Package 'PSTricks'

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Title PSTricks, bindings for LaTeX's PSTricks package

Version 0.1.0

Description PSTricks provides R bindings for LaTeX's PSTricks package, higher level plot commands, the capability of generating a complete .tex file, and compiling it to a .pdf file.

License GPL (>= 3)

Depends R (>= 3.5.0)

Encoding UTF-8

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NeedsCompilation no

Author Erik Olofsen [aut, cre]

Maintainer Erik Olofsen <e.olofsen@weggetjes.nl>

Suggests knitr,
rmarkdown,
testthat (>= 3.0.0)

Config/testthat/edition 3

VignetteBuilder knitr

R topics documented:

adjx0y0 *Calculate Origin of Axis based on Origin of Subplot*

Description

Calculate Origin of Axis based on Origin of Subplot

Usage

```
adjx0y0(p, xory, secondary)
```

Arguments

p	The PSTricks object.
xory	A character 'x' or 'y' designating the axis.
secondary	A flag to designate a secondary axis.

Value

An origin.

aes *Construct Aesthetic Mappings*

Description

Construct Aesthetic Mappings

Usage

```
aes(...)
```

Arguments

...	Comma separated mappings such as in the example below.

Details

Note: `aes()` does not evaluate right hand sides of mappings.

Value

A structure containing the mapping.

See Also

geom_set() for an example.

Examples

```
aes("x=time")
```

`circlenode` *Put Stuff in a Circle*

Description

Put Stuff in a Circle

Usage

```
circlenode(p = NULL, name, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
name	The name of the node.
stuff	Stuff to put in a box at the node.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

ovalnode() for an example.

clipbox *Put Stuff in a Box with Clipping*

Description

Put Stuff in a Box with Clipping

Usage

```
clipbox(p = NULL, stuff, dim = NULL)
```

Arguments

p	The PSTricks object.
stuff	The stuff to put in the box.
dim	Distance between the box and clipping.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9) %>%
    rput(8,4,clipbox(,"\\parbox[t][1cm][t]{2cm}{One of the best
        new plays I have seen all all year}",-0.1))
```

Cnode *Create Circle Node*

Description

Create Circle Node

Usage

```
Cnode(p = NULL, x = NULL, y = NULL, name, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the node.
name	The name of the node.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    psset("radius=0.1") %>%
    Cnode(0,1,"A") %>%
    pnode(3,0,"B") %>%
    ncline("A","B",arrows="<-")
```

---

cnode *Create Circle Node*

Description

Create Circle Node

Usage

```
cnode(p = NULL, x = NULL, y = NULL, radius, name, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the node.
radius	Radius of the circle.
name	The name of the node.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    cnode(0,1,0.25,"A") %>%
    pnode(3,0,"B") %>%
    ncline("A","B",arrows="<-")
```

cnodeput *Put Stuff in a Circle*

Description

Put Stuff in a Circle

Usage

```
cnodeput(
  p = NULL,
  x = NULL,
  y = NULL,
  name,
  stuff,
  par = NULL,
  angle = NULL,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the node.
name	The name of the node.
stuff	Stuff to put in a box at the node.
par	PSTricks parameter string.
angle	Angle to put the stuff with.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    cnodeput(,,"A","X",angle=45)
```

cput *Put Stuff in a Circle*

Description

Put Stuff in a Circle

Usage

```
cput(p = NULL, x, y, stuff, par = NULL, angle = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the center of the circle.
stuff	The stuff to put in the box.
par	PSTricks parameter string.
angle	Rotation to apply to the stuff.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),2,1,par="showgrid=true") %>%
    cput(1,.5,"\\large $K_1$","doubleline=true")
```

cx *Convert Unscaled* x *Values to Scaled*

Description

Convert Unscaled x Values to Scaled

Usage

```
cx(p, x, logx = NULL)
```

Arguments

p	The PSTricks object.
x	Unscaled data.
logx	Flag to request log(10) transformation.

Value

Scaled data.

---

cy *Convert Unscaled* y *Values to Scaled*

Description

Convert Unscaled y Values to Scaled

Usage

```
cy(p, y, logy = NULL)
```

Arguments

p	The PSTricks object.
y	Unscaled data.
logy	Flag to request log(10) transformation.

Value

Scaled data.

---

degrees *Set Unit for Angles*

Description

Set Unit for Angles

Usage

```
degrees(p, degrees = 360)
```

Arguments

p	The PSTricks object.
degrees	The number of units in a circle.

Value

The updated PSTricks object.

See Also

ppsetpolar().

dianode *Put Stuff in a Diamond*

Description

Put Stuff in a Diamond

Usage

```
dianode(p = NULL, name, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
name	The name of the node.
stuff	Stuff to put in a box at the node.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

trinode() for an example.

dotnode *Create a Dot Node*

Description

Create a Dot Node

Usage

```
dotnode(p = NULL, x = NULL, y = NULL, name, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the node.
name	The name of the node.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    dotnode(,,"A","dotstyle=triangle*,dotscale=2 1") %>%
    dotnode(3,2,"B","dotstyle=+") %>%
    ncline("A","B","nodesep=3pt")
```

---

endP2E *End PSTtoEPS Feature*

Description

End PSTtoEPS Feature

Usage

```
endP2E(p, fileplot = FALSE)
```

Arguments

p	The PSTricks object.
fileplot	Flag to indicate cated values will be used for fileplot.

Value

The updated PSTricks object.

---

endpppicture *Close the Picture*

Description

Close the Picture

Usage

```
endpppicture(p, ending = "")
```

Arguments

p	The PSTricks object.
ending	String to end the pppicture environment with.

Value

The updated PSTricks object.

endpspicture *End Picture Environment*

Description

End Picture Environment

Usage

```
endpspicture(p = NULL)
```

Arguments

p	The PSTricks object.

Value

The updated PSTricks object.

See Also

pspicture() for an example.

everypsbox *Prepend String to every* psbox

Description

Prepend String to every psbox

Usage

```
everypsbox(p, s)
```

Arguments

p	The PSTricks object.
s	The string to prepend.

Value

The updated PSTricks object.

Examples

```
everypsbox(PSTricks(), "\\Large")$lines[[1]]
```

fnode *Create a Frame Node*

Description

Create a Frame Node

Usage

```
fnode(p = NULL, x = NULL, y = NULL, name, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Optional coordinates of the center.
name	The name of the node.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    fnode(,,"A") %>%
    fnode(2,2,"B","framesize=1 5pt",TRUE) %>%
    ncline("A","B","nodesep=3pt")
```

geom_abline *Draw Straight Line*

Description

Draw Straight Line

Usage

```
geom_abline(p, slope = 1, intercept = 0, par = NULL)
```

Arguments

p	The PSTricks object.
slope	The slope of the line, or an lm object.
intercept	The intercept of the line.
par	PSTricks parameter string.

Value

The updated PSTricks object.

Examples

```
PSTricks() %>%
    pppicture(16,9) %>%
    ppsetlogxy() %>%
    geom_dots(aes(x=hp,y=mpg),mtcars,par="dotstyle=Bo") %>%
    geom_abline(lm(log10(mpg)~log10(hp),data=mtcars),par="linecolor=red") %>%
    geom_hline(20,par="linecolor=green") %>%
    geom_vline(100,par="linecolor=blue")
# Note that log10 needs to be used for lm with log axes
```

---

geom_ccurve *Connect Observations using Smooth Lines*

Description

Connect Observations using Smooth Lines

Usage

```
geom_ccurve(
  p,
  mapping = NULL,
  data = NULL,
  par = NULL,
  dodge = 0,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
mapping	Aesthetic mapping from column names to x and y.
data	Data frame with coordinates of the observations.
par	PSTricks parameter string.
dodge	Horizontal offset.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

psccurve() for the base version.

Examples

```
geom_ccurve(PSTricks(),
    data=data.frame(x=c(.5,3.5,3.5,.5),y=c(0,1,0,1)),
        par="showpoints=true") %>%
    xlim(0,4) %>% ylim(-0.5,1.5) %>%
    geom_grid()
```

---

geom_curve *Connect Observations using Smooth Lines*

Description

Connect Observations using Smooth Lines

Usage

```
geom_curve(p, mapping = NULL, data = NULL, par = NULL, dodge = 0, star = FALSE)
```

Arguments

p	The PSTricks object.
mapping	Aesthetic mapping from column names to x and y.
data	Data frame with coordinates of the observations.
par	PSTricks parameter string.
dodge	Horizontal offset.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

pscurve() for the base version.

Examples

```
PSTricks() %>%
    newrgbcolor("verylightgray",.9,.9,.9) %>%
    ppsetmargins(mrgaxes=0) %>%
    geom_grid("linestyle=dotted,linecolor=gray",
        background="verylightgray") %>%
    geom_curve(data=data.frame(x=c(0,.7,3.3,4,.4),y=c(1.3,1.8,.5,1.6,.4)),
        par="showpoints=true") %>%
    geom_legend("top right","showpoints=true") %>%
    xlim(-1,5) %>% ylim(0,2)
# Note that autoscaling which uses the data only does not work optimally
```

---

geom_dots *Plot Dots*

Description

Plot Dots

Usage

```
geom_dots(p, mapping = NULL, data = NULL, par = NULL, dodge = 0, star = FALSE)
```

Arguments

p	The PSTricks object.
mapping	Aesthetic mapping from column names to x and y.
data	Data frame with coordinates of the observations.
par	PSTricks parameter string.
dodge	Horizontal offset.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

psdots() for the base version and geom_abline() for another example.

Examples

```
geom_dots(PSTricks(),data=data.frame(x=c(0,1,2),y=c(1,1,1),
    par=paste0("dotstyle=",c('*','o','Bo'))))
```

geom_ecurve *Connect Observations using Smooth Lines*

Description

Connect Observations using Smooth Lines

Usage

```
geom_ecurve(
  p,
  mapping = NULL,
  data = NULL,
  par = NULL,
  dodge = 0,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
mapping	Aesthetic mapping from column names to x and y.
data	Data frame with coordinates of the observations.
par	PSTricks parameter string.
dodge	Horizontal offset.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

psecurve() for the base version.

Examples

```
PSTricks() %>%
    pppicture(16,9,star=TRUE) %>%
    geom_ecurve(data=data.frame(x=c(.125,.25,.5,1,2,4,8),
                                y=c(8,4,2,1,.5,.25,.125)),
                par="showpoints=true") %>%
    xlim(0,4) %>% ylim(0,4) %>%
    geom_grid()
```

geom_errorbar *Vertical Errorbars*

Description

Vertical Errorbars

Usage

```
geom_errorbar(
  p,
  mapping = NULL,
  data = NULL,
  par = NULL,
  width = 0.1,
  dodge = 0
)
```

Arguments

p	The PSTricks object.
mapping	Aesthetic mapping from column names to x, y, ymin, and ymax.
data	Data frame with values for the error bars.
par	PSTricks parameters.
width	Horizontal width of the error bars.
dodge	Horizontal offset.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9,data=data.frame(x=c(1,2,3,4),y=c(2,4,6,8),
                                          ymin=c(1,2,3,4),ymax=c(3,6,9,12))) %>%
    geom_set("linecolor=blue") %>%
    geom_line(par="showpoints=true",dodge=-0.125) %>%
    geom_errorbar(dodge=-0.125) %>%
    geom_set("linecolor=green") %>%
    geom_line(par="showpoints=true",dodge=0.125) %>%
    geom_errorbar(aes(ymin=NA),dodge=0.125)
```

geom_everypsbox *Set* everypsbox *during Geom Processing*

Description

Set everypsbox during Geom Processing

Usage

```
geom_everypsbox(p, par = NULL)
```

Arguments

p	The PSTricks object.
par	Stuff to apply to a psbox.

Value

The updated PSTricks object.

