

# Working on Tk

Motivation

Make Enhancements

Add Functionality

Include Widgets

Further Ideas

Conclusions

# Motivation

- ▶ Use of Tcl/Tk and binary extensions in customized builded interpreter
- ▶ Need longtime support in simulator (10+ years)
- ▶ Add missing functionality
- ▶ Add new widget types to Tk

# Enhancements

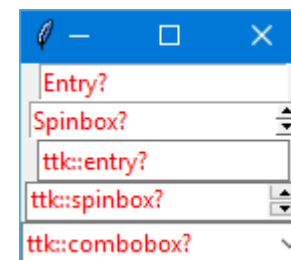
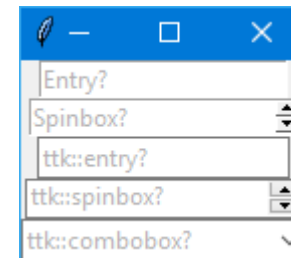
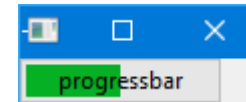
- ▶ Own tcl::oo extensions ([wiki.tcl.tk/38916](http://wiki.tcl.tk/38916))
  - ▶ Private variables (obsolete with tip 500)
  - ▶ Components, options, cget/configure
- ▶ Tip 442: Display text in progressbars

```
grid [ttk::progressbar .p -text progressbar -value 50]
```

- ▶ Tip 496: Display hints in entry, spinbox, combobox

```
grid [entry .1 -placeholder Entry?]  
grid [spinbox .2 -placeholder Spinbox?]  
grid [ttk::entry .3 -placeholder ttk::entry?]  
grid [ttk::spinbox .4 -placeholder ttk::spinbox?]  
grid [ttk::combobox .5 -placeholder ttk::combobox?]
```

```
.1 configure -placeholderforeground red  
.2 configure -placeholderforeground red  
ttk::style configure TEntry -placeholderforeground red  
ttk::style configure TSpinbox -placeholderforeground red  
ttk::style configure TCombobox -placeholderforeground red
```



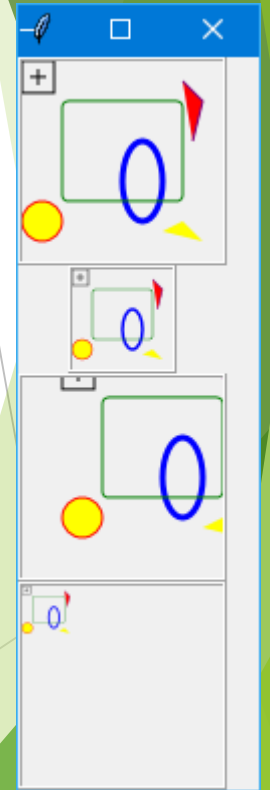
# Functionality

## Tip 507: Include simple svg support with nanosvg

- ▶ Subset of SVG items, no text item
- ▶ Scriptable image creation
- ▶ Same image for different display resolutions
- ▶ Available at: <http://core.tcl.tk/tk/timeline?n=100&r=tip-507>

```
set d {<svg xmlns="http://www.w3.org/2000/svg" width="100" height="100">
  <path fill="none" stroke="#000000" d="M0 0 h16 v16 h-16 z"/>
  <path fill="none" stroke="#000000" d="M8 4 v 8 M4 8 h 8"/>
  <circle fill="yellow" stroke="red" cx="10" cy="80" r="10" />
  <ellipse fill="none" stroke="blue" stroke-width="3" cx="60" cy="60" rx="10" ry="20" />
  <line x1="10" y1="90" x2="50" y2="99"/>
  <rect fill="none" stroke="green" x="20" y="20" width="60" height="50" rx="3" ry="3"/>
  <polyline fill="red" stroke="purple" points="80,10 90,20 85,40"/>
  <polygon fill="yellow" points="80,80 70,85 90,90"/>
</svg>}
```

```
grid [label .l1 -relief ridge -image [image create photo -data $d]]
grid [label .l2 -relief ridge -image [image create photo -data $d -format {svgnano -scale 0.5}]]
grid [label .l3 -relief ridge -image [image create photo -data $d -format {svgnano -x 20 -y -10}]]
grid [label .l4 -relief ridge -image [image create photo -data $d -format {svgnano -unit mm}]]
```

