Package 'draw'

October 13, 2022

Type Package

Title Wrapper Functions for Producing Graphics

Version 1.0.0

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Description A set of user-friendly wrapper functions for creating consistent graphics and diagrams with lines, common shapes, text, and page settings.
Compatible with and based on the R 'grid' package.

Imports grDevices, grid, tools

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Encoding UTF-8

LazyData true

RoxygenNote 6.0.1

URL https://github.com/rrwen/draw

BugReports https://github.com/rrwen/draw/issues

NeedsCompilation no

Repository CRAN

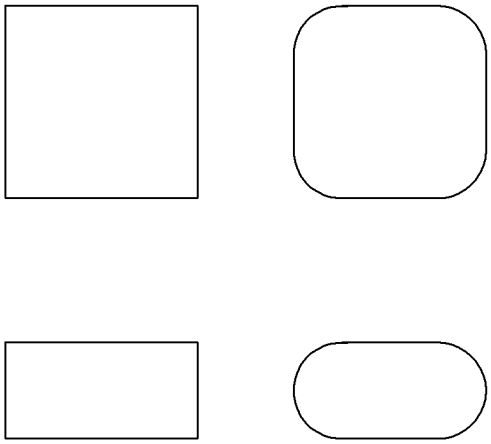
Date/Publication 2018-07-30 11:10:06 UTC

R topics documented:

drawBox *Draw a Box on the Page*

Description

Draws a box on the page given positioning, dimensions and styling.



altalt

Usage

```
drawBox(x, y, width = .pkgenv$boxWidth, height = .pkgenv$boxHeight,
  radius = .pkgenv$boxRadius, fillColor = .pkgenv$boxFillColor,
  opacity = .pkgenv$boxOpacity, lineColor = .pkgenv$boxLineColor,
  lineWidth = .pkgenv$boxLineWidth, lineType = .pkgenv$boxLineType,
  units = .pkgenv$units, ...)
```

Arguments

x	Numeric value for the x-axis position of the center.
y	Numeric value for the y-axis position of the center.
width	Numeric value for the width.
height	Numeric value for the height.
radius	Numeric value for the radius to create rounded box corners.
fillColor	Character value for the fill color.
opacity	Numeric value for the transparency with values ranging from 0 (transparent) to 1 (non-transparent).

lineColor	Character value for the color of the lines.
lineWidth	Numeric value for the width of the lines.
lineType	Character value for the line type. One of "blank", "solid", "dashed", "dotted", "dotdash", "longdash", or "twodash" (see "lty" in par).
units	Character value for the unit to use when specifying measurements.
...	Additional arguments passed to grid.rect.

Value

A grid.rect grob object.

See Also

drawSettings

Examples

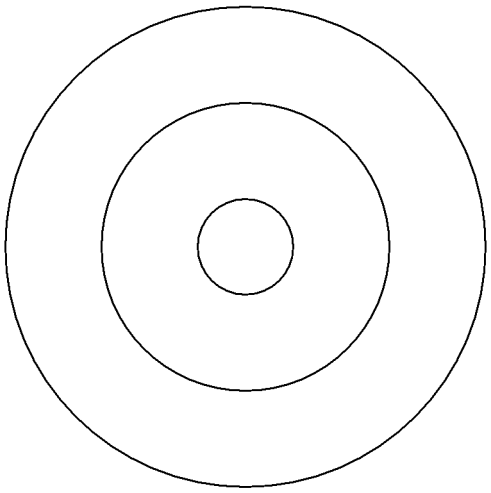
```
library(draw)

# Set drawing settings
drawSettings(pageWidth = 5, pageHeight = 5, units = "inches")

# Create a new drawing page
drawPage()

# Draw a square
drawBox(x = 1, y = 4, width = 1, height = 1)

# Draw a square with rounded corners
drawBox(x = 4, y = 4, width = 1, height = 1, radius = 0.25)

# Draw a rectangle
drawBox(x = 1, y = 1, width = 1, height = 0.5)

# Draw a rectangle with rounded corners
drawBox(x = 4, y = 1, width = 1, height = 0.5, radius = 0.25)

# Export the drawing page to a PDF
drawExport("drawBox.pdf")
```

---

drawCircle *Draw a Circle on the Page*

Description

Draws a circle on the page given positioning, dimensions and styling.