See Also

everypsbox() for the base version and geom_set() for an example.

geom_frame *Draw Frames*

Description

Draw Frames

Usage

```
geom_frame(p, mapping = NULL, data = NULL, par = NULL, dodge = 0, star = FALSE)
```

Arguments

p	The PSTricks object.
mapping	Aesthetic mapping from column names to x and y.
data	Data frame with coordinates of the observations.
par	PSTricks parameter string.
dodge	Horizontal offset.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

`psframe()` for the base version.

Examples

```
geom_frame(PSTricks(),
    data=data.frame(x0=c(0,1),x1=c(4,.5),y0=c(0,.5),y1=c(2,1.5),
        par=c("linewidth=2pt,framearc=.3,fillstyle=solid,fillcolor=lightgray",
           "linecolor=white"),
        star=c(FALSE,TRUE)))
```

---

geom_framebox *Add Frameboxes*

Description

Add Frameboxes

Usage

```
geom_framebox(
  p,
  mapping = NULL,
  data = NULL,
  par = NULL,
  refpoint = NULL,
  rotation = NULL,
  dodge = 0,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
mapping	Aesthetic mapping from column names to x and y.
data	Data frame with coordinates of the observations.
par	PSTricks parameter string.
refpoint	The reference point for the stuff.
rotation	Rotation to apply to the stuff.
dodge	Horizontal offset.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

psframebox() and rput() for the base versions and geom_set() for an example.

---

geom_grid *Draw Grid Lines*

Description

Draw Grid Lines

Usage

```
geom_grid(p, par = "linestyle=dotted", background = NULL)
```

Arguments

p	The PSTricks object.
par	PSTricks parameters.
background	The background color.

Value

The updated PSTricks object.

See Also

ppgrid() for the base version and geom_curve() for an example.

Examples

```
geom_grid(PSTricks())
```

geom_hist *Plot a Histogram*

Description

Plot a Histogram

Usage

```
geom_hist(
  p,
  mapping = aes(x = breaks, y = counts),
  data = NULL,
  par = "fillcolor=lightgray,fillstyle=solid",
  star = FALSE
)
```

Arguments

p	The PSTricks object.
mapping	Either aes(x=breaks,y=counts) or aes(x=breaks,y=density).
data	Output of R's hist(..., plot=FALSE) function.
par	PSTricks parameters.
star	Flag to use star version of psframe.

Details

Issue: The default mapping containing "breaks" and "counts" leads to a NOTE when running "R CMD check".

Value

The updated PSTricks object.

Examples

```
geom_hist(PSTricks(),data=hist(mtcars$mpg,plot=FALSE),
    par="fillcolor=cyan,fillstyle=solid")
```

geom_hline *Draw Horizontal Line*

Description

Draw Horizontal Line

Usage

```
geom_hline(p, yintercept = 0, par = NULL)
```

Arguments

p	The PSTricks object.
yintercept	The y-intercept of the line.
par	PSTricks parameter string.

Value

The updated PSTricks object.

See Also

geom_abline() for an example.

geom_legend *Add Legend to Plot*

Description

Add Legend to Plot

Usage

```
geom_legend(
  p,
  s,
  par = NULL,
  position = "tr",
  dx = 0,
  dy = 0,
  w = 1,
  labelsep = "10pt"
)
```

Arguments

p	The PSTricks object.
s	The legend text.
par	PSTricks parameter string.
position	Position for the legend (may be NULL).
dx, dy	x and y offsets w.r.t. default position.
w	Width of the psline that belongs to the legend text.
labelsep	The distance between the line and the label.

Value

The updated PSTricks object.

See Also

pplegend() for the base version and geom_curve() for an example.

---

geom_line *Connect Observations using Lines*

Description

Connect Observations using Lines

Usage

```
geom_line(p, mapping = NULL, data = NULL, par = NULL, dodge = 0, star = FALSE)
```

Arguments

p	The PSTricks object.
mapping	Aesthetic mapping from column names to x and y.
data	Data frame with coordinates of the observations.
par	PSTricks parameter string.
dodge	Horizontal offset.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

psline() for the base version.

Examples

```
geom_line(PSTricks(),aes(x=xdata,y=ydata),data.frame(xdata=c(4,0,2),ydata=c(2,1,0)),
    "linewidth=2pt,linearc=.25,arrows=->")
# Note that the names in the data frame determine the axis label names by default
# and that a default `pppicture()` is called automatically
```

`geom_linewidth` *Set PSTricks' `linewidth` Parameter during Geom Processing*

Description

Set PSTricks' `linewidth` Parameter during Geom Processing

Usage

```
geom_linewidth(p, linewidth = 0.8 * 2.54/72)
```

Arguments

`p`	The PSTricks object.
`linewidth`	The linewidth to use (default the PSTricks default (0.8 pt)).

Value

The updated PSTricks object.

See Also

`pplinewidth()` for the base version and `geom_set()` for an example.

`geom_polygon` *Draw Polygons*

Description

Draw Polygons

Usage

```
geom_polygon(
  p,
  mapping = NULL,
  data = NULL,
  par = NULL,
  dodge = 0,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
mapping	Aesthetic mapping from column names to x and y.
data	Data frame with coordinates of the observations.
par	PSTricks parameter string.
dodge	Horizontal offset.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

pspolygon() for the base version.

Examples

```
PSTricks() %>%
    geom_polygon(data=data.frame(x=c(0,0,1),y=c(0,2,2)),par="linewidth=1.5pt") %>%
    geom_polygon(data=data.frame(x=c(1,1,4,4),y=c(0,2,0,2)),par="linearc=.2",star=TRUE)
# Note that the first coordinate (0,0) for the first polygon has to be given explicitly
```

---

geom_rput *Add Text Items*

Description

Add Text Items

Usage

```
geom_rput(
  p,
  mapping = NULL,
  data = NULL,
  refpoint = NULL,
  rotation = NULL,
  dodge = 0,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
mapping	Aesthetic mapping from column names to x and y.
data	Data frame with coordinates of the observations.
refpoint	The reference point for the stuff.
rotation	Rotation to apply to the stuff.
dodge	Horizontal offset.
star	Flag to indicate starred version (but see geom_framebox()).

Value

The updated PSTricks object.

See Also

rput() for the base version.

Examples

```
geom_rput(PSTricks(),
    aes(x=wt,y=mpg,stuff=stuff),
    cbind(mtcars,stuff=row.names(mtcars)),
    rotation=45,
    star=TRUE)
```

---

geom_set *Set PSTricks Parameter(s) during Geom Processing*

Description

Set PSTricks Parameter(s) during Geom Processing

Usage

```
geom_set(p, par)
```

Arguments

p	The PSTricks object.
par	PSTricks (comma separated) parameter(s).

Value

The updated PSTricks object.

See Also

psset() for the base version.

Examples

```
mtcars<-cbind(mtcars,stuff=row.names(mtcars));
PSTricks() %>%
    pppicture(16,26) %>%
# the following three commands affect the axes
    psset("arrows=c-c") %>%
    pplinewidth(.3) %>%
    everypsbox("\\large") %>%
# the following three commands affect the frameboxes
    geom_set("framearc=.3,fillstyle=solid,fillcolor=darkgray") %>%
    geom_linewidth(.1) %>%
    geom_everypsbox("\\green") %>%
    geom_framebox(aes(x=wt,y=mpg),mtcars[mtcars$cyl==4,]) %>%
    geom_linewidth(.3) %>%
    geom_everypsbox("\\cyan") %>%
    geom_framebox(aes(x=wt,y=mpg),mtcars[mtcars$cyl==6,]) %>%
    geom_linewidth(.5) %>%
    geom_everypsbox("\\red") %>%
    geom_framebox(aes(x=wt,y=mpg),mtcars[mtcars$cyl==8,]) %>%
    lims(c(1,6),c(10,35)) %>%
    labs("Weight (lb/1000)","Fuel efficiency (miles/gallon)") %>%
    pplegend("4 cylinders",par="linecolor=green",dx=-3) %>%
    pplegend("6 cylinders",par="linecolor=cyan",dx=-3,dy=-.5) %>%
    pplegend("8 cylinders",par="linecolor=red",dx=-3,dy=-1)
```

---

geom_uput *Add Text Items*

Description

Add Text Items

Usage

```
geom_uput(
  p,
  mapping = NULL,
  data = NULL,
  refangle = NULL,
  rotation = NULL,
  labelsep = NULL,
  dodge = 0,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
mapping	Aesthetic mapping from column names to x and y.
data	Data frame with coordinates of the observations.
refangle	The reference angle.
rotation	Rotation to apply to the stuff.
labelsep	Distance between coordinates and the stuff.
dodge	Horizontal offset.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

uput() for the base version.

Examples

```
geom_uput(PSTricks(),
    aes(x=wt,y=mpg,stuff=stuff),
    cbind(mtcars,stuff=row.names(mtcars)),
    refangle=0,
    rotation=45,
    star=TRUE)
```

---

geom_vline *Draw Vertical Line*

Description

Draw Vertical Line

Usage

```
geom_vline(p, xintercept = 0, par = NULL)
```

Arguments

p	The PSTricks object.
xintercept	The x-intercept of the line.
par	PSTricks parameter string.

Value

The updated PSTricks object.

See Also

`geom_abline()` for an example.

---

icx *Convert Scaled* x *Values to Unscaled*

Description

Convert Scaled x Values to Unscaled

Usage

```
icx(p, x, logx = NULL)
```

Arguments

p	The PSTricks object.
x	Scaled data.
logx	Flag to request log(10) transformation.

Value

Unscaled data.

---

icy *Convert Scaled* y *Values to Unscaled*

Description

Convert Scaled y Values to Unscaled

Usage

```
icy(p, y, logy = NULL)
```

Arguments

p	The PSTricks object.
y	Scaled data.
logy	Flag to request log(10) transformation.

Value

Unscaled data.

labs *Set Axis Labels and Title*

Description

Set Axis Labels and Title

Usage

```
labs(p, x, y, title = NULL)
```

Arguments

p	The PSTricks object.
x, y	x and y axis labels.
title	The title for the plot.

Value

The updated PSTricks object.

See Also

geom_set() for an example.

lims *Set x and y Axes Limits*

Description

Set x and y Axes Limits

Usage

```
lims(p, x = NULL, y = NULL)
```

Arguments

p	The PSTricks object.
x, y	x and y lower and upper axis limits (two-element lists or NULL for automatic).

Value

The updated PSTricks object.

See Also

geom_set() for an example.