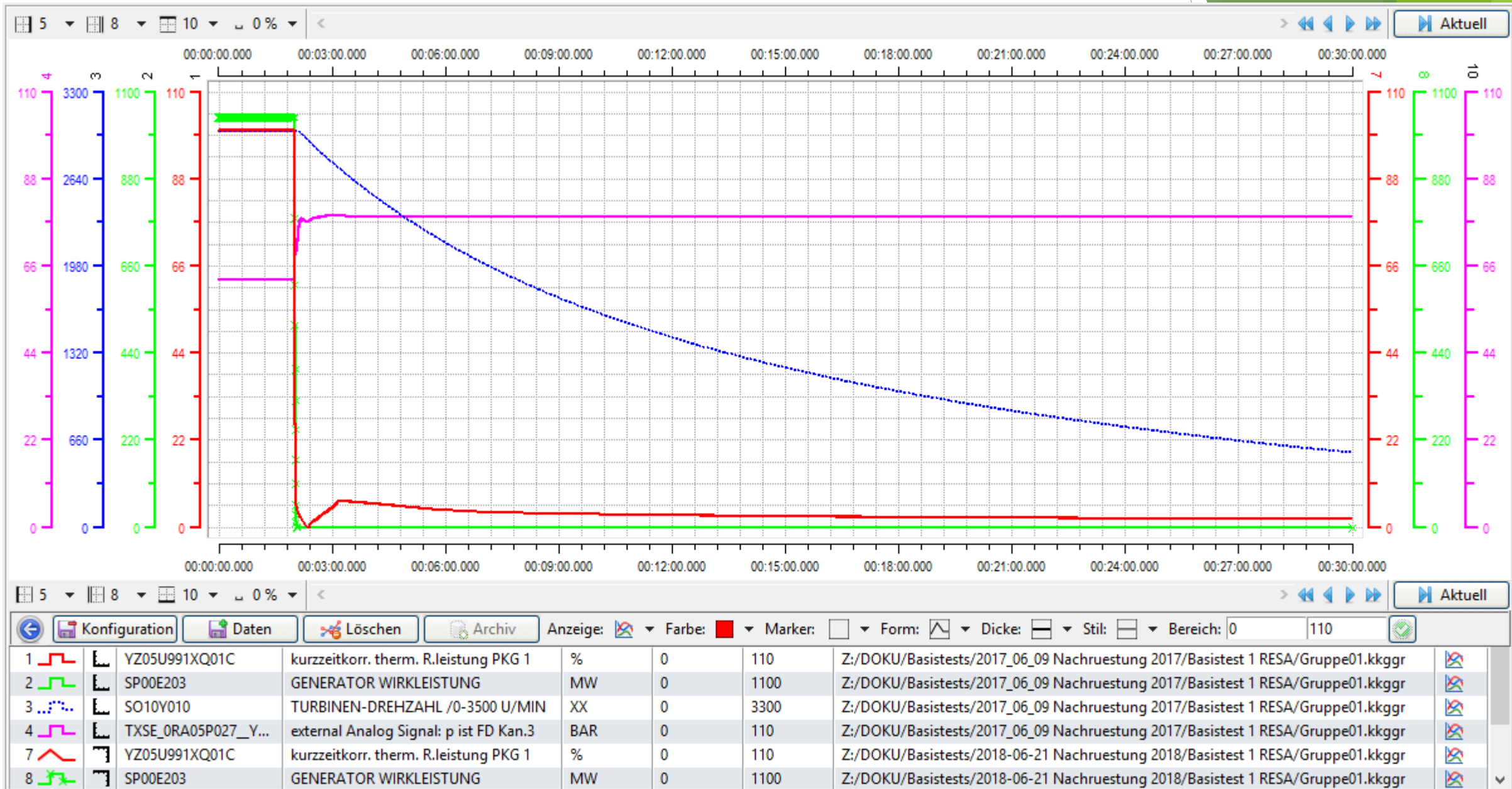


# Add Widgets

## Tip 510: Add Rbc to Tk

- ▶ Rbc was rewrite of parts of Blt for Tcl/Tk > 8.?
- ▶ No active development
- ▶ `rbc::busy` as `tk busy` in Tk
- ▶ Own usage of `rbc::vector` and `rbc::graph`
- ▶ Current state of tip 510:
  - ▶ Branch at <http://core.tcl.tk/tk/timeline?r=tip-501>
  - ▶ Separately like ttk (doc/rbc, generic/rbc, tests/rbc, library/rbc, namespace ::rbc)
  - ▶ Commands in ::rbc (vector, graph, barchart, stripchart)
  - ▶ Rbc/RBC prefix, code clean up in progress
  - ▶ Old rbc tests mostly passing
  - ▶ Old \*.n and new \*.md documentation
  - ▶ No MacOS support - volunteers?

