PSTricks

News - 2017

new macros and bugfixes for the basic package `pstricks`

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Part I.
pstricks – package

1. pstricks.sty – pstricks-pdf.sty

There is now a new optional argument for the package: `psfonts`. If it is enabled PSTricks will use the original PostScript fonts like Helvetica, Times, ... The default is to use the URW fonts (Nimbus Roman, Nimbus Sans, . . .) which are embedded by default! The PostScript fonts are only embedded if present on your system.

2. pstricks-tex.tex

This package collects all additional latex macros which must be definied when running PSTricks with tex. They all moved from the base `pstricks.tex` into this new file.

3. pstricks.tex (v. 2.76 – 2017/09/17)

3.1. PostScript Fonts

This version of PSTricks uses the Ghostscript fonts from URW instead of the original base 14 fonts of PostScript. For example: instead of Helvetica we use NimbusSanL-Regu. The URW fonts are always embedded in the created ps or pdf output. This is not the default for the PostScript fonts. You change this setting with the optional argument to `pstricks.sty`.

3.2. Error message

Using PSTricks with `pdflatex` will work only when using package `auto-pst-pdf` and running the TEX-file with

```
pdflatex -shell-escape <file>
```

otherwise you'll get an error message which was misleading in the past:

```
[...]
! Undefined control sequence.
<recently read> \c@lor@to@ps
```

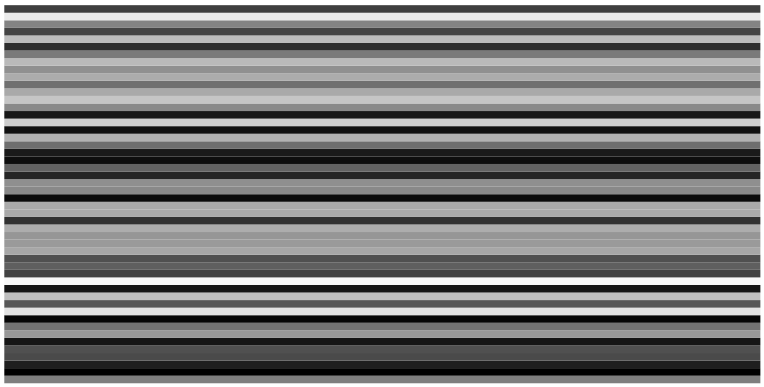
This changes now to

```
[...]
! Undefined control sequence.
\c@lor@to@ps ->\PSTricks
                          _Not_Configured_For_This_Format
```

3.3. Random colors

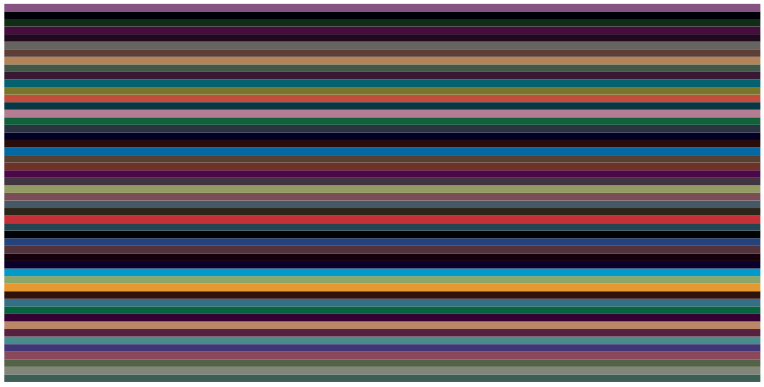
There are now four predefined random "colors":

```
\definecolor[ps]{randomgray}{gray}{Rand}%
\definecolor[ps]{randomrgb}{rgb}{Rand Rand Rand}%
\definecolor[ps]{randomcmyk}{cmyk}{Rand Rand Rand Rand}%
\definecolor[ps]{randomhsb}{hsb}{Rand Rand Rand}%
```



```
\begin{pspicture}(10,5)
\multido{\rA=0.0+0.1}{50}{\psline[linecolor=randomgray,linewidth=1mm](0,\rA)(10,\rA)}
\end{pspicture}
```

```
\begin{pspicture}(10,5)
\multido{\rA=0.0+0.1}{50}{\psline[linecolor=randomrgb,linewidth=1mm](0,\rA)(10,\rA)}
\end{pspicture}
```



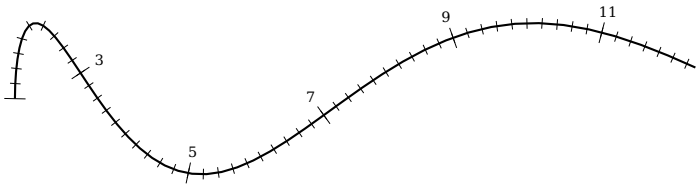
```
\begin{pspicture}(10,5)
\multido{\rA=0.0+0.1}{50}{\psline[linecolor=randomcmyk,linewidth=1mm](0,\rA)(10,\rA)}
\end{pspicture}
```

```
\begin{pspicture}(10,5)
\multido{\rA=0.0+0.1}{50}{\psline[linecolor=randomhsb,linewidth=1mm](0,\rA)(10,\rA)}
\end{pspicture}
```

The random counter can be initialized with `\pstVerb{rrand srand}`.

