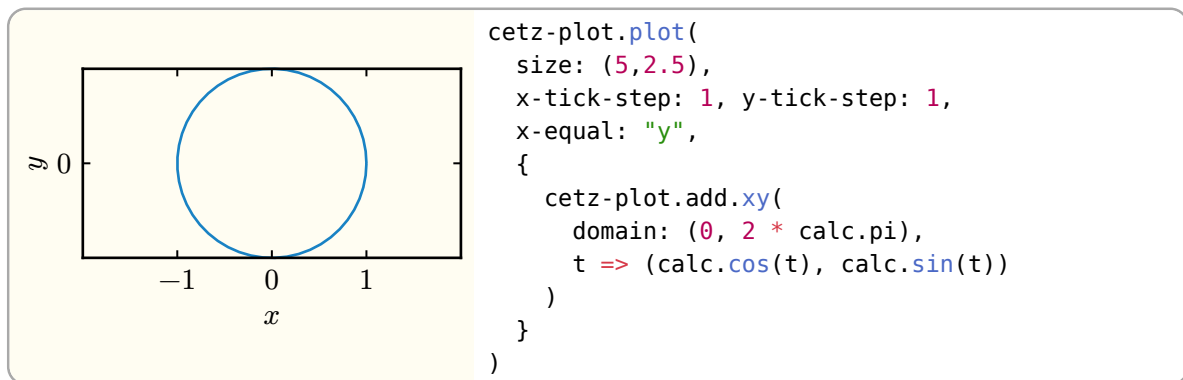
Default: `auto`

Axis upper domain value. If this is set to a lower value than `min`, the axis' direction is swapped

equal: `string`

Default: `"none"`

Set the axis domain to keep a fixed aspect ratio by multiplying the other axis domain by the plots aspect ratio, depending on the other axis orientation (see `horizontal`). This can be useful to force one axis to grow or shrink with another one. You can only "lock" two axes of different orientations.



horizontal: `bool`

Default: `"axis name dependant"`

If true, the axis is considered an axis that gets drawn horizontally, vertically otherwise. The default value depends on the axis name on axis creation. Axes which name start with x have this set to true, all others have it set to false. Each plot has to use one horizontal and one vertical axis for plotting, a combination of two y-axes will panic: ("y", "y2").

tick-step: `none` or `auto` or `float`

Default: `auto`

The increment between tick marks on the axis. If set to `auto`, an increment is determined. When set to `none`, incrementing tick marks are disabled.

minor-tick-step: `none` or `float`

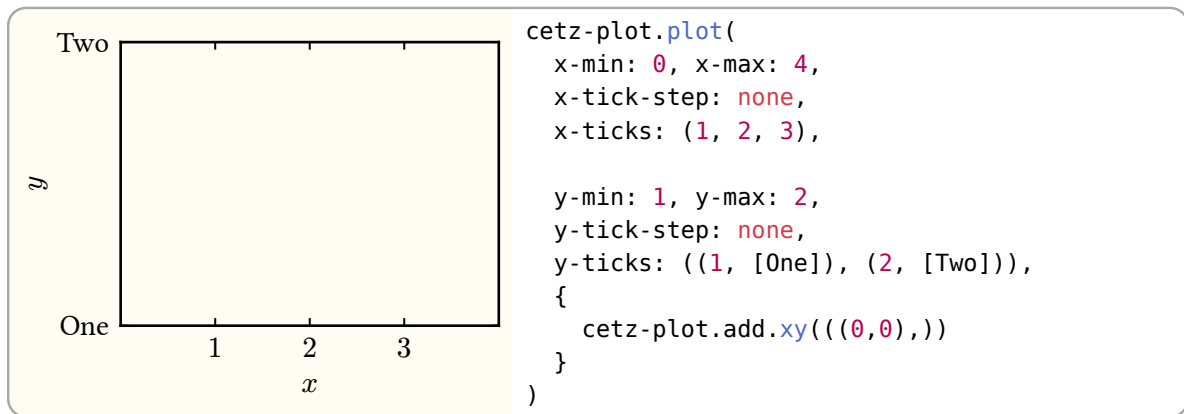
Default: `none`

Like `tick-step`, but for minor tick marks. In contrast to ticks, minor ticks do not have labels.

ticks: `none` or `array`

Default: `none`

A List of custom tick marks to additionally draw along the axis. They can be passed as an array of `<float>` values or an array of (`<float>`, `<content>`) tuples for setting custom tick mark labels per mark.



