

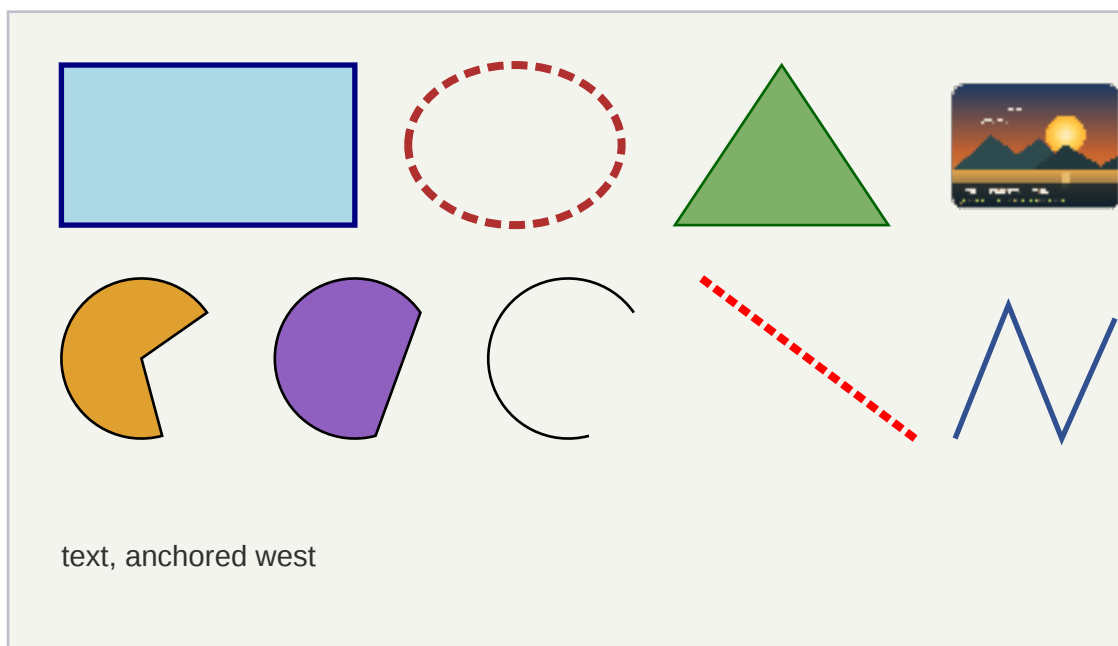
A Tk canvas as vectors

Everything in the frame below was read off a Tk canvas widget and drawn again as paths. Three questions are the whole mechanism: [find all] hands over the items in drawing order, [type \$id] says what each one is, and [coords] with [itemcget] say where it is and what it looks like.

The conversion itself is almost nothing, and that is the point. This package counts y downwards from the top of the page just as a canvas counts it downwards from the top of the widget, and in -unit pt one canvas pixel is one point - so a transform -translate puts the canvas origin on the sheet and every coordinate goes through untouched. The arc angles need no conversion either: zero at three o'clock, growing counter-clockwise as the page is read, which is the canvas convention. Only an oval and an arc are recomputed at all, because the canvas describes them by their bounding box and this package by a centre and two extents.

Where this example stops

It is an example, not a canvas renderer, and it has no claim to completeness. Five shape types - line, rectangle, oval, arc and polygon - a photo and a line of text are drawn; a bitmap and a window item are passed over by name in one line, and the console says so. Stipples, arrows, smoothed lines, tags and states, Tk's dash patterns written as "-.", and a faithful mapping of Tk's font names onto embeddable faces are all left out - the last one is a topic of its own, so every piece of text here is set in Helvetica at the size Tk reports. One thing is dropped on purpose: an arc of -style arc is an open path, which this package refuses to fill rather than closing it in silence, and Tk ignores the fill of such an item just as quietly - so the third arc below is an outline on paper as it is on screen.



11 canvas items, 10 of them drawn; skipped: bitmap item 11

Check it yourself

```
qpdf --check 11.01-tk-canvas.pdf
qpdf --qdf --object-streams=disable 11.01-tk-canvas.pdf - | grep -ac 're$'
pdftotext 11.01-tk-canvas.pdf - | grep 'anchored west'
```