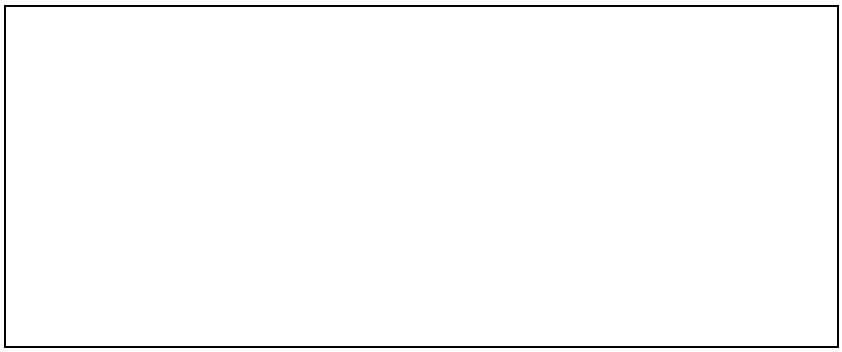
3.4. refangle

This version fixes a bug with `pst@refangle` which is used inside PostScript.




```
\begin{pspicture}(-1,-1)(10,3.5)
\psparametricplot[algebraic]{0}{9}{t^2/9 | sin(t)+1}%
\pscurvepoints{0}{9}{(t^2)/9 | sin(t)+1}{P}%
\pspolylineticks[metricInitValue=1,ticksize=-2pt 2pt,Os=1,Ds=.2]{P}{ ds }{1}{56}%
\pspolylineticks[metricInitValue=1,Os=1,Ds=2]{P}{ ds }{0}{6}%
\multido{\iA=1+1,\iB=3+2}{5}{\Put{6pt;(PNormal\iA)}(PTick\iA){\tiny \iB}}
\end{pspicture}
```

There is a new optional argument `draft` which has the same meaning as the one for `\includegraphics`. The PSTricks image is not drawn, only the area of the `pspicture` coordinates is seen by a rectangle (only for LaTeX).



```
\psset{draft}
\begin{pspicture}(-1,-1)(10,3.5)
\psparametricplot[algebraic]{0}{9}{t^2/9 | sin(t)+1}%
\pscurvepoints{0}{9}{(t^2)/9 | sin(t)+1}{P}%
\pspolylineticks[metricInitValue=1,ticksize=-2pt 2pt,Os=1,Ds=.2]{P}{ ds }{1}{56}%
\pspolylineticks[metricInitValue=1,Os=1,Ds=2]{P}{ ds }{0}{6}%
\multido{\iA=1+1,\iB=3+2}{5}{\Put{6pt;(PNormal\iA)}(PTick\iA){\tiny \iB}}
\end{pspicture}
```

3.5. \newpsstyle

The command \newpsstyle has a new syntax:

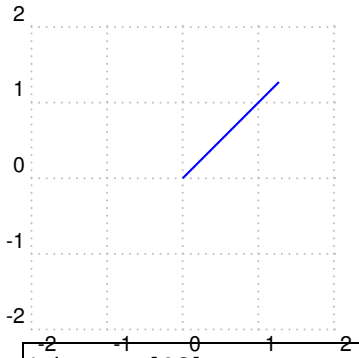
```
\newpsstyle [package name] {name}{definitions}
```

For example

```
\newpsstyle[pst-shell]{Epiteonium}{D=1,A=9.5,alpha=85.9,beta=9,mu=0,Omega=0,
  phi=81,a=2.1,b=1.6,L=1.3,P=-60,W1=200,W2=20,N=8.3}
```

4. pstricks.pro

A full circle has by default an angle of 360 degrees. Setting the circle with \degrees[*17*] to another value doesn't work for the PostScript function PtoC (Polat to Cartesian – $(r, \phi) \rightarrow (x, y)$). Now there is a PtoCrel for the new definition which now takes the setting of \pst@angleunit into account.




```
\degrees[16]
\begin{pspicture}[showgrid](-2,-2)(2,2)
\psline[linecolor=blue](!1.8 2 PtoCrel)% 45 degrees
\end{pspicture}
```

The command `\framed` was build by clockwise line sequence. Now it is the other way round to get the same behaviour as for all other commands with closed lines.

There are some new PS functions

```
/AnytoDeg { pst@angleunit } def
/DegtoAny { 1 pst@angleunit div} def
/AnytoRad { AnytoDeg DegtoRad } def
/RadtoAny { RadtoDeg DegtoAny } def
```

See `pst-node` documentation for an example.

References

[1] Michel Goosens et al. *The LaTeX Graphics Companion*. 2nd ed. Reading, Mass.: Addison-Wesley Publishing Company, 2007.

[2] Laura E. Jackson and Herbert Voß. “Die Plot-Funktionen von `pst-plot`”. In: *Die TeXnische Komödie* 2/02 (June 2002), pp. 27–34.

[3] Nikolai G. Kollock. *PostScript richtig eingesetzt: vom Konzept zum praktischen Einsatz*. Vaterstetten: IWT, 1989.

[4] Herbert Voß. “Die mathematischen Funktionen von Postscript”. In: *Die TeXnische Komödie* 1/02 (Mar. 2002), pp. 40–47.

[5] Herbert Voß. *PSTricks – Grafik für TeX und LaTeX*. 7th ed. Heidelberg and Berlin: DANTE – Lehmanns Media, 2016.

[6] Herbert Voß. *PSTricks – Graphics for LaTeX*. 1st ed. Cambridge/UK: UIT, 2011.

[7] Herbert Voß. *PSTricks Support for pdf*. 2002. URL: http://PSTricks.tug.org/main.cgi?file=pdf/pdfoutput.

[8] Herbert Voß. *LaTeX Quick Reference*. 1st ed. Cambridge/UK: UIT, 2011.

[9] Herbert Voß. *LaTeX Referenz*. 3rd ed. Heidelberg and Berlin: DANTE – lehmanns media, 2014.

[10] Michael Wiedmann and Peter Karp. *References for TeX and Friends*. 2003. URL: http://www.miwie.org/tex-refs/.

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