MakeShortNab *Define Short Form Characters*

Description

Define Short Form Characters

Usage

```
MakeShortNab(p = NULL, char1, char2)
```

Arguments

p	The PSTricks object.
char1	Short form character for naput.
char2	Short form character for nbput.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    cnode(0,4,".5cm","root") %>%
    cnode(3,5.5,"4pt","A",star=TRUE) %>%
    cnode(3,2.5,"4pt","C",star=TRUE) %>%
    psset("nodesep=3pt,shortput=nab") %>%
    MakeShortNab("+","-") %>%
    ppappend(paste0(ncline(,"root","A"),"+{$x$}")) %>%
    ppappend(paste0(ncline(,"root","C"),"-{$y$}"))
# so short forms are not elegantly implemented
```

MakeShortTablr *Define Short Form Characters*

Description

Define Short Form Characters

Usage

```
MakeShortTablr(p = NULL, char1, char2, char3, char4)
```

Arguments

p	The PSTricks object.
char1	Short form character for taput.
char2	Short form character for tbput.
char3	Short form character for tlput.
char4	Short form character for trput.

Value

The updated PSTricks object.

See Also

See MakeShortNab() for how to use short forms.

---

merge.list *Merge Two Lists*

Description

Merge Two Lists

Usage

```
## S3 method for class 'list'
merge(x, y, ...)
```

Arguments

x	The first list.
y	The second list, used to add missing elements in the first list.
...	Not used.

Value

The merged lists.

Examples

```
merge(list(a=3,b=4),list(a=30,c=40))
```

multirput *Put Copies of Stuff*

Description

Put Copies of Stuff

Usage

```
multirput(
  p = NULL,
  x,
  y,
  n,
  stuff,
  angle = NULL,
  refpoint = NULL,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the stuff.
n	Number of copies.
stuff	Stuff to put at the reference point.
angle	Angle for the copies.
refpoint	The reference point for the stuff.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),3,3) %>%
    multirput(c(.5,.3),c(0,.1),12,'*')
```

naput *Put Label above Line*

Description

Put Label above Line

Usage

```
naput(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The label to put on the line.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

ncput() for an example.

nbput *Put Label below Line*

Description

Put Label below Line

Usage

```
nbput(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The label to put on the line.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

ncput() for an example.

---

ncangle *Draw Line Segments Between Two Nodes*

Description

Draw Line Segments Between Two Nodes

Usage

```
ncangle(p = NULL, nodeA, nodeB, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rput(0,3,rnode(,"A",psframebox(,"Node A")),"tl") %>%
    rput(4,0,ovalnode(,"B","Node B"),"br") %>%
    ncangle("A","B","angleA=-90,angleB=90,armB=1cm")
```

ncangles *Draw Line Segments Between Two Nodes*

Description

Draw Line Segments Between Two Nodes

Usage

```
ncangles(p = NULL, nodeA, nodeB, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rput(0,4,rnode(,"A",psframebox(,"Node A")),"tl") %>%
    rput(4,0,ovalnode(,"B","Node B"),"br") %>%
    ncangles("A","B","angleA=-90,armA=1cm,armB=.5cm,linearc=.15")
```

ncarc *Draw an Arc Between Two Nodes*

Description

Draw an Arc Between Two Nodes

Usage

```
ncarc(p = NULL, nodeA, nodeB, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    cnodeput(0,0,"A","X") %>%
    cnodeput(3,2,"B","Y") %>%
    psset("nodesep=3pt") %>%
    ncarc("A","B",arrows="->") %>%
    ncarc("B","A",arrows="->")
```

---

ncarcbox *Enclose Two Nodes in Curved Box*

Description

Enclose Two Nodes in Curved Box

Usage

```
ncarcbox(p = NULL, nodeA, nodeB, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the nodes.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rput(.5,0,rnode(,"A","1"),"bl") %>%
    rput(3.5,2,rnode(,"B","2"),"tr") %>%
    ncarcbox("A","B","nodesep=.2cm,boxsize=.4,linearc=.4,arcangle=50")
```

ncbar *Draw Line Segments Between Two Nodes*

Description

Draw Line Segments Between Two Nodes

Usage

```
ncbar(p = NULL, nodeA, nodeB, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rput(8,4,paste0(rnode(,"A","Connect"),"  some ",rnode(,"B","words"),"!")) %>%
    ncbar("A","B","nodesep=3pt,angle=-90","<-**") %>%
    ncbar("A","B","nodesep=3pt,angle=70")
```

ncbox *Enclose Two Nodes in a Box*

Description

Enclose Two Nodes in a Box

Usage

```
ncbox(p = NULL, nodeA, nodeB, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the nodes.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rput(.5,0,rnode(,"A","Idea 1"),"bl") %>%
    rput(3.5,2,rnode(,"B","Idea 2"),"tr") %>%
    ncbox("A","B","nodesep=.5cm,boxsize=.6,linearc=.2,linestyle=dashed")
```

---

nccircle *Draw a Circle between a Node and Itself*

Description

Draw a Circle between a Node and Itself

Usage

```
nccircle(p = NULL, node, radius, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
node	Name of the node.
radius	Radius of the circle.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rnode("A","\\textbf{back}") %>%
    nccircle("A",".7cm","nodesep=3pt","->")
```

nccoil *Draw a Coil between two Nodes*

Description

Draw a Coil between two Nodes

Usage

```
nccoil(p = NULL, nodeA, nodeB, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-coil"),c(-1,5),c(-1,4),par="showgrid=true") %>%
    cnode(.5,.5,.5,"A") %>%
    cnode(3.5,2.5,.5,"B","fillstyle=solid,fillcolor=lightgray") %>%
    nccoil("A","B","coilwidth=.3","<->")
# Note that the `pst-node` macro package does not have to be specified.
```

nccurve *Draw a Bezier Curve between Two Nodes*

Description

Draw a Bezier Curve between Two Nodes

Usage

```
nccurve(p = NULL, nodeA, nodeB, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rput(0,0,rnode(,"A",psframebox(,"Node A")),"bl") %>%
    rput(4,3,ovalnode(,"B","Node B"),"tr") %>%
    nccurve("A","B","angleB=180")
```

---

ncdiag *Draw Line Segments Between Two Nodes*

Description

Draw Line Segments Between Two Nodes

Usage

```
ncdiag(p = NULL, nodeA, nodeB, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rput(0,3,rnode(,"A",psframebox(,"Node A")),"tl") %>%
    rput(4,0,ovalnode(,"B","Node B"),"br") %>%
    ncdiag("A","B","angleA=-90,angleB=90,arm=.5,linearc=.2")
```

ncdiagg *Draw Line Segments Between Two Nodes*

Description

Draw Line Segments Between Two Nodes

Usage

```
ncdiagg(p = NULL, nodeA, nodeB, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    cnode(0,4,"12pt","a") %>%
    rput(3,5,rnode(,"b","H"),"l") %>%
    rput(3,3,rnode(,"c","T"),"l") %>%
    ncdiagg("b","a","angleA=180,armA=1.5,nodesepA=3pt") %>%
    ncdiag("c","a","angleA=180,armA=1.5,armB=0,nodesepA=3pt")
```

ncline *Draw a Line Between Two Nodes*

Description

Draw a Line Between Two Nodes

Usage

```
ncline(p = NULL, nodeA, nodeB, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rput(0,0,rnode(,"A","Idea 1"),"bl") %>%
    rput(4,3,rnode(,"B","Idea 2"),"tr") %>%
    ncline("A","B","nodesep=3pt","<->")
```

---

ncloop *Draw Line Segments Between a Node and Itself*

Description

Draw Line Segments Between a Node and Itself

Usage

```
ncloop(p = NULL, nodeA, nodeB, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the node.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rnode("a",psframebox(,"\\Huge A loop")) %>%
    ncloop("a","a","angleB=180,loopsize=1,arm=.5,linearc=.2","->")
```

ncput *Put Label on Line*

Description

Put Label on Line

Usage

```
ncput(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The label to put on the line.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    cnode(0,4,".5cm","root") %>%
    cnode(3,5.5,"4pt","A",star=TRUE) %>%
    cnode(3,4,"4pt","B",star=TRUE) %>%
    cnode(3,2.5,"4pt","C",star=TRUE) %>%
    psset("nodesep=3pt") %>%
    ncline("root","A") %>%
    naput("above") %>%
    ncline("root","B") %>%
    ncput("on",star=TRUE) %>%
    ncline("root","C") %>%
    nbput("below")
```

nczigzag *Draw a Zigzag between two Nodes*

Description

Draw a Zigzag between two Nodes

Usage

```
nczigzag(p = NULL, nodeA, nodeB, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
nodeA, nodeB	Names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the zigzag.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-coil"),c(-1,5),c(-1,4),par="showgrid=true") %>%
    cnode(.5,.5,.5,"A") %>%
    cnode(3.5,2.5,.5,"B","fillstyle=solid,fillcolor=lightgray") %>%
    nczigzag("A","B","coilarm=.5,linearc=.1","<->")
```

---

newcmykcolor *Define New CMYK Color*

Description

Define New CMYK Color

Usage

```
newcmykcolor(p = NULL, color, num1, num2, num3, num4)
```

Arguments

p	The PSTricks object.
color	The name of the new color.
num1, num2, num3, num4	The cyan-magenta-yellow-black specification (between 0 and 1).

Value

The updated PSTricks object.

Examples

```
newcmykcolor(,"mycolor",0.1,0.2,0.3,0.4)
```

newgray *Define New Gray Scale*

Description

Define New Gray Scale

Usage

```
newgray(p = NULL, color, num)
```

Arguments

p	The PSTricks object.
color	The name of the new gray scale.
num	The scale value (0 is black and 1 is white).

Value

The updated PSTricks object.

Examples

```
newgray(,"gray10",0.1)
```

newhsbcolor *Define New HSB Color*

Description

Define New HSB Color

Usage

```
newhsbcolor(p = NULL, color, num1, num2, num3)
```

Arguments

p	The PSTricks object.
color	The name of the new color.
num1, num2, num3	The hue-saturation-brightness specification (between 0 and 1).

Value

The updated PSTricks object.

Examples

```
newhsbcolor(,"mycolor",0.1,0.2,0.3)
```

`newrgbcolor` *Define New RGB Color*

Description

Define New RGB Color

Usage

```
newrgbcolor(p = NULL, color, num1, num2, num3)
```

Arguments

`p`	The PSTricks object.
`color`	The name of the new color.
`num1, num2, num3`	The red-green-blue specification (0 is dark and 1 is light).

Value

The updated PSTricks object.

Examples

```
newrgbcolor(,"mycolor",0.1,0.2,0.3)
```

`nput` *Attach Label to Node*

Description

Attach Label to Node

Usage

```
nput(p = NULL, name, stuff, par = NULL, refangle, star = FALSE)
```

Arguments

p	The PSTricks object.
name	The name of the node.
stuff	The label to put on the line.
par	PSTricks parameter string.
refangle	The reference angle (see uput()).
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rput(4,0,ovalnode(,"B","Node B"),"br") %>%
    rput(0,3,rnode(,"A",psframebox(,"Node A")),"tl") %>%
    nput("A",paste0(psarcn(,0,0,".4cm",0,-70),
        uput(,0,0,"\\texttt{angleA}",-35,labelsep=".4cm")),"labelsep=0",-70) %>%
    ncangle("A","B","angleA=-70,angleB=90,armB=1cm,linewidth=1.2pt") %>%
    ncput(psframe(,c(0,.35),c(0,.35),"dimen=middle"),"nrot=:U,npos=1")
```

---

ovalnode *Put Stuff in an Oval*

Description

Put Stuff in an Oval

Usage

```
ovalnode(p = NULL, name, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
name	The name of the node.
stuff	Stuff to put in a box at the node.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rput(8,4,paste(circlenode(,"A","Circle"),"and",ovalnode(,"B","Oval"))) %>%
    ncbar("A","B","angle=90")
```

---

parabola *Draw PSTricks Parabola*

Description

Draw PSTricks Parabola

Usage

```
parabola(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the parabola.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),4,3,par="showgrid=true") %>%
   parabola(c(1,2), c(1,3), star=TRUE) %>%
   psset("xunit=.01") %>%
   parabola(c(400,200),c(3,0),arrows="<->")
```

pcangle *Draw Line Segments Between Two Nodes*

Description

Draw Line Segments Between Two Nodes

Usage

```
pcangle(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates or names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    pcangle(c(3,6),c(4,9))
```

pcangles *Draw Line Segments Between Two Nodes*

Description

Draw Line Segments Between Two Nodes

Usage

```
pcangles(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates or names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    pcangles(c(3,6),c(4,9))
```

`pcarc` *Draw an Arc Between Two Nodes*

Description

Draw an Arc Between Two Nodes

Usage

```
pcarc(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

`p`	The PSTricks object.
`x, y`	Coordinates or names of the nodes.
`par`	PSTricks parameter string.
`arrows`	Arrows at the end of the line.
`star`	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    pcarc(c(3,6),c(4,9))
```

pcarcbox *Enclose Two Nodes in Curved Box*

Description

Enclose Two Nodes in Curved Box

Usage

```
pcarcbox(p = NULL, x, y, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates or names of the nodes.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    pcarcbox(c(3,6),c(4,9))
```

pcbar *Draw Line Segments Between Two Nodes*

Description

Draw Line Segments Between Two Nodes

Usage

```
pcbar(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates or names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    pcbar(c(3,6),c(4,9))
```

