

PSTricks

News - 2012

new macros and bugfixes for the basic package pstricks

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Part I.

pstricks – package

1. General

There exists a new document class `pst-doc` for writing PSTricks documentations, like this news document. It depends on the KOMA-Script document class `scrartcl`. `pst-doc` defines a lot of special macros to create a good index. Take one of the already existing package documentation and look into the source file. Then it will be easy to understand, how all these macros have to be used.

When running `pdflatex` the title page is created with boxes and inserted with the macro `\AddToShipoutPicture` from the package `eso-pic`. It inserts the background title page image `pst-doc-pdf` to use directly `pdflatex`. When running `latex` the title page is created with PSTricks macros. This allows to use the Perl script `pst2pdf` or the package `pst-pdf` or `auto-pst-pdf` or any other program/package which supports PostScript code in the document.

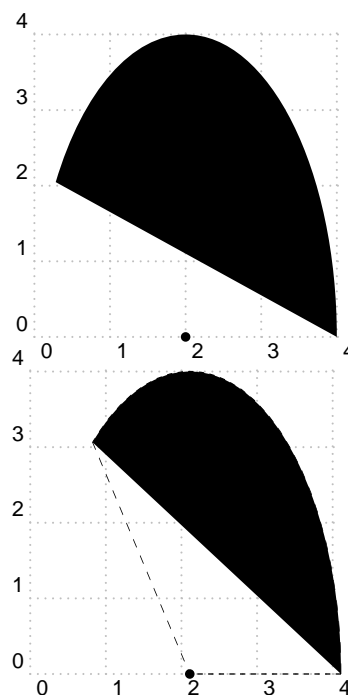
2. pstricks.tex (2.35– 2012/12/21)

2.1. \psellipticarc

There was a bug with the star version of `\psellipticarc`, which filled the path in the same way as `\psellipticwedge*` does. It is now fixed:

```
1 \begin{pspicture}[showgrid](4,4)
2 \psellipticarc*(2,0)(2,4){0}{130}
3 \psdot(2,0)
4 \end{pspicture}
```

```
1 \begin{pspicture}[showgrid](4,4)
2 \psellipticarc*[correctAngle=false,
3 showpoints](2,0)(2,4){0}{130}
4 \psdot(2,0)
5 \end{pspicture}
```

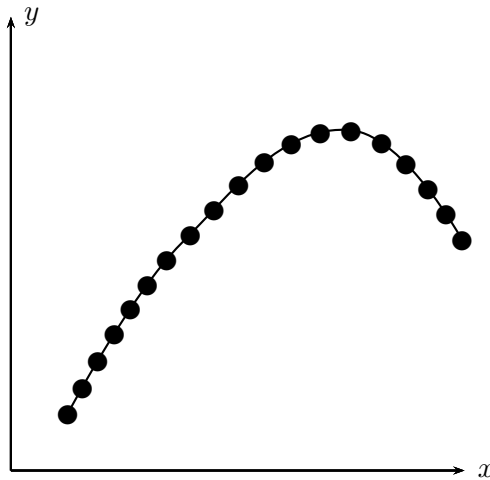


2.2. Grid

The optional argument `showgrid` can have the values `bottom`, `true`, `false`, and `top`, where `false` is the default and `true` the same as `bottom`. With the latter it is set first and with `top` it is set at the end of the `pspicture` environment.

2.3. Symbol line

The optional argument `symbol` for a linestyle can now be set with a negative `symbolStep` for a computed width of the steps:

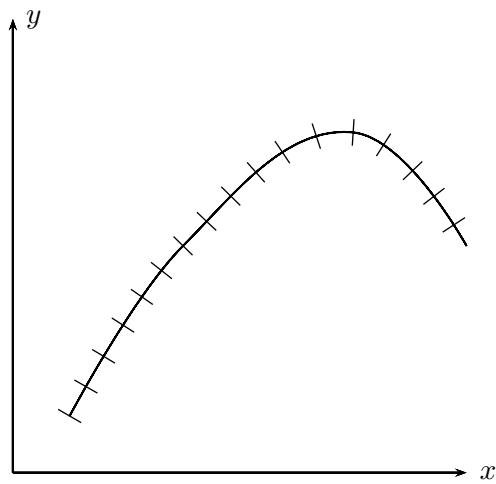


```

1 \psset{unit=0.75cm}
2 \begin{pspicture}(8,8)
3 \psaxes[labels=none,ticks=none]{->}(0,0)(8,8)[$x$,0][$y$,0]
4 \pscurve(1,1)(3,4)(6,6)(8,4)
5 \pscurve[linestyle=symbol,symbolStep=-20,symbol=l](1,1)(3,4)(6,6)(8,4)
6 \end{pspicture}

