The Ti*k*Z-Extensions Package

Manual for version 0.5

https://github.com/Qrrbrbirlbel/tikz-extensions

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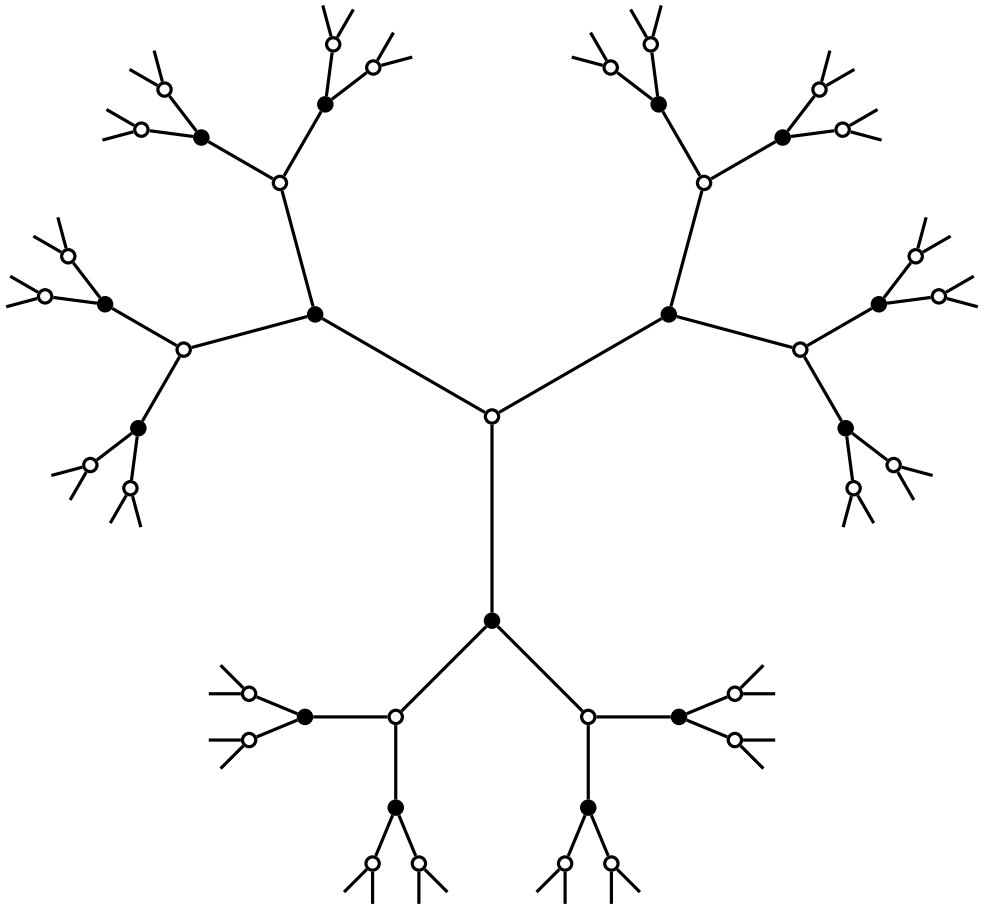
Contents

Part II
Ti*k*Z Libraries

These libraries only work with Ti*k*Z.



6 Nodes

TikZ Library `ext.nodes`

```
\usetikzlibrary{ext.nodes} % LaTeX and plain TeX
\usetikzlibrary[ext.nodes] % ConTeXt
```

`/tikz/node on line=`⟨*anchor specification*⟩ (style, default {})

This installs a `/tikz/to path` that places *one* node along a straight line but connect the line with it.

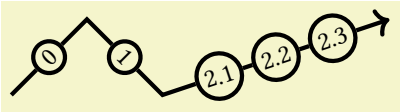
This allows a node to be placed *on* a straight line without having to use `fill = white` or similar tricks to make the line disappear beneath the node.