---

pcbox *Enclose Two Nodes in a Box*

Description

Enclose Two Nodes in a Box

Usage

```
pcbox(p = NULL, x, y, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates or names of the nodes.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    pcbox(c(3,6),c(4,9))
```

pccoil *Draw a Coil between two Nodes*

Description

Draw a Coil between two Nodes

Usage

```
pccoil(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates or names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-coil"),4,3,par="showgrid=true") %>%
    pccoil(c(.5,3.5),c(.5,2.5),"coilwidth=.3","<->")
```

pccurve *Draw a Bezier Curve Between Two Nodes*

Description

Draw a Bezier Curve Between Two Nodes

Usage

```
pccurve(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates or names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    pccurve(c(3,6),c(4,9))
```

---

pcdiag *Draw Line Segments Between Two Nodes*

Description

Draw Line Segments Between Two Nodes

Usage

```
pcdiag(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates or names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    pcdiag(c(3,6),c(4,9))
```

pcdiagg *Draw Line Segments Between Two Nodes*

Description

Draw Line Segments Between Two Nodes

Usage

```
pcdiagg(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates or names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    pcdiagg(c(3,6),c(4,9))
```

pcline *Draw a Line Between Two Nodes*

Description

Draw a Line Between Two Nodes

Usage

```
pcline(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the line segment.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    pcline(c(3,6),c(4,9))
```

---

pcloop *Draw Line Segments Between a Node and Itself*

Description

Draw Line Segments Between a Node and Itself

Usage

```
pcloop(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates or Name of the Node.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    pcloop(c(3,6),c(4,9))
```

pczigzag *Draw a Zigzag between two Nodes*

Description

Draw a Zigzag between two Nodes

Usage

```
pczigzag(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates or names of the nodes.
par	PSTricks parameter string.
arrows	Arrows at the end of the zigzag.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-coil"),4,3,par="showgrid=true") %>%
    pczigzag(c(.5,3.5),c(.5,2.5),"coilarm=.5,linearc=.1","<->")
```

pnode *Create Zero-dimensional Node*

Description

Create Zero-dimensional Node

Usage

```
pnode(p = NULL, x = NULL, y = NULL, name)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the node.
name	The name of the node.

Value

The updated PSTricks object.

See Also

cnode() for an example.

---

ppappend *Append Line to Lines Attribute in the PSTricks Object*

Description

Append Line to Lines Attribute in the PSTricks Object

Usage

```
ppappend(p, s)
```

Arguments

p	The PSTricks object.
s	The string to append.

Value

The updated PSTricks object.

---

pparg *Construct* pstricks *Argument*

Description

Construct pstricks Argument

Usage

```
pparg(arg = NULL)
```

Arguments

arg	Argument.

Value

Argument string (using curly braces), or empty string if arg is NULL.

ppaxis *Draw an X or Y Axis*

Description

Draw an X or Y Axis

Usage

```
ppaxis(
  p,
  xory,
  lims,
  label = "label",
  labsep = NULL,
  secondary = FALSE,
  noshow = FALSE
)
```

Arguments

p	The PSTricks object.
xory	A character 'x' or 'y' designating which axis to draw.
lims	A vector with two elements, the minimum and maximum values for the axis.
label	The label to show at the middle of the axis.
labsep	The distance between the tickmark labels and the label.
secondary	A flag to indicate that a secondary (at the other side) axis should be drawn.
noshow	A flag to indicate that values should be scaled with respect to the axis, but that the axis should not be drawn.

Value

The updated PSTricks object, with attributes `xtpos` and `ytpos` added for `ppgrid()`.

Examples

```
p <- pppicture(PSTricks(),16,9) %>%
    ppticks('x',6,3) %>%
    ppticks('y',6,4) %>%
    ppaxis('x',c(1,6),"wt") %>%
    ppaxis('y',c(10,35),"mpg") ;
    psdots(p,cx(p,mtcars$wt),cy(p,mtcars$mpg))
# Note that p has to have valid axes before using `cx()` or `cy()`
```

ppbuild *Construct* pstricks *Macro Command*

Description

Construct pstricks Macro Command

Usage

```
ppbuild(
  psname,
  x = NULL,
  y = NULL,
  opt = NULL,
  arg = NULL,
  arg1 = NULL,
  arg2 = NULL,
  arg3 = NULL,
  arg4 = NULL,
  arg0 = NULL,
  star = FALSE,
  p = NULL
)
```

Arguments

psname	The name of the macro command to construct.
x, y	Coordinates.
opt	Optional parameters.
arg, arg1, arg2, arg3, arg4, arg0	Arguments.
star	Flag to indicate starred version.
p	The PSTricks object.

Value

The string or an updated PSTricks object.

Examples

```
ppbuild("ppbuild",1,2,"opt","arg","arg1","arg2","arg3","arg4","arg0",TRUE)
```

ppbuild3D *Construct* pstricks *Macro Command*

Description

Construct pstricks Macro Command

Usage

```
ppbuild3D(
  psname,
  x = NULL,
  y = NULL,
  z = NULL,
  opt = NULL,
  arg = NULL,
  arg1 = NULL,
  arg2 = NULL,
  arg3 = NULL,
  arg4 = NULL,
  arg0 = NULL,
  star = FALSE,
  p = NULL
)
```

Arguments

psname	The name of the macro command to construct.
x, y, z	Coordinates.
opt	Optional parameters.
arg, arg1, arg2, arg3, arg4, arg0	Arguments.
star	Flag to indicate starred version.
p	The PSTricks object.

Value

The string or an updated PSTricks object.

Examples

```
ppbuild3D("ppbuild3D",1,2,3,"opt","arg","arg1","arg2","arg3","arg4","arg0",TRUE)
```

ppclosedoc *Close the LaTex Document*

Description

Adds a line to the p object to finish a self-contained LaTeX document. While this function is exported, it is called automatically when necessary.

Usage

```
ppclosedoc(p)
```

Arguments

p	The PSTricks object.

Value

The updated PSTricks object.

Examples

```
p <- ppclosedoc(ppopendoc(PSTricks()))
```

ppcoords *Construct* pstricks *Macro Coordinates*

Description

Construct pstricks Macro Coordinates

Usage

```
ppcoords(p = NULL, x, y)
```

Arguments

p	The PSTricks object.
x, y	Coordinates.

Value

Coordinates string (using parentheses), or empty string if x or y is NULL.

ppcoords3D *Construct* pstricks *Macro Coordinates*

Description

Construct pstricks Macro Coordinates

Usage

```
ppcoords3D(p = NULL, x, y, z)
```

Arguments

p	The PSTricks object.
x, y, z	Coordinates.

Value

Coordinates string (using parentheses), or empty string if x or y or z is NULL.

ppdefpicture *Open a Default Picture*

Description

Open a Default Picture

Usage

```
ppdefpicture(p)
```

Arguments

p	The PSTricks object.

Details

Used by geoms if no picture has been opened.

Value

The updated PSTricks object.

ppgeoms *Process Geoms*

Description

Process Geoms

Usage

```
ppgeoms(p)
```

Arguments

p	The PSTricks object.

Details

`ppgeoms()` is called automatically when the current subplot is closed. The example given below shows an instance where it is necessary to call it explicitly.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9,data=mtcars) %>%
    geom_dots(aes(x=wt,y=mpg),par="linecolor=green") %>%
    ppgeoms() %>%
    ppsetsecondary('y') %>%
    geom_dots(aes(x=wt,y=cyl),par="linecolor=blue")
```

ppgrid *Draw Grid Lines*

Description

Draw Grid Lines

Usage

```
ppgrid(p, par = "linestyle=dotted", background = NULL)
```

Arguments

p	The PSTricks object.
par	PSTricks parameters.
background	The optional background color.

Details

Axes should be drawn before a grid. Issue: with "linestyle=dotted" multiple dots are drawn at identical locations.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9) %>%
    newrgbcolor("verylightgray",.9,.9,.9) %>%
    ppsetmargins(mrgaxes=0) %>%
    ppaxis('x',c(0,1)) %>%
    ppaxis('y',c(0,1)) %>%
    ppgrid("linestyle=dotted,linecolor=gray",background="verylightgray")
```

---

pplegend *Add Legend to Plot*

Description

Add Legend to Plot

Usage

```
pplegend(
  p,
  s,
  par = NULL,
  position = "tr",
  dx = 0,
  dy = 0,
  w = 1,
  labelsep = "10pt"
)
```

Arguments

p	The PSTricks object.
s	The legend text.
par	PSTricks parameter string.
position	Position for the legend (may be NULL).
dx, dy	x and y offsets w.r.t. default position.
w	Width of the psline() that belongs to the legend text.
labelsep	The distance between the line and the label.

Value

The updated PSTricks object.

Examples

```
p <- pppicture(PSTricks(),16,9) %>%
    ppaxis('x',c(0,1)) %>%
    ppaxis('y',c(0,1)) ;
p <- p %>%
    psset("linecolor=green,showpoints=true") %>%
    psline(cx(p,seq(0,1,0.2)),cy(p,rep(0.5,5))) %>%
    pplegend("top right")
```

---

pplinewidth *Set Line Width*

Description

Set Line Width

Usage

```
pplinewidth(p, linewidth)
```

Arguments

p	The PSTricks object.
linewidth	The new default line width in mm.

Details

Parameter linewidth is a special one because it is needed at some places for proper alignment (geom_frame(),geom_hist(),ppgrid(),pplegend(),cx(),cy(),endP2E()).

Value

The updated PSTricks object.

See Also

geom_set() for an example.

ppmansubplot *Set Parameters of Subplot Manually*

Description

Set Parameters of Subplot Manually

Usage

```
ppmansubplot(p, x0, y0, hx, hy, ntitle = 1)
```

Arguments

p	The PSTricks object.
x0	The reference position of the x axis.
y0	The reference position of the y axis.
hx	The length of the x axis.
hy	The length of the y axis.
ntitle	Number of lines to reserve for the title.

Value

The updated PSTricks object.

See Also

adjx0y0() to get axis positions.

Examples

```
pppicture(PSTricks(),20,28,par="showgrid=true") %>% ppmansubplot(2,2,8,6) %>%
    ppaxis('x',c(0,1)) %>% ppaxis('y',c(0,1)) %>% pptitle("title")
# note that (x0,y0) is the reference position, not where the axes start
```

ppnewpage *Close the Current Picture and Open a New One*

Description

Close the Current Picture and Open a New One

Usage

```
ppnewpage(p)
```

Arguments

p	The PSTricks object.

Details

Lower level option values will be reset, but higher level options will not.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(engine="latex"),16,9, data=mtcars, par="showgrid=true") %>%
    geom_dots(aes(x=wt,y=mpg)) %>%
    pptitle("\\Large picture 1") %>%
    ppnewpage() %>%
    geom_dots(aes(x=wt,y=cyl)) %>%
    pptitle("\\Large picture 2")
# Engine pdflatex gives one page...
```

---

ppnewrgbcolor *Define New RGB Color(s) from R Color Specification(s)*

Description

Define New RGB Color(s) from R Color Specification(s)

Usage

```
ppnewrgbcolor(p = NULL, names, values = NULL)
```

Arguments

p	The PSTricks object.
names	R color names.
values	Color values to parse.

Value

The updated PSTricks object.

Examples

```
ppnewrgbcolor(,"blue") # p==NULL works for one color only
```

ppopendoc *Open the LaTex Document*

Description

Adds lines to the p object to start a self-contained LaTeX document. While this function is exported, it is called automatically when necessary.

Usage

```
ppopendoc(p)
```

Arguments

p	The PSTricks object.

Value

The updated PSTricks object.

Examples

```
p <- ppopendoc(PSTricks())
```

ppopt *Construct* pstricks *Option*

Description

Construct pstricks Option

Usage

```
ppopt(opt = NULL)
```

Arguments

opt	Option.