```

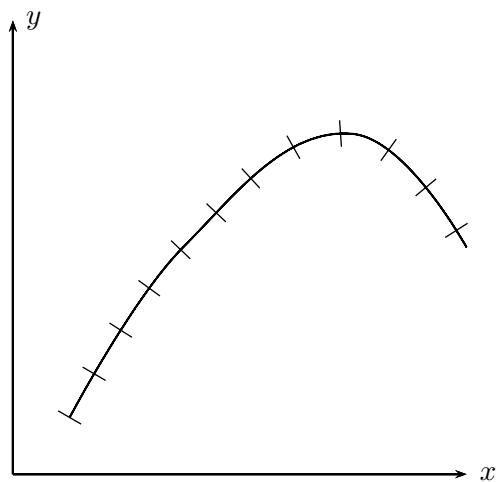
Instead of setting a symbol it is possible to set ticks on the curve with `curveticks`. They can be set by a fixed width or a computed width if the `symbolStep` is set by a negative number without a unit.



```

1 \psset{unit=0.75cm}
2 \begin{pspicture}(8,8)
3 \psaxes[labels=none,ticks=none]{->}(0,0)(8,8)[$x$,0][$y$,0]
4 \pscurve(1,1)(3,4)(6,6)(8,4)
5 \pscurve[linestyle=symbol,symbolStep=12.25pt,
6   curveticks,startAngle=60](1,1)(3,4)(6,6)(8,4)
7 \end{pspicture}

```



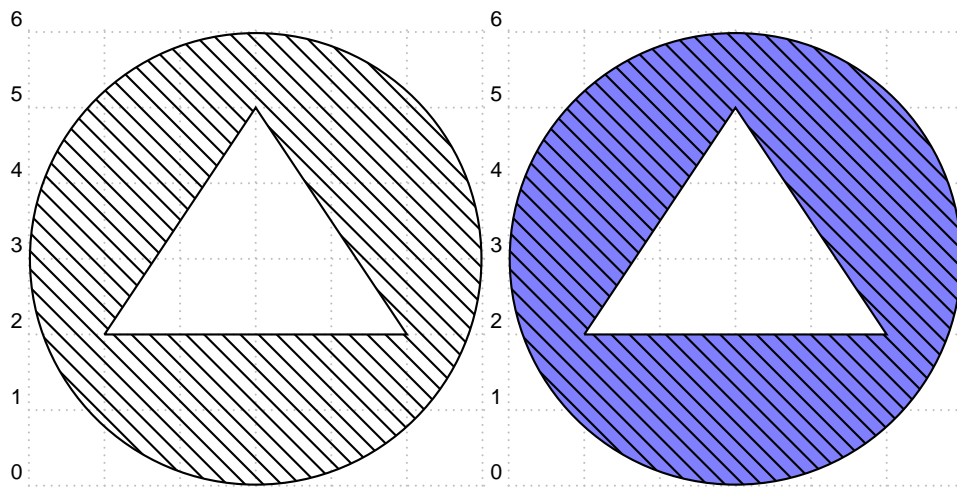
```

1 \psset{unit=0.75cm}
2 \begin{pspicture}(8,8)
3 \psaxes[labels=none,ticks=none]{->}(0,0)(8,8)[$x$,0][$y$,0]
4 \pscurve(1,1)(3,4)(6,6)(8,4)
5 \pscurve[linestyle=symbol,symbolStep=-12,
6   curveticks,startAngle=60](1,1)(3,4)(6,6)(8,4)
7 \end{pspicture}

```

2.4. Fill style eohlines and eovlines

These fill styles use the PS function `eoclip` instead of `clip`.



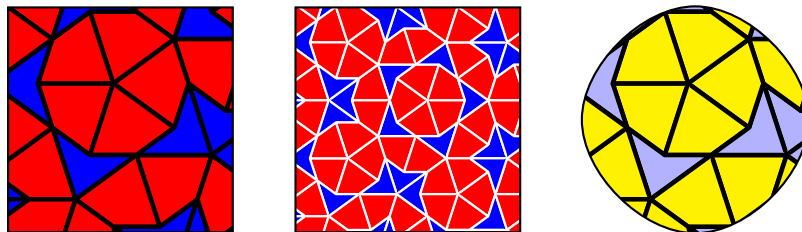
```

1 \begin{pspicture}[showgrid](6,6)
2   \pscustom[fillstyle=eovlines,fillcolor=green]{
3     \pscircle(3,3){3}
4     \psline[liftpen=2](1,2)(5,2)(3,5)(1,2)
5   }
6 \end{pspicture}\quad
7 \begin{pspicture}[showgrid](6,6)
8   \pscustom[fillstyle=eovlines*,fillcolor=blue!50]{
9     \pscircle(3,3){3}
10    \psline[liftpen=2](1,2)(5,2)(3,5)(1,2)}
11 \end{pspicture}