Examples: (1, 2, 3) or ((1, [One]), (2, [Two]), (3, [Three]))

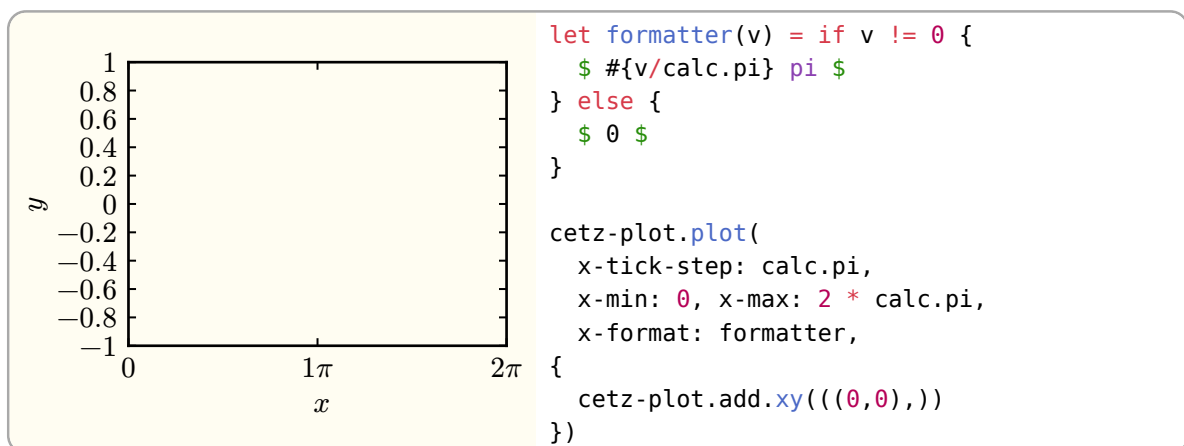
format: `none` or `string` or `function`

Default: `"float"`

How to format the tick label: You can give a function that takes a `<float>` and return `<content>` to use as the tick label. You can also give one of the predefined options:

float Floating point formatting rounded to two digits after the point (see decimals)

sci Scientific formatting with $\times 10^n$ used as exponent syntax



decimals: `int`

Default: `2`

Number of decimals digits to display for tick labels, if the format is set to `"float"`.

unit: `none` or `content`

Default: `none`

Suffix to append to all tick labels.

mode: `none` or `string`

Default: `none`

The scaling function of the axis. Takes `lin` (default) for linear scaling, and `log` for logarithmic scaling.

base: `none` or `number`

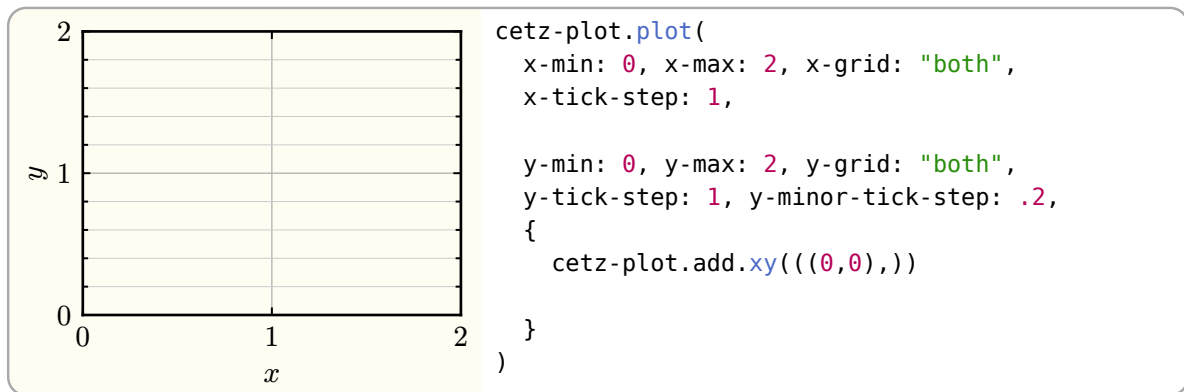
Default: `none`

The base to be used when labeling axis ticks in logarithmic scaling

grid: `bool` or `string`

Default: `"false"`

If true or `"major"`, show grid lines for all major ticks. If set to `"minor"`, show grid lines for minor ticks only. The value `"both"` enables grid lines for both, major- and minor ticks.



break: bool

Default: false

If true, add a “sawtooth” at the start or end of the axis line, depending on the axis bounds. If the axis min. value is > 0 , a sawtooth is added to the start of the axes, if the axis max. value is < 0 , a sawtooth is added to its end.