Value

Option string (using brackets), or empty string if arg is NULL.

pppicture *Open a Picture and Prepare for using PSTricks Functions*

Description

Open a Picture and Prepare for using PSTricks Functions

Usage

```
pppicture(
  p,
  x = NULL,
  y = NULL,
  data = NULL,
  mapping = NULL,
  par = NULL,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of upper right corner (and optionally lower left corner).
data	Data to use with geoms.
mapping	Mapping to use with geoms.
par	Parameters for the underlying pspicture macro (see Voss' latest documentation).
star	Flag to indicate that objects should be clipped with respect to the boundaries.

Details

pppicture is not called pspicture because of the large difference in functionality. It is not needed for using PSTricks package per se (as in LaTeX itself). Most examples use pppicture().

Value

The updated PSTricks object with initial default values for the attributes

- datnam - Name of the data for reference.
- data - Data for geoms.
- mapping - Mapping for geoms.
- geoms - List of called geoms.
- xlim,ylim - Range of x and y data.
- xlab,ylab - Labels for the x and y axes.

- xlabsep,ylabsep - Distance between tickmark and axes labels.
- xa,xb,ya,yb - Scaling conversion parameters.
- xticks - See below.
- yticks - See below.
- logx,logy - Flags to indicate logarithmic x and/or y axes.
- secondx,secondy - Flags to indicate secondary x and/or y axes.
- pxad,pyad,sxad,syad - Flags to indicate which axes have been drawn.
- margin - Parameter that determines the layout of a graph.
- mrgaxes - A factor for the margins between the axes.
- polar - Flag to indicate whether coordinates should be interpreted as polar.
- degrees - The number of units in a circle.
- linewidth - The default line width in cm.
- picpar - Parameters saved for a possible subsequent `pspicture` with `ppnewpage()`.
- psttoeps - Flag to indicate that the PSTtoEPS feature should be used with geoms.

`xticks` and `yticks` are lists with the items

- nticks -Number of tickmarks; if nticks=0, pretty tickmarks will be determined automatically.
- mticks - Number of minor tickmarks.
- nolabels - Flag to indicate that no labels should be printed.
- extlabs - Flag to indicate that labels at axis extrema should be printed.
- labels - List of labels instead of numbers to print at the tickmarks.
- ticklength - The length of the ticks.
- ticklengthi - The inward length of the ticks (default same as outward).
- rotation - The rotation for the labels at the tickmarks.

See Also

See `tvput()` for a rare example where `pppicture()` is not used. And see `pspicture()` for the lower level function.

`ppsetcartesian` *Set Interpretation of Coordinates to Cartesian*

Description

Set Interpretation of Coordinates to Cartesian

Usage

```
ppsetcartesian(p)
```

Arguments

p	The PSTricks object.

Value

The updated PSTricks object.

See Also

ppsetpolar().

---

ppsetlogx *Set Flag to use Logarithmic X Axis*

Description

Set Flag to use Logarithmic X Axis

Usage

```
ppsetlogx(p, logx = TRUE)
```

Arguments

p	The PSTricks object.
logx	The flag.

Value

The updated PSTricks object.

---

ppsetlogxy *Set Flags to use Logarithmic X and Y Axes*

Description

Set Flags to use Logarithmic X and Y Axes

Usage

```
ppsetlogxy(p, logxy = TRUE)
```

Arguments

p	The PSTricks object.
logxy	The flag.

Value

The updated PSTricks object.

See Also

`geom_abline()` for an example.

`ppsetlogy` *Set Flag to use Logarithmic Y Axis*

Description

Set Flag to use Logarithmic Y Axis

Usage

```
ppsetlogy(p, logy = TRUE)
```

Arguments

`p`	The PSTricks object.
`logy`	The flag.

Value

The updated PSTricks object.

`ppsetmargins` *Set Overall Margin*

Description

Set Overall Margin

Usage

```
ppsetmargins(p, margin = 1, mrgaxes = 1)
```

Arguments

`p`	The PSTricks object.
`margin`	Parameter that determines the layout of a graph.
`mrgaxes`	A factor for the margins between the axes.

Value

The updated PSTricks object with respect to the attributes `margin` and `mrgaxes`.

See Also

`ppgrid()` for an example.

`ppsetnologx` *Reset Flag to use Logarithmic X Axis*

Description

Reset Flag to use Logarithmic X Axis

Usage

```
ppsetnologx(p)
```

Arguments

`p`	The PSTricks object.

Value

The updated PSTricks object.

`ppsetnologxy` *Reset Flags to use Logarithmic X and Y Axes*

Description

Reset Flags to use Logarithmic X and Y Axes

Usage

```
ppsetnologxy(p)
```

Arguments

`p`	The PSTricks object.

Value

The updated PSTricks object.

ppsetnology *Reset Flag to use Logarithmic Y Axis*

Description

Reset Flag to use Logarithmic Y Axis

Usage

```
ppsetnology(p)
```

Arguments

p	The PSTricks object.

Value

The updated PSTricks object.

ppsetpolar *Set Interpretation of Coordinates to Polar*

Description

Set Interpretation of Coordinates to Polar

Usage

```
ppsetpolar(p)
```

Arguments

p	The PSTricks object.

Value

The updated PSTricks object.

See Also

degrees() and ppsetcartesian(), and psarcn() for an example.

ppsetprimary *Set Flag to use Primary X or Y Axis*

Description

Set Flag to use Primary X or Y Axis

Usage

```
ppsetprimary(p, xory, secondary = FALSE)
```

Arguments

p	The PSTricks object.
xory	A character 'x' or 'y' designating the axis.
secondary	The flag.

Value

The updated PSTricks object.

ppsetprimaryx *Set Flag to use Primary X Axis*

Description

Set Flag to use Primary X Axis

Usage

```
ppsetprimaryx(p, secondary = FALSE)
```

Arguments

p	The PSTricks object.
secondary	The flag.

Value

The updated PSTricks object.

ppsetprimaryy *Set Flag to use Primary Y Axis*

Description

Set Flag to use Primary Y Axis

Usage

```
ppsetprimaryy(p, secondary = FALSE)
```

Arguments

p	The PSTricks object.
secondary	The flag.

Value

The updated PSTricks object.

ppsetpsttoeps *Set Flag to use PSTtoEPS Feature*

Description

Set Flag to use PSTtoEPS Feature

Usage

```
ppsetpsttoeps(p, psttoeps = TRUE)
```

Arguments

p	The PSTricks object.
psttoeps	A flag to indicate that the PSTtoEPS feature should be used with geoms.

Details

The PSTtoEPS feature is explained in the original manual in section 55. It may be used for efficient EPS file processing, in particular in cases where TeX's capacity becomes exceeded with many plotting commands. It is needed only for the "latex" engine; "xelatex" and "lualatex" do not handle it properly. The "pstpkgs="pst-eps" must be used when creating the `PSTricks()` object.

ppsetsecondary *Set Flag to use Secondary X or Y Axis*

Description

Set Flag to use Secondary X or Y Axis

Usage

```
ppsetsecondary(p, xory, secondary = TRUE)
```

Arguments

p	The PSTricks object.
xory	A character 'x' or 'y' designating the axis.
secondary	The flag.

Value

The updated PSTricks object.

See Also

ppgeoms() for an example.

ppsetsecondaryx *Set Flag to use Secondary X Axis*

Description

Set Flag to use Secondary X Axis

Usage

```
ppsetsecondaryx(p, secondary = TRUE)
```

Arguments

p	The PSTricks object.
secondary	The flag.

Value

The updated PSTricks object.

See Also

ppgeoms() for an example.

ppsetsecondaryy *Set Flag to use Secondary Y Axis*

Description

Set Flag to use Secondary Y Axis

Usage

```
ppsetsecondaryy(p, secondary = TRUE)
```

Arguments

p	The PSTricks object.
secondary	The flag.

Value

The updated PSTricks object.

See Also

ppgeoms() for an example.

ppsetxlabsep *Set x label separation distance*

Description

Set x label separation distance

Usage

```
ppsetxlabsep(p, labsep = 0.7)

ppxlabsep(p, labsep = 0.7)
```

Arguments

p	The PSTricks object.
labsep	The distance.

Value

The updated PSTricks object.

See Also

geom_line() to view the default distances.

Examples

```
geom_line(PSTricks(),data=data.frame(x=c(4,0,2),y=c(2,1,0)),
    par="linewidth=2pt,linearc=.25,arrows=->") %>%
    ppsetxlabsep(1.5) %>% ppsetylabsep(2)
```

---

ppsetylabsep *Set y label separation distance*

Description

Set y label separation distance

Usage

```
ppsetylabsep(p, labsep = 1)

ppylabsep(p, labsep = 1)
```

Arguments

p	The PSTricks object.
labsep	The distance.

Value

The updated PSTricks object.

See Also

ppsetxlabsep() for an example.

ppsubplot *Divide the Picture in Subplots*

Description

Divide the Picture in Subplots

Usage

```
ppsubplot(
  p,
  nx = NULL,
  ny = NULL,
  n = NULL,
  nxaxes = 1,
  nyaxes = 1,
  ntitle = NULL,
  width = 1,
  height = 1,
  newpage = FALSE,
  data = NULL,
  mapping = NULL
)
```

Arguments

p	The PSTricks object.
nx	Number of plots in the x direction (if NULL, increment n automatically).
ny	Number of plots in the y direction.
n	Number of current plot (by default 1 if nx and ny specified).
nxaxes	Number of x axes to make space for.
nyaxes	Number of y axes to make space for.
ntitle	Number of title lines to make space for.
width	Number of subplots to occupy in the x direction.
height	Number of subplots to occupy in the y direction.
newpage	Flag to skip remaining subplots for the current page and go to the next page.
data	Override earlier specified data (in pppicture or ppsubplot).
mapping	Override earlier specified mapping (in pppicture or ppsubplot).

Details

Subsequent coordinates are relative to (p$x0,p$y0), so possibly different from (0,0). Plot parameters such as limits, ticks, and labels are not reset to default values.

Value

The updated PSTricks object, with respect to the attributes

- x0 - The position of the x axis.
- y0 - The position of the y axis.
- dx - The space allocated for the subplot in the x direction.
- dy - The space allocated for the subplot in the y direction.
- hx - The length of the x axis.
- hy - The length of the y axis.
- nx - Saved nx for subsequent subplots.
- ny - Saved ny for subsequent subplots.
- isub - Saved n for subsequent subplots.
- pxad - Flag to indicate that primary x axis has been drawn.
- pyad - Flag to indicate that primary y axis has been drawn.
- sxad - Flag to indicate that secondary x axis has been drawn.
- syad - Flag to indicate that secondary y axis has been drawn.

Examples

```
pppicture(PSTricks(),data=mtcars) %>%
    ppsubplot(2,3,data=mtcars,mapping=aes(x=wt,y=mpg)) %>%
    geom_dots() %>%
    ppsubplot() %>%
    geom_dots(aes(x=wt,y=cyl))
```

---

ppticks *Define Major and Minor Tickmarks at X or Y Axis*

Description

Define Major and Minor Tickmarks at X or Y Axis

Usage

```
ppticks(
  p,
  xory,
  nticks = 0,
  mticks = 0,
  nolabels = FALSE,
  extlabs = FALSE,
  labels = NULL,
  rotation = 0,
  ticklength = 0.2,
  ticklengthi = NULL
)
```

Arguments

p	The PSTricks object.
xory	A character 'x' or 'y' designating which axis to draw.
nticks	Number of tickmarks; if nticks=0, pretty tickmarks will be determined automatically.
mticks	Number of minor tickmarks.
nolabels	Flag to indicate that no labels should be printed.
extlabs	Flag to indicate that labels at axis extrema should be printed (however labels cannot be used).
labels	List of labels instead of numbers to print at the tickmarks.
rotation	The rotation for the labels at the tickmarks.
ticklength	The length of the ticks.
ticklengthi	• The inward length of the ticks (default same as outward).

Details

To be used with `ppaxis()`.

Value

The updated PSTricks object.

See Also

`ppaxis()` for an example.

---

pptitle *Set Plot Title*

Description

Set Plot Title

Usage