# Rbc graph example

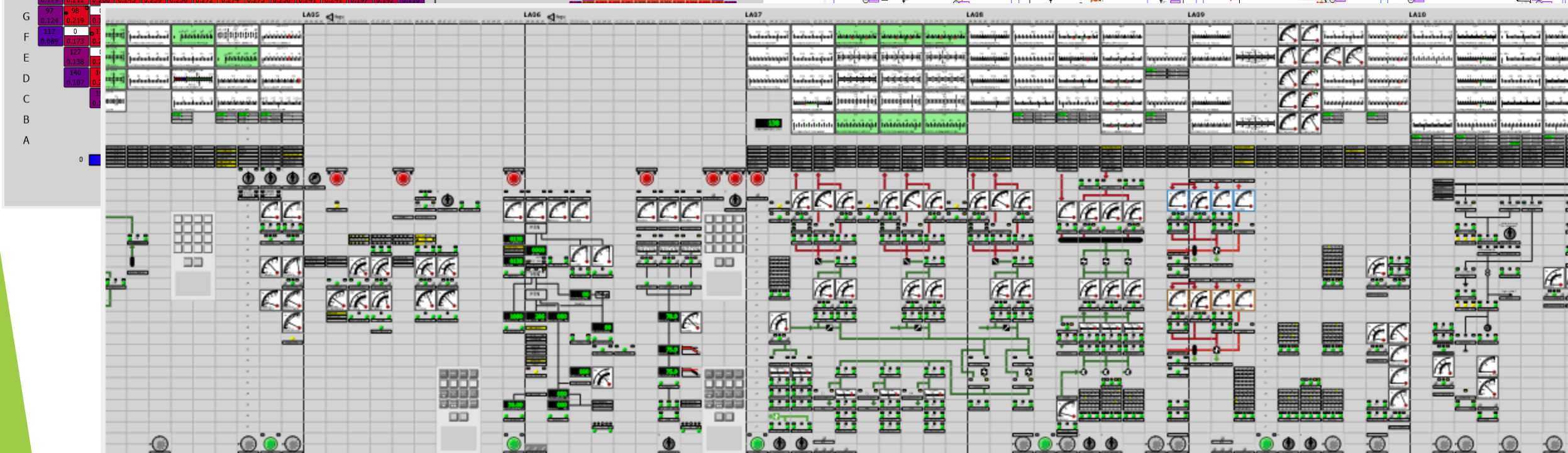
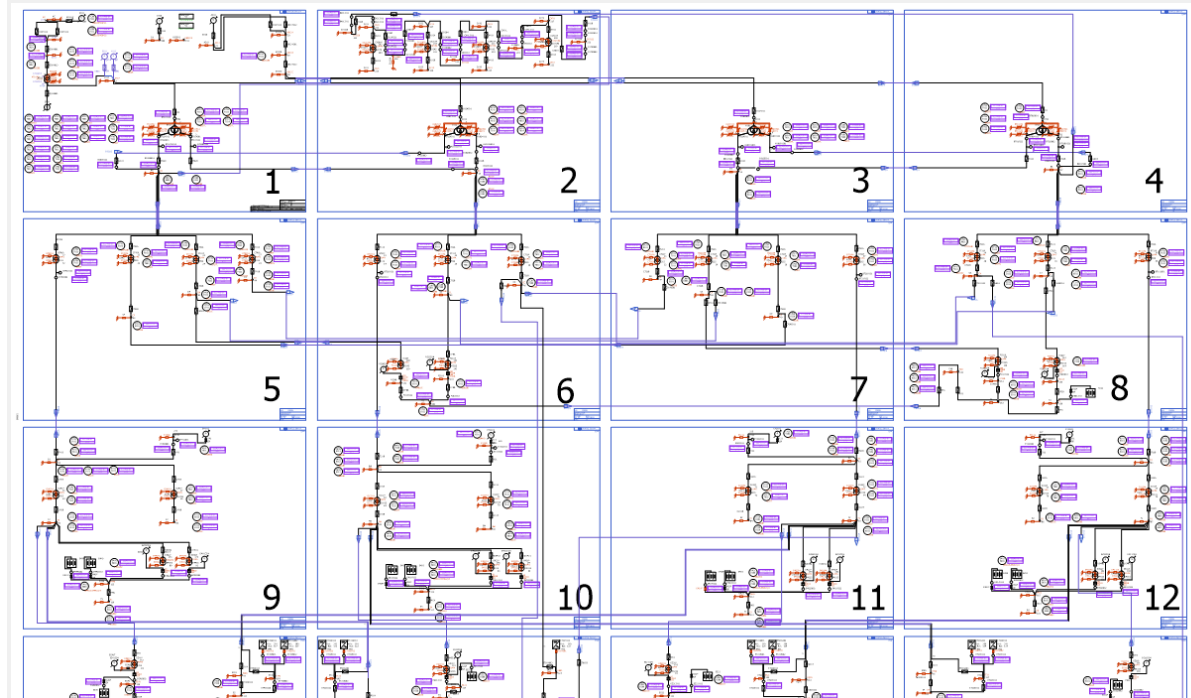
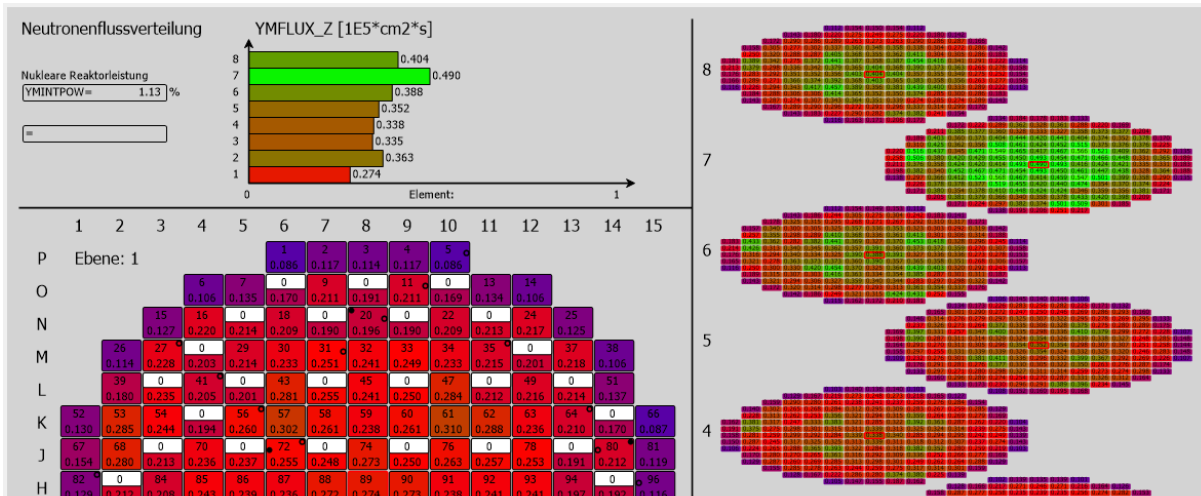