```

2.5. Fill style penroseA

The valid optional arguments are `penroseA`, `hatchcolor`, `dartcolor`, and `kitecolor`



```

1 \begin{pspicture}(3,3)
2   \psframe[fillstyle=penroseA](3,3)
3 \end{pspicture} \quad
4 \begin{pspicture}(3,3)
5   \psframe[fillstyle=penroseA,psscale=0.5,hatchcolor=white](3,3)
6 \end{pspicture} \quad
7 \begin{pspicture}(3,3)
8   \psccurve[fillstyle=penroseA,kitecolor=yellow,dartcolor=blue!30](0,1.5)(1.5,3)(3,1.5)
9   (1.5,0)
10 \end{pspicture}

```

3. The PostScript header files

3.1. pstricks.pro

The file `pst-tools.pro` contains additional helper functions:

```

1 /factorial { % n on stack, returns n!
2 /MoverN { % m n on stack, returns the binomial coefficient m over n
3 /cxadd { % [a1 b1] [a2 b2] = [a1+a2 b1+b2]
4 /cxneg { % [a b]
5 /cxsub { cxneg cxadd } def % same as negative addition
6 /cxmul { % [a1 b1] [a2 b2]
7 /cxsqre { % [a b] square root
8 /cxsqrt { % [a b]
9 /cxarg { % [a b]
10 /cxlog { % [a b]
11 /cxnorm2 { % [a b]
12 /cxnorm { % [a b]
13 /cxconj { % conjugent complex
14 /cxre { 0 get } def % real value
15 /cxim { 1 get } def % imag value
16 /cxrecip { % [a b]
17 /cxmake1 { 0 2 array astore } def % make a complex number, real given
18 /cxmake2 { 2 array astore } def % dito, both given
19 /cxdiv { cxrecip cxmul } def
20 /cxrmul { % [a b] r
21 /cxrdiv { % [a b] r
22 /cxconv { % theta
23 /bubblesort { % on stack must be an array [ ... ]
24 /concatstringarray{ % [(a) (b) ... (z)] --> (ab...z) 20100422
25 /dot2comma {% on stack a string (...)
```

4. List of all optional arguments for pstricks

Key	Type	Default
-----	------	---------

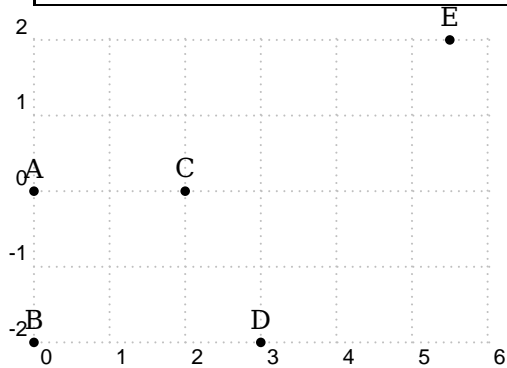
Part II.

Other packages

5. pst-node – version 1.43 | 2012/11/17

The command `\pnode` now knows an optional argument for an offset, which expects two values (x,y) separated by a comma:

```
\pnode [<offset>] (x,y){<node name>}
```



```
1 \begin{pspicture}[showgrid](0,-2)(6,2)
2 \pnode{A}\psdot(A)\uput[90](A){A}
3 \pnode[0,-2]{B}\psdot(B)\uput[90](B){B}
4 \pnode(2,0){C}\psdot(C)\uput[90](C){C}
5 \pnode[1,-2](2,0){D}\psdot(D)\uput[90](D){D}
6 \pnode[2,2](3.5,0){E}\psdot(E)\uput[90](E){E}
7 \end{pspicture}
```


References

- [1] Michel Goossens, Frank Mittelbach, Sebastian Rahtz, Denis Roegel, and Herbert Voß. *The L^AT_EX Graphics Companion*. Addison-Wesley Publishing Company, Reading, Mass., 2007.
- [2] Laura E. Jackson and Herbert Voß. Die Plot-Funktionen von pst-plot. *Die T_EXnische Komödie*, 2/02:27–34, June 2002.
- [3] Nikolai G. Kollock. *PostScript richtig eingesetzt: vom Konzept zum praktischen Einsatz*. IWT, Vaterstetten, 1989.
- [4] Herbert Voß. Die mathematischen Funktionen von Postscript. *Die T_EXnische Komödie*, 1/02:40–47, March 2002.
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- [6] Herbert Voß. *L^AT_EX Referenz*. DANTE – lehmanns media, Heidelberg/Hamburg, 2. edition, 2010.
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