```
pptitle(p, title, dx = 0, dy = 0)
```

Arguments

p	The PSTricks object.
title	The title.
dx, dy	Offset with respect to the default position (top left).

Details

The title is shown using `uput()`.

Value

The updated PSTricks object.

See Also

`ppmansubplot()` for an example.

`ppwrite` *Write Assembled PSTricks Picture(s) to a File*

Description

`ppwrite()` is used to write the assembled LaTeX document to a file. It does not return the PSTricks object, as it will no longer be useful (a new `PSTricks()` call is needed). `ppwrite` may be called automatically by R via `print` (`print.PSTricks`).

Usage

```
ppwrite(
  p,
  filename = NULL,
  topdf = TRUE,
  crop = FALSE,
  topng = FALSE,
  dsf = 4,
  toeps = FALSE,
  clean = TRUE
)
```

Arguments

`p`	The PSTricks object.
`filename`	The name of the .tex file to write the document to (by default the name of the script, or "pp" when interactive).
`topdf`	Flag to specify if a .pdf should be generated by the engine as specified with `PSTricks()`.
`crop`	Flag if a cropped version with name `-crop.pdf` should be created.
`topng`	Flag to specify if the .pdf should be converted to a .png.
`dsf`	DownScaleFactor for Ghostscript when converting to .png (resolution is 4x72=288 pixels per inch).
`toeps`	Flag to specify if an .eps should be generated (using latex and dvips -E).
`clean`	Flag to specify if intermediate files should be deleted after generating the .pdf.

Value

Nothing.

Examples

```
ppwrite(pppicture(PSTricks(engine="pdflatex"),par="showgrid=true"))
# where the "pdflatex" engine is the only one showing the grid labels
# with a full A4 picture.
```

---

ppxticks *Define Major and Minor Tickmarks at the X Axis*

Description

Define Major and Minor Tickmarks at the X Axis

Usage

```
ppxticks(
  p,
  nticks = 0,
  mticks = 0,
  nolabels = FALSE,
  extlabs = FALSE,
  labels = NULL,
  rotation = 0,
  ticklength = 0.2,
  ticklengthi = NULL
)

xticks(
  p,
  nticks = 0,
  mticks = 0,
  nolabels = FALSE,
  extlabs = FALSE,
  labels = NULL,
  rotation = 0,
  ticklength = 0.2,
  ticklengthi = NULL
)
```

Arguments

p	The PSTricks object.
nticks	Number of tickmarks; if nticks=0, pretty tickmarks will be determined automatically.

mticks	Number of minor tickmarks.
nolabels	Flag to indicate that no labels should be printed.
extlabs	Flag to indicate that labels at axis extrema should be printed (however labels cannot be used).
labels	List of labels instead of numbers to print at the tickmarks.
rotation	The rotation for the labels at the tickmarks.
ticklength	The length of the ticks.
ticklengthi	• The inward length of the ticks (default same as outward).

Value

The updated PSTricks object.

Examples

```
PSTricks() %>%
    geom_dots(aes(x=wt,y=mpg),mtcars) %>%
    xlim(0,6) %>%
    xticks(3,2)
```

---

ppyticks *Define Major and Minor Tickmarks at the Y Axis*

Description

Define Major and Minor Tickmarks at the Y Axis

Usage

```
ppyticks(
  p,
  nticks = 0,
  mticks = 0,
  nolabels = FALSE,
  extlabs = FALSE,
  labels = NULL,
  rotation = 0,
  ticklength = 0.2,
  ticklengthi = NULL
)

yticks(
  p,
  nticks = 0,
  mticks = 0,
  nolabels = FALSE,
```

```
  extlabs = FALSE,
  labels = NULL,
  rotation = 0,
  ticklength = 0.2,
  ticklengthi = NULL
)
```

Arguments

p	The PSTricks object.
nticks	Number of tickmarks; if nticks=0, pretty tickmarks will be determined automatically.
mticks	Number of minor tickmarks.
nolabels	Flag to indicate that no labels should be printed.
extlabs	Flag to indicate that labels at axis extrema should be printed (however labels cannot be used).
labels	List of labels instead of numbers to print at the tickmarks.
rotation	The rotation for the labels at the tickmarks.
ticklength	The length of the ticks.
ticklengthi	• The inward length of the ticks (default same as outward).

Value

The updated PSTricks object.

Examples

```
PSTricks() %>%
    geom_dots(aes(x=wt,y=mpg),mtcars) %>%
    ylim(10,35) %>%
    yticks(6,0)
```

---

print.PSTricks print *a PSTricks Object*

Description

print a PSTricks Object

Usage

```
## S3 method for class 'PSTricks'
print(x, ...)
```

Arguments

x	The PSTricks object.
...	Parameters for ppwrite.

psarc *Draw PSTricks Arc*

Description

Draw PSTricks Arc

Usage

```
psarc(
  p = NULL,
  x = NULL,
  y = NULL,
  radius,
  angleA,
  angleB,
  par = NULL,
  arrows = NULL,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the arc.
radius	Radius of the arc.
angleA, angleB	Start and end angles of the arc.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),3,2,par="showgrid=true") %>%
    psarc(1.5,1.5,1.5,215,0,"showpoints=true",star=TRUE)
```

psarcn *Draw PSTricks Arc Clockwise*

Description

Draw PSTricks Arc Clockwise

Usage

```
psarcn(
  p = NULL,
  x = NULL,
  y = NULL,
  radius,
  angleA,
  angleB,
  par = NULL,
  arrows = NULL,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the arc.
radius	Radius of the arc.
angleA, angleB	End and start angles of the arc.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),4,3,par="showgrid=true") %>%
    ppsetpolar() %>%
    psline(c(4,0,4),c(50,0,10),"linewidth=2pt") %>%
    psarcn(0,0,3,50,10,"arcsepB=2pt",arrows="<-")
```

psaxes *Draw PSTricks Axes*

Description

Draw PSTricks Axes

Usage

```
psaxes(p = NULL, x, y, par = NULL, arrows = NULL)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the axes.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-plot"),4,3,par="showgrid=true") %>%
    psaxes(c(2,0,4), c(1,0,3),
        "linewidth=1.2pt,labels=none,ticks=none", "<->")
# observe interesting showgrid
```

psbezier *Draw PSTricks Bezier Curve*

Description

Draw PSTricks Bezier Curve

Usage

```
psbezier(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the line segment(s).
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),4,4) %>%
    psbezier(c(0,1,2,4),c(0,4,1,3.5),"linewidth=2pt,showpoints=true","->")
```

---

psccurve *Draw PSTricks Closed Curve*

Description

Draw PSTricks Closed Curve

Usage

```
psccurve(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the curve.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),4,1,par="showgrid=true") %>%
    psccurve(c(.5,3.5,3.5,.5),c(0,1,0,1),"showpoints=true")
```

pscircle *Draw PSTricks Circle*

Description

Draw PSTricks Circle

Usage

```
pscircle(p = NULL, x = NULL, y = NULL, radius, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the center of the circle.
radius	Radius of the circle.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),c(-1,2),c(-1,2),par="showgrid=true") %>%
    pscircle(.5,.5,1.5,"linewidth=2pt")
```

pscirclebox *Draw a Circle Box*

Description

Draw a Circle Box

Usage

```
pscirclebox(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The stuff to put in the box.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9) %>%
    rput(8,4,pscirclebox(,"{\\begin{tabular}{c} You are \\\\ here \\end{tabular}}"))
```

`pscircleOA` *Draw PSTricks Circle*

Description

Draw PSTricks Circle

Usage

```
pscircleOA(p = NULL, x, y, par = NULL, star = FALSE)
```

Arguments

`p`	The PSTricks object.
`x, y`	Coordinates of the center of the circle and one point on the circle.
`par`	PSTricks parameter string.
`star`	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(engine="latex"),8,8,par="showgrid=true") %>%
    pscircleOA(c(6,4),c(4,4)) %>%
    pscircleOA(c(4,4),c(6,4),"linecolor=blue") %>%
    pscircleOA(c(3,4),c(5,4),"linewidth=2pt,linecolor=yellow") %>%
    pscircleOA(c(2,4),c(4,4),"opacity=0.3,linecolor=red",TRUE)
```

psCoil *Draw PSTricks Coil*

Description

Draw PSTricks Coil

Usage

```
psCoil(p = NULL, angle1, angle2, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
angle1, angle2	First and last angles of the coil.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-coil"),c(-1,5),c(-1,1),par="showgrid=true") %>%
    psCoil(0,1440,"coilaspect=0,coilheight=1.33,coilwidth=.75,linewidth=1.5pt")
```

pscoil *Draw PSTricks Coil*

Description

Draw PSTricks Coil

Usage

```
pscoil(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the coil.
par	PSTricks parameter string.
arrows	Arrows at the end of the coil.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-coil"),c(-1,5),c(-1,3),par="showgrid=true") %>%
    pscoil(4,2,"coilarm=.5cm,linewidth=1.5pt,coilwidth=.5cm","<-|")
```

---

pscurve *Draw PSTricks Curve*

Description

Draw PSTricks Curve

Usage

```
pscurve(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the curve.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),4,2,par="showgrid=true") %>%
    pscurve(c(0,0.7,3.3,4,0.4),c(1.3,1.8,0.5,1.6,0.4),
        "showpoints=true","<->")
```

pscustom *Custom graphics*

Description

Custom graphics

Usage

```
pscustom(p = NULL, commands, par = NULL)
```

Arguments

p	The PSTricks object.
commands	Commands to call.
par	PSTricks parameter string.

Value

The updated PSTricks object.

Examples

```
PSTricks() %>%
    pppicture(4,3,par="showgrid=true") %>%
    pscustom(paste0(pscurve(,c(0,1,2,4),c(2,2.5,1.5,3)),
                    pscurve(,c(4,3,2,1,0),c(1,0.5,1,0,0.5),"liftpen=1")),
             "linewidth=2pt,fillstyle=solid,fillcolor=gray")
```

psdblframebox *Put Stuff in a Box with a Double Frame*

Description

Put Stuff in a Box with a Double Frame

Usage

```
psdblframebox(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The stuff to put in the box.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9) %>%
    rput(8,4,psdblframebox(,"\\parbox[c]{6cm}{\\raggedright
       A double frame is drawn with the gap between lines equal to \\texttt{doublesep}}"))
```

---

psdiabox *Put Stuff in a Diamond Box*

Description

Put Stuff in a Diamond Box

Usage

```
psdiabox(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The stuff to put in the box.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9) %>%
    rput(8,4,psdiabox(,"\\Large\\textbf{Happy?}","shadow=true"))
```

psdiamond *Draw PSTricks Diamond*

Description

Draw PSTricks Diamond

Usage

```
psdiamond(p = NULL, x, y, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the diamond.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),4,2,par="showgrid=true") %>%
    psdiamond(c(2,1.5),c(1,1),"framearc=.3,fillstyle=solid,fillcolor=lightgray")
```

psdot *Draw PSTricks Dot*

Description

Draw PSTricks Dot

Usage

```
psdot(p = NULL, x = NULL, y = NULL, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the dot.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),2,2) %>%
    psdot(1,1)
```

`psdots` *Draw PSTricks Dots*

Description

Draw PSTricks Dots

Usage

```
psdots(p = NULL, x, y, par = NULL, star = FALSE)
```

Arguments

`p`	The PSTricks object.
`x, y`	Coordinates of the dots.
`par`	PSTricks parameter string.
`star`	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),2,2) %>%
    psdots(c(0,1,2),c(1,1,1),"dotstyle=Bo")
```

psecurve *Draw PSTricks Extended Curve*

Description

Draw PSTricks Extended Curve

Usage

```
psecurve(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the curve.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),4,4,par="showgrid=true") %>%
    psecurve(c(.125,.25,.5,1,2,4,8),c(8,4,2,1,.5,.25,.125),
        "showpoints=true")
```

psellipse *Draw PSTricks Ellipse*

Description

Draw PSTricks Ellipse

Usage