# Add Widgets

## Tip ???: Add Tkpath to Tk

- ▶ Tkpath has no active development
- ▶ Tk canvas and SVG path elements, scaling, rotation, grouping, truetype fonts
- ▶ Display with cairo on X, GDI+ on win32, ... on MacOS, AGG+SDL on undroidwish
- ▶ Own usage: for softpanel, drawings, displays
  - ▶ Code at <http://chiselapp.com/user/rene/repository/tkpath/>
  - ▶ Pdf output with pdf4tcl
- ▶ Open questions:
  - ▶ Namespace ::tkp or ::
  - ▶ Separately like ttk or inside normal widgets
  - ▶ Support of old canvas elements (scaling issues)
  - ▶ Postscript output
  - ▶ Pdf generation needs pdf4tcl

# Tkpath examples





# Further ideas

- ▶ Tk options
  - ▶ Currently only C-implementation
  - ▶ Expose as Tcl-API
  - ▶ Tcl array variable per widget/class with options as fields
  - ▶ Sqlite as option database
- ▶ 3dcanvas widget
- ▶ Pdf output
  - ▶ Pdf4tcl
  - ▶ Used in tkpath (itempdf command)
  - ▶ Pdf output of all widgets

# Conclusions

- ▶ There are many hidden goodies in tk extensions
- ▶ Documentation is tricky (nroff), may be nroff editor can help
- ▶ More float/math functions/macros in tcl.h

*Questions?*