The optional ⟨*anchor specification*⟩ allows to specify the anchors to which the line should connect. It allows one or two anchors divided by `and` to be specified.

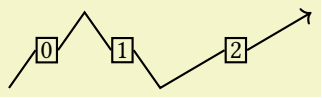
`/tikz/nodes on line` (style, no value)

This is similar to the previous key but allows multiple nodes to be placed on a straight line *if* they are in the correct order (from start to target), don't overlap with each other, the start or the target.

It allows *no* anchor specification.




```
\usetikzlibrary {ext.nodes, quotes}
\tikz[inner sep=.15em, circle, nodes=draw, sloped]
  \draw[ultra thick, ->, node on line] (0,0) to["0"] (1,1)
                                             to["1"] (2,0)
          to[nodes on line, "2.1" near start, "2.2", "2.3" near end] (5,1);
```



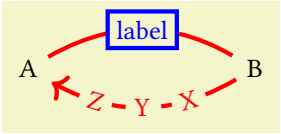

```
\usetikzlibrary {ext.nodes, quotes}
\tikz[inner sep=.15em, nodes=draw]
  \draw[thick, ->, node on line=west and east] (0,0) to["0"] (1,1)
                                                     to["1"] (2,0)
                                                     to["2"] (4,1);
```

The following keys need the `intersections` and the `spath3` [2] library to be loaded. They will not be automatically loaded by this library.

`/tikz/nodes on curve=`⟨*to path*⟩ (style, default `line to`)

Similar to `/tikz/nodes on line` , this key allows to have nodes on arbitrary paths

`/tikz/nodes on curve'=`⟨*to path*⟩ (style, default `line to`)

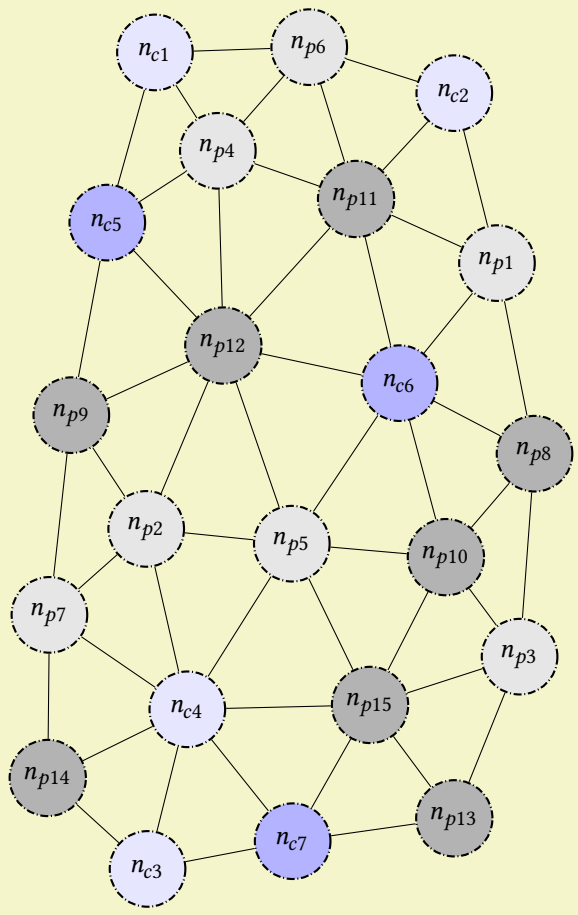



```
\usetikzlibrary {ext.nodes, intersections, quotes, spath3}
\begin{tikzpicture}[ultra thick]
  \node (A) at (0, 0) {A} ;
  \node (B) at (3, 0) {B} ;
  \draw [red, ->, nodes on curve'=bend left]
    (A) to node[blue,draw]{label} (B)
        to ["X" {sloped, near start},
            "Z" {sloped, near end},
            "Y"] (A);
\end{tikzpicture}
```


```
\usetikzlibrary {ext.nodes, intersections, quotes, spath3}
\tikz[inner sep=.15em, circle, nodes={draw, green}, sloped, ultra thick]
  \draw[->, nodes on curve=bend left] (0,0) to["0"] (1,1)
                                            to["1"] (2,0)
              to["2" near start, "3", "4" near end] (4,1)
                                            -- ++(down:1);
```