```
psellipse(p = NULL, x, y, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the center of and the horizontal and vertical radii.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),c(-1,2),c(-1,1),par="showgrid=true") %>%
    psellipse(c(.5,1.5),c(0,1),"fillcolor=lightgray")
```

---

psellipticarc *Draw PSTricks Elliptic Arc*

Description

Draw PSTricks Elliptic Arc

Usage

```
psellipticarc(
  p = NULL,
  x,
  y,
  angleA,
  angleB,
  par = NULL,
  arrows = NULL,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the elliptic arc.
angleA, angleB	Start and end angles of the arc.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),c(-1,2),c(-1,1),par="showgrid=true") %>%
    psellipticarc(c(.5,1.5),c(0,1),215,0,"showpoints=true,arrowscale=2","->")
```

psellipticarcn *Draw PSTricks Elliptic Arc Clockwise*

Description

Draw PSTricks Elliptic Arc Clockwise

Usage

```
psellipticarcn(
  p = NULL,
  x,
  y,
  angleA,
  angleB,
  par = NULL,
  arrows = NULL,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the elliptic arc.
angleA, angleB	Start and end angles of the arc.
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),c(-1,2),c(-1,1),par="showgrid=true") %>%
    psellipticarcn(c(.5,1.5),c(0,1),0,215,"showpoints=true,arrowscale=2","<-")
```

psframe *Draw PSTricks Frame*

Description

Draw PSTricks Frame

Usage

```
psframe(p = NULL, x, y, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the frame.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),4,2,par="showgrid=true") %>%
    psframe(4,2,"linewidth=2pt,framearc=.3,fillstyle=solid,fillcolor=lightgray") %>%
    psframe(c(1,2),c(.5,1.5),"linecolor=white",star=TRUE)
```

psframebox *Put Stuff in a Box with a Frame*

Description

Put Stuff in a Box with a Frame

Usage

```
psframebox(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The stuff to put in the box.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),3,2) %>%
    pspolygon(c(0,3,3,2),c(0,0,2,2),"fillcolor=gray,fillstyle=crosshatch*") %>%
    rput(2,1,psframebox(,"Label","framearc=.3",star=TRUE))
```

---

psgrid *Draw PSTricks Grid*

Description

Draw PSTricks Grid

Usage

```
psgrid(p = NULL, x = NULL, y = NULL, par = NULL)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the grid.
par	PSTricks parameter string.

Value

The updated PSTricks object.

Examples

```
PSTricks() %>%
    pppicture(c(-2,4),c(-2,3)) %>%
    psgrid(c(0,-1,3), c(0,-1,2)) %>%
    pppicture(c(-1,3),c(-1,2)) %>%
    psgrid()
```

psline *Draw PSTricks Line*

Description

Draw PSTricks Line

Usage

```
psline(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the line segment(s).
par	PSTricks parameter string.
arrows	Arrows at the end of the line.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

geom_line() for the version with scaling.

Examples

```
pppicture(PSTricks(),4,2,par="showgrid=true") %>%
    psline(c(4,0,2),c(2,1,0),"linewidth=2pt,linearc=.25","->")
```

psovalbox *Put Stuff in an Oval Box*

Description

Put Stuff in an Oval Box

Usage

```
psovalbox(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The stuff to put in the box.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9) %>%
    rput(8,4,paste0("\\parbox{3.75cm}{At the introductory price of ",
        psovalbox(,"\\$13.99","boxsep=false,linecolor=darkgray"),
        ", it pays to act now!}"))
```

---

pspicture *Begin Picture Environment*

Description

Begin Picture Environment

Usage

```
pspicture(p = NULL, x, y, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of upper right corner (and optionally lower left corner).
par	Parameters (see Voss' latest documentation).
star	Flag to indicate that objects should be clipped with respect to the boundaries.

Details

Available, but see `pppicture()`.

Value

The updated PSTricks object.

Examples

```
PSTricks(engine="pdflatex") %>%
    psset("linecolor=red") %>%
    pspicture(1,1,"showgrid") %>%
    rput(0,0,
         paste(pspicture(,1,1,star=TRUE),
               psline(,c(-1,2),c(-1,2)),
               endpspicture()),
         "lb") %>%
    endpspicture()
# Example found on the internet for clipping while showing labels
```

---

pspolygon *Draw PSTricks Polygon*

Description

Draw PSTricks Polygon

Usage

```
pspolygon(p = NULL, x, y, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the line segment(s).
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),4,2,par="showgrid=true") %>%
    pspolygon(c(0,1),c(2,2),"linewidth=1.5pt") %>%
    pspolygon(c(1,1,4,4),c(0,2,0,2),"linearc=.2", star=TRUE)
```

psscalebox *Scale Box*

Description

Scale Box

Usage

```
psscalebox(p = NULL, stuff, num1, num2)
```

Arguments

p	The PSTricks object.
stuff	Stuff to scale.
num1, num2	Numbers to scale horizontally and vertically

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9) %>%
    rput(8,4,psscalebox(,"Big and long",4,2))
```

psscaleboxto *Scale Box To*

Description

Scale Box To

Usage

```
psscaleboxto(p = NULL, x, y, stuff)
```

Arguments

p	The PSTricks object.
x, y	Width and height to scale to.
stuff	Stuff to rotate.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9) %>%
    rput(8,4,psscaleboxto(,4,2,"Big and long"))
```

---

psset *Set Any Native PSTricks Option*

Description

Set Any Native PSTricks Option

Usage

```
psset(p = NULL, s)
```

Arguments

p	The PSTricks object.
s	A string with par=value specifications (comma separated).

Value

The updated PSTricks object.

Examples

```
psset(,"linewidth=0.1mm")
```

---

psshadowbox *Put Stuff in a Box with a Frame and a Shadow*

Description

Put Stuff in a Box with a Frame and a Shadow

Usage

```
psshadowbox(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The stuff to put in the box.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9) %>%
    rput(8,4,"\\psshadowbox{\\textbf{Great Idea!!}}")
```

---

psTextFrame *Draw PSTricks Text Frame*

Description

Draw PSTricks Text Frame

Usage

```
psTextFrame(p = NULL, x, y, text, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the frame.
text	Text to display in the frame.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),8,6,par="showgrid=true") %>%
    psTextFrame(c(0,4),c(0.5,1.5),"Hallo","linecolor=lightgray,ref=l")
```

pstriangle *Draw PSTricks Triangle*

Description

Draw PSTricks Triangle

Usage

```
pstriangle(p = NULL, x, y, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the triangle.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),4,2,par="showgrid=true") %>%
    pstriangle(c(2,4),c(.5,1),"gangle=10", star=TRUE)
```

pstribox *Put Stuff in a Triangle Box*

Description

Put Stuff in a Triangle Box

Usage

```
pstribox(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The stuff to put in the box.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9) %>%
    rput(8,4,pstribox(,"\\Large\\textbf{Begin}","trimode=R,framesep=5pt"))
```

PSTricks *Create a PSTricks Object*

Description

Create a PSTricks Object

Usage

```
PSTricks(
  x = NULL,
  y = NULL,
  engine = c("default", "lualatex", "xelatex", "pdflatex", "latex"),
  paper = c("default", "a4", "letter"),
  landscape = FALSE,
  center = TRUE,
  packages = NULL,
  pstpkgs = NULL,
  familydefault = NULL,
  tmpdir = "."
)
```

Arguments

x	Width of paper (default A4).
y	Height of paper (default A4).
engine	Engine to produce a .pdf from the output .tex file. One of "lualatex" (default), "xelatex", "pdflatex", and "latex". No pdf will be produced if the engine name is not recognized.
paper	Paper size specification. One of "a4" (default) or "letter".
landscape	Flag to indicate landscape paper.
center	Flag to use LaTeX offsets to center pictures based on the first one.
packages	Font or other packages to load (default default).
pstpkgs	PSTricks packages in addition to pstricks itself (default none).
familydefault	Familydefault (default \sfdefault).
tmpdir	Temporary directory for the PSTtoEPS feature.

Value

An initial PSTricks object with attributes

- docOpened - A flag indicating that the LaTex document has been opened (in the `lines` attribute‘).
- picOpened - A flag indicating that the `pspicture` PSTricks environment has been opened.
- paperx - The horizontal paper size in cm.
- papery - The vertical paper size in cm.
- x - The horizontal picture size in cm.
- y - The vertical picture size in cm.
- landscape - A flag indicating portrait or landscape output mode.
- center - A flag indicating that the `pspicture` will be centered on the paper.
- config - A list of configuration items (see below).
- lines - A list of LaTeX lines to be created.

The configuration list may consist of the following items:

- engine - The engine used to process the generated .tex file.
- familydefault - The default font family.
- packages - A list of additional LaTeX packages to be used.
- paper - The type of paper, for example "a4" or "letter".
- pstpkgs - A list of additional PSTricks packages (normally only "pstricks.sty").
- tmpdir - The temporary directory for the `PSTtoEPS` feature.
- gscmd - The name of the Ghostscript executable to use (default "gs").

Examples

```
names(PSTricks())
```

`pswedge` *Draw PSTricks Wedge*

Description

Draw PSTricks Wedge

Usage

```
pswedge(
  p = NULL,
  x = NULL,
  y = NULL,
  radius,
  angle1,
  angle2,
  par,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the center of and the horizontal and vertical radii.
radius	Radius of the wedge.
angle1, angle2	End and start angles of the wedge.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),2,2,par="showgrid=true") %>%
    pswedge(0,0,2,0,70,"linecolor=gray,linewidth=2pt,fillstyle=solid")
```

---

pszigzag *Draw PSTricks Zigzag*

Description

Draw PSTricks Zigzag

Usage

```
pszigzag(p = NULL, x, y, par = NULL, arrows = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the zigzag.
par	PSTricks parameter string.
arrows	Arrows at the end of the zigzag.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-coil"),c(-1,5),c(-1,1),par="showgrid=true") %>%
    pszigzag(4,0,"coilarm=.5,linearc=.1","<->")
# Note that the zigzag is drawn partly outside the pppicture.
```

---

qdisk *Draw PSTricks Disk*

Description

Draw PSTricks Disk

Usage

```
qdisk(p = NULL, x, y, radius)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the center of the disk.
radius	Radius of the disk.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),4,6) %>%
    psset("linecolor=gray") %>%
    qdisk(2,3, 4*2.54/72)
```

qline *Draw PSTricks Line Segment*

Description

Draw PSTricks Line Segment

Usage

```
qline(p = NULL, x, y)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the line segment.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),2,1,par="showgrid=true") %>%
    qline(c(0,2),c(0,1))
```

Rnode *Put Stuff in a Box at a Node*

Description

Put Stuff in a Box at a Node

Usage

```
Rnode(p = NULL, name, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
name	The name of the node.
stuff	Stuff to put in a box at the node.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
   rput(8,4,paste("\\Large",Rnode(,"A","sp"),"\\hskip 2cm",Rnode(,"B","Bit"))) %>%
   ncline("A","B")
```

---

rnode *Put Stuff in a Box at a Node*

Description

Put Stuff in a Box at a Node

Usage

```
rnode(p = NULL, name, stuff, refpoint = NULL)
```

Arguments

p	The PSTricks object.
name	The name of the node.
stuff	Stuff to put in a box at the node.
refpoint	The reference point (see rput()).

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rput(8,4,paste("\\Large",rnode(,"A","sp"),"\\hskip 2cm",rnode(,"B","Bit"))) %>%
    ncline("A","B")
```

rotatedown *Rotate Box Down*

Description

Rotate Box Down

Usage

```
rotatedown(p = NULL, stuff)
```

Arguments

p	The PSTricks object.
stuff	Stuff to rotate.

Value

The updated PSTricks object.

See Also

rotateleft() for an example.

rotateleft *Rotate Box Left*

Description

Rotate Box Left

Usage

```
rotateleft(p = NULL, stuff)
```

Arguments

p	The PSTricks object.
stuff	Stuff to rotate.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),16,9) %>%
    rput(8,4,paste("\\Large\\bfseries",
        rotateleft(,"Left"),rotatedown(,"Down"),rotateright(,"Right")))
```

`rotateright` *Rotate Box Right*

Description

Rotate Box Right

Usage

```
rotateright(p = NULL, stuff)
```

Arguments

`p`	The PSTricks object.
`stuff`	Stuff to rotate.