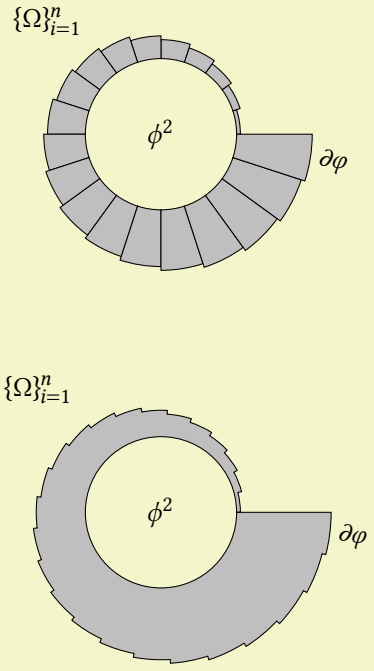
Part III
PGF Libraries

These libraries (should) work with both PGF and Ti*k*Z.




```
\usetikzlibrary {graphs,graphdrawing,ext.misc} \usegdlibrary {force}
\tikzset{
  mynode/.style={
    circle, minimum size=10mm, draw, densely dashdotted, thick,
    decide color/.expand once=#1},
  decide color/.style 2 args={
    /utils/TeX/if=c#1
      {/utils/TeX/ifnum={#2<5}{bluelight}{bluedark}}
      {/utils/TeX/ifnum={#2<8}{light}{dark}}},
  light/.style={fill=gray!20},  bluelight/.style={fill=blue!10},
  dark/.style ={fill=gray!60},  bluedark/.style ={fill=blue!30}}
\tikz\graph[
  spring electrical layout, vertical=c2 to p13,
  node distance=1.5cm, typeset=$n_{\tikzgraphnodetext}$,
  nodes={mynode=\tikzgraphnodetext}] {
  % outer ring
  c2 -- {p1, p11, p6};
    p1 -- {p8, c6, p11};
      p8 -- {p3, p10, c6};
       p3 -- {p13, p15, p10};
         p13 -- {p15, c7};
           c7  -- {c3, c4, p15};
           c3  -- {p14, c4};
           p14 -- {p7, c4};
         p7 -- {p9, p2, c4};
       p9 -- {c5, p12, p2};
     c5 -- {c1, p4, p12};
   c1 -- {p6, p4};
  p6 -- {p11, p4};
  % inner ring
  p11 -- {c6, p12, p4};
  p5 -- {c6 -- {p10, p12}, p10 -- p15, p15 -- c4, c4 -- p2, p2 -- p12, p12 -- p4};
};
```

Part IV
Utilities




```
\usetikzlibrary {ext.misc}
\begin{tikzpicture}[
  declare function={bigR(\n)=smallR+.05*\n;},
  declare constant={smallR=1; segments=20;},
  full arc=segments]
\foreach \iN[evaluate={\endRadius=bigR(\iN+1);}, use int=0 to segments-1]
  \filldraw[fill=gray!50] (\iN R:\endRadius)
    arc [radius=\endRadius, start angle=\iN R, delta angle=+1R] -- (\iN R+1R:smallR)
    arc [radius=smallR,       end angle=\iN R, delta angle=-1R] -- cycle;

\node                                              {$\phi^2$};
\node at (north west:{sqrt 2 * bigR(segments/2)})  {$\{\Omega\}_{i=1}^n$};
\node[rotate=-.5R, right] at (-.5R: bigR segments) {$\partial \varphi$};

\tikzset{yshift=-5cm, declare constant={segments=25;}, full arc=segments}
\filldraw[fill=gray!50] (right:smallR)
  \foreach \iN[evaluate={\endRadius=bigR(\iN+1);}, use int=0 to segments-1] {
    -- (\iN R:\endRadius) arc[radius=\endRadius, start angle=\iN R, delta angle=1R]}
    -- (right:smallR)     arc[radius=smallR,     start angle=0,     delta angle=-360];

\node                                              {$\phi^2$};
\node at (north west:{sqrt 2 * bigR(segments/2)})  {$\{\Omega\}_{i=1}^n$};
\node[rotate=-.5R, right] at (-.5R: bigR segments) {$\partial \varphi$};
\end{tikzpicture}
```

Part V
Changelog, Index & References

Changelog

Version 0.5

- Added package `pgffor-ext`.
- Bugfixes to `ext.calendar-plus`.
- Allow the original `rectangle` timer with `ext.paths.timer`.

Version 0.4.2

- Added Ti*k*Z library `ext.scalepicture`.
- Bugfixes to `shapes.uncenteredrectangle`, `paths.ortho`, `positioning-plus` and `pgfcalender-ext`.

Version 0.4.1

- Cleaned up directory structure of documentary.
- Added PGFkeys library `ext.pgfkeys-plus`.
- Added shape `uncentered rectangle` (PGF library `ext.shapes.uncenteredrectangle`).
- Fixed `ext.paths.arcto` – again [1].

Version 0.4

- CTAN version of 0.3.1

Version 0.3.1

- Fixed `ext.paths.ortho` keys `only vertical first` and `only horizontal first`.
- Moved all (except the `to paths`) to namespace `/tikz/ortho`. `/tikz/hvvh` and `/tikz/udlr` are considered deprecated.
- Fixed `\pgfcalendarjulianyeartoweek`.
- Added more calendar tests.
- Added directory structure.

Version 0.3

- Added shape `circle arrow` (PGF library `ext.shapes.circlearrow`).
- Added shape `circle cross split` (PGF library `ext.shapes.circlecrosssplit`).
- Added shape `heatmark` (PGF library `ext.shapes.heatmark`).
- Added shape `rectangle with rounded corners` (PGF library `ext.shapes.rectangleroundedcorners`).
- Added shape `superellipse` (PGF library `ext.shapes.superellipse`).
- Added Ti*k*Z library `ext.node-families.shapes.geometric`.
- Fixed `ext.node-families`' key `size`.
- Renamed internal macros to use custom namespace starting with `\tikzext@`.
- Added some references.

Version 0.2

- Added Ti*k*Z library `ext.positioning-plus`.
- Added Ti*k*Z library `ext.node-families`.

Version 0.1

- Added Ti*k*Z library `ext.calendar-plus`.
- Added Ti*k*Z library `ext.misc`.
- Added Ti*k*Z library `ext.paths.arcto`.
- Added Ti*k*Z library `ext.paths.ortho`.
- Added Ti*k*Z library `ext.paths.timer`.
- Added Ti*k*Z library `ext.patterns.images`.
- Added Ti*k*Z library `ext.topaths.arcthrough`.
- Added Ti*k*Z library `ext.transformations.mirror`.
- Added PGF library `ext.transformations.mirror`.

Index

This index contains automatically generated entries as well as references to original functionalities of PGF/Ti*k*Z and references to functionalities outside of PGF/Ti*k*Z.

References

[1] marmotghost. *clockwise/counter clockwise does not seem to work reliably*. Oct. 2022. URL: https://github.com/Qrrbrbirlbel/tikz-extensions/issues/2 (visited on 10/23/2022) (cit. on p. 63).

[2] Andrew Stacey. *spath3 TikZ library*. original-date: 2014-05-26T12:08:12Z. Dec. 2022. URL: https://github.com/loopspace/spath3 (visited on 12/10/2022) (cit. on p. 10).