Value

The updated PSTricks object.

See Also

`rotateleft()` for an example.

`rput` *Put Stuff at Refpoint*

Description

Put Stuff at Refpoint

Usage

```
rput(
  p = NULL,
  x = NULL,
  y = NULL,
  stuff,
  refpoint = NULL,
  rotation = NULL,
  star = FALSE
)
```

Arguments

p	The PSTricks object.
x, y	Coordinates of the stuff (may be omitted if rotation is present).
stuff	Stuff to put at the reference point.
refpoint	The reference point for the stuff.
rotation	Rotation to apply to the stuff.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),c(-1,4),c(-1,4)) %>%
    rput(stuff=paste0(psframe(,c(-1,2),c(0,1)),
        rput(,2,1,"\\emph{stuff}","br","*0")),rotation=34)
```

---

sifelse *Conditional Object Selection*

Description

Conditional Object Selection

Usage

```
sifelse(test, rt, rf)
```

Arguments

test	An object which can be coerced to logical mode.
rt	Return value if test is true.
rf	Return value if test is false.

Details

This is like ifelse, but for a scalar test, and any object may be returned.

Value

Appropriate return value.

startP2E *Start PSTtoEPS Feature*

Description

Start PSTtoEPS Feature

Usage

```
startP2E(p, fileplot = FALSE)
```

Arguments

p	The PSTricks object.
fileplot	Flag to indicate cated values will be used for fileplot.

Value

The updated PSTricks object.

taput *Put Stuff on Line*

Description

Put Stuff on Line

Usage

```
taput(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The label to put on the line.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

tlput() for an example.

tbput *Put Stuff on Line*

Description

Put Stuff on Line

Usage

```
tbput(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The label to put on the line.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

tlput() for an example.

thput *Put Stuff on Line*

Description

Put Stuff on Line

Usage

```
thput(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The label to put on the line.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
PSTricks(engine="lualatex",pstpkgs="pst-node") %>%
    ppappend("\\[") %>%
    ppappend("\\setlength{\\arraycolsep}{1.1cm}") %>%
    ppappend("\\begin{array}{cc}") %>%
    ppappend(paste(Rnode(,"a","(X-A)"),"&",Rnode(,"b","A"),"\\\\[1.5cm]")) %>%
    ppappend(paste(Rnode(,"c","x"),"&",Rnode(,"d","\\tilde{X}"))) %>%
    ppappend("\\end{array}") %>%
    psset("nodesep=5pt,arrows=->") %>%
    everypsbox("\\scriptstyle") %>%
    ncline("a","c") %>% thput("h") %>%
    ncline("a","b") %>% thput("h") %>%
    ncline("b","d") %>% tvput("v") %>%
    ncline("c","d") %>% tvput("v") %>%
    ppappend("\\]")
```

---

ticks *Define Major and Minor Tickmarks at the Axes*

Description

Define Major and Minor Tickmarks at the Axes

Usage

```
ticks(
  p,
  x = 0,
  y = 0,
  nolabels = FALSE,
  extlabs = FALSE,
  labels = NULL,
  rotation = 0,
  ticklength = 0.2,
  ticklengthi = NULL
)
```

Arguments

p	The PSTricks object.
x, y	Lists with number of major and minor tickmarks.
nolabels	Flag to indicate that no labels should be printed.

extlabs	Flag to indicate that labels at axis extrema should be printed (however labels cannot be used).
labels	List of labels instead of numbers to print at the tickmarks.
rotation	The rotation for the labels at the tickmarks.
ticklength	The length of the ticks.
ticklengthi	• The inward length of the ticks (default same as outward).

Value

The updated PSTricks object.

Examples

```
PSTricks() %>%
    geom_dots(aes(x=wt,y=mpg),mtcars) %>%
    lims(c(1,6),c(10,35)) %>%
    ticks(c(6,0),c(6,1))
```

---

tlput *Put Stuff on Line*

Description

Put Stuff on Line

Usage

```
tlput(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The label to put on the line.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
PSTricks(engine="lualatex",pstpkgs="pst-node") %>%
    ppappend("\\[") %>%
    ppappend("\\setlength{\\arraycolsep}{1.1cm}") %>%
    ppappend("\\begin{array}{cc}") %>%
    ppappend(paste(Rnode(,"a","(X-A)"),"&",Rnode(,"b","A"),"\\\\[1.5cm]")) %>%
    ppappend(paste(Rnode(,"c","x"),"&",Rnode(,"d","\\tilde{X}"))) %>%
    ppappend("\\end{array}") %>%
    psset("nodesep=5pt,arrows=->") %>%
    everypsbox("\\scriptstyle") %>%
    ncline("a","c") %>% tlput("r") %>%
    ncline("a","b") %>% taput("u") %>%
    ncline("c","d","linestyle=dashed") %>% tbput("b") %>%
    ncline("b","d") %>% trput("s") %>% ppappend("\\]")
# Note: no pppicture because of array
```

---

trinode *Put Stuff in a Triangle*

Description

Put Stuff in a Triangle

Usage

```
trinode(p = NULL, name, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
name	The name of the node.
stuff	Stuff to put in a box at the node.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(pstpkgs="pst-node"),c(-2,14),c(-2,10),par="showgrid=true") %>%
    rput(0,3,dianode(,"A","Diamond"),"tl") %>%
    rput(4,0,trinode(,"B","Triangle","trimode=L"),"br") %>%
    nccurve("A","B","angleA=-135,angleB=90")
```

trput *Put Stuff on Line*

Description

Put Stuff on Line

Usage

```
trput(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The label to put on the line.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

tlput() for an example.

tvput *Put Stuff on Line*

Description

Put Stuff on Line

Usage

```
tvput(p = NULL, stuff, par = NULL, star = FALSE)
```

Arguments

p	The PSTricks object.
stuff	The label to put on the line.
par	PSTricks parameter string.
star	Flag to indicate starred version.

Value

The updated PSTricks object.

See Also

`thput()` for an example.

`uput` *Put Stuff as Label*

Description

Put Stuff as Label

Usage

```
uput(
  p = NULL,
  x = NULL,
  y = NULL,
  stuff,
  refangle = NULL,
  rotation = NULL,
  labelsep = NULL,
  star = FALSE
)
```

Arguments

`p`	The PSTricks object.
`x, y`	Coordinates of the stuff (may be omitted if `rotation` is present).
`stuff`	Stuff to put at the reference point.
`refangle`	The reference angle.
`rotation`	Rotation to apply to the stuff.
`labelsep`	Distance between coordinates and the stuff.
`star`	Flag to indicate starred version.

Value

The updated PSTricks object.

Examples

```
pppicture(PSTricks(),3,3) %>%
    qdisk(1,1,"1pt") %>%
    uput(1,1,"(1,1)",45)
```

xaspect *Calculate x for pppicture given y to get hy = aspect*hx*

Description

Calculate x for pppicture given y to get hy = aspect*hx

Usage

```
xaspect(
  y,
  aspect = 1,
  nx = 1,
  ny = 1,
  nxaxes = 1,
  nyaxes = 1,
  ntitle = 1,
  width = 1,
  height = 1,
  margin = 1
)
```

Arguments

y	Desired space in y direction.
aspect	Desired aspect ratio of axes.
nx	Number of plots in the x direction (if NULL, increment n automatically).
ny	Number of plots in the y direction.
nxaxes	Number of x axes to make space for.
nyaxes	Number of y axes to make space for.
ntitle	Number of title lines to make space for.
width	Number of subplots to occupy in the x direction.
height	Number of subplots to occupy in the y direction.
margin	Margin.

Value

The x value.

Examples

```
pppicture(PSTricks(),xaspect(12),12,par="showgrid=true") %>%
    geom_dots(aes(x=wt,y=mpg),mtcars) %>%
    xticks(extlabs=TRUE) %>% yticks(extlabs=TRUE) %>%
    pptitle("\\Large mtcars")
```

xlab *Set x Axis Label*

Description

Set x Axis Label

Usage

```
xlab(p, lab)
```

Arguments

p	The PSTricks object.
lab	x axis label.

Value

The updated PSTricks object.

xlim *Set x Axis Limits*

Description

Set x Axis Limits

Usage

```
xlim(p, xl = NULL, xu = NULL)
```

Arguments

p	The PSTricks object.
xl, xu	Lower and upper axis limits.

Value

The updated PSTricks object.

See Also

See geom_curve() for an example.

xyaspect *Calculate x,y for pppicture given x,y (in p) to get hy = aspect*hx*

Description

Calculate x,y for pppicture given x,y (in p) to get hy = aspect*hx

Usage

```
xyaspect(
  p,
  aspect = 1,
  nx = 1,
  ny = 1,
  nxaxes = 1,
  nyaxes = 1,
  ntitle = 1,
  width = 1,
  height = 1,
  margin = 1
)
```

Arguments

p	The PSTricks object.
aspect	Desired aspect ratio of axes.
nx	Number of plots in the x direction (if NULL, increment n automatically).
ny	Number of plots in the y direction.
nxaxes	Number of x axes to make space for.
nyaxes	Number of y axes to make space for.
ntitle	Number of title lines to make space for.
width	Number of subplots to occupy in the x direction.
height	Number of subplots to occupy in the y direction.
margin	Margin.

Value

The updated PSTricks object.

Examples

```
PSTricks() %>% xyaspect(ntitle=0) %>% pppicture(par="showgrid=true") %>%
    geom_dots(aes(x=wt,y=mpg),mtcars)
```

yaspect *Calculate y for pppicture given x to get hy = aspect*hx*

Description

Calculate y for pppicture given x to get hy = aspect*hx

Usage

```
yaspect(
  x,
  aspect = 1,
  nx = 1,
  ny = 1,
  nxaxes = 1,
  nyaxes = 1,
  ntitle = 1,
  width = 1,
  height = 1,
  margin = 1
)
```

Arguments

x	Desired space in x direction.
aspect	Desired aspect ratio of axes.
nx	Number of plots in the x direction (if NULL, increment n automatically).
ny	Number of plots in the y direction.
nxaxes	Number of x axes to make space for.
nyaxes	Number of y axes to make space for.
ntitle	Number of title lines to make space for.
width	Number of subplots to occupy in the x direction.
height	Number of subplots to occupy in the y direction.
margin	Margin.

Value

The y value.

Examples

```
pppicture(PSTricks(),12,yaspect(12),par="showgrid=true") %>%
    geom_dots(aes(x=wt,y=mpg),mtcars) %>%
    xticks(extlabs=TRUE) %>% yticks(extlabs=TRUE) %>%
    pptitle("\\Large mtcars")
```

ylab *Set y Axis Label*

Description

Set y Axis Label

Usage

```
ylab(p, lab)
```

Arguments

p	The PSTricks object.
lab	y axis label.

Value

The updated PSTricks object.

ylim *Set y Axis Limits*

Description

Set y Axis Limits

Usage

```
ylim(p, yl = NULL, yu = NULL)
```

Arguments

p	The PSTricks object.
yl, yu	Lower and upper axis limits.

Value

The updated PSTricks object.

See Also

See geom_curve() for an example.

`%>%` *Pipe PSTricks Object*

Description

Like `dplyr`, PSTricks also uses the pipe function, `%>%`, to pass information from one function to another. But this is unlike `ggplot2`, which uses the `+` operator.

Arguments

`lhs, rhs`	A PSTricks object and a function to apply to it.

Examples

```
# Instead of
geom_dots(PSTricks(),aes(x=wt,y=mpg),mtcars)
# one may write
PSTricks() %>% geom_dots(aes(x=wt,y=mpg),mtcars)
```

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