altalt

Usage

```
drawCircle(x, y, radius = .pkgenv$circleRadius,
  fillColor = .pkgenv$circleFillColor, opacity = .pkgenv$circleOpacity,
  lineColor = .pkgenv$circleLineColor, lineWidth = .pkgenv$circleLineWidth,
  lineType = .pkgenv$circleLineType, units = .pkgenv$units, ...)
```

Arguments

x	Numeric value for the x-axis position of the center.
y	Numeric value for the y-axis position of the center.
radius	Numeric value for radius of the circle.
fillColor	Character value for the fill color.
opacity	Numeric value for the transparency with values ranging from 0 (transparent) to 1 (non-transparent).
lineColor	Character value for the color of the lines.
lineWidth	Numeric value for the width of the lines.
lineType	Character value for the line type. One of "blank", "solid", "dashed", "dotted", "dotdash", "longdash", or "twodash" (see "lty" in par).
units	Character value for the unit to use when specifying measurements.
...	Additional arguments passed to grid.circle

Value

A grid.circle grob object.

See Also

drawSettings

Examples

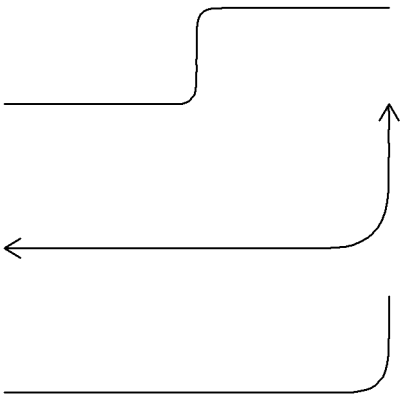
```
library(draw)

# Set drawing settings
drawSettings(pageWidth = 5, pageHeight = 5, units = "inches")

# Create a new drawing page
drawPage()

# Draw a small circle
drawCircle(x = 2.5, y = 2.5, radius = 0.5)

# Draw a mid sized circle
drawCircle(x = 2.5, y = 2.5, radius = 1)

# Draw a large circle
drawCircle(x = 2.5, y = 2.5, radius = 2)

# Export the drawing page to a PDF
drawExport("drawCircle.pdf")
```

---

drawCurve *Draw a Curve on the Page*

Description

Draws a curve on the page given positioning, dimensions and styling.



altalt

Usage

```
drawCurve(x, y, curvature = .pkgenv$curveCurvature,
  angle = .pkgenv$curveAngle, points = .pkgenv$curvePoints,
  shape = .pkgenv$curveShape, square = .pkgenv$curveSquare,
  squareShape = .pkgenv$curveSquareShape, opacity = .pkgenv$curveOpacity,
  lineColor = .pkgenv$curveLineColor, lineWidth = .pkgenv$curveLineWidth,
  lineType = .pkgenv$curveLineType, inflect = .pkgenv$curveInflect,
  open = .pkgenv$curveOpen, arrowAngle = .pkgenv$arrowAngle,
  arrowLength = .pkgenv$arrowLength, arrowUnits = .pkgenv$arrowUnits,
  arrowEnds = .pkgenv$arrowEnds, arrowType = .pkgenv$arrowType,
  units = .pkgenv$units, ...)
```

Arguments

x	Numeric vector of length 2 for x-axis position of starting and ending points.
y	Numeric vector of length 2 for y-axis position of starting and ending points.
curvature	Numeric value for the curvature of the curve. Values of 0 create a straight line, negative values create left-hand curves, and positive values create right-hand curves.
angle	Numeric value of the curve control point skewness ranging from 0 to 180. Values less than 90 skew towards the start point, and values more than 90 skew towards the end point.
points	Numeric value for the number of curve control points with higher numbers creating a smoother curve.
shape	Numeric value for the shape of the curve ranging from -1 to 1 (See grid.xspline).
square	Logical value indicating whether curve control points are created in a city-block or oblique way. It is recommended to set this to TRUE if *points* is 1 and *angle* is 90, and FALSE otherwise (see grid.curve).

squareShape	Numeric value controlling curve behaviours relative to control points. Applies if *square* is TRUE.
opacity	Numeric value for the transparency with values ranging from 0 (transparent) to 1 (non-transparent).
lineColor	Character value for the color of the lines.
lineWidth	Numeric value for the width of the lines.
lineType	Character value for the line type. One of "blank", "solid", "dashed", "dotted", "dotdash", "longdash", or "twodash" (see "lty" in par).
inflect	Logical value indicating if the curve should be cut in half and inverted (TRUE) or not (FALSE).
open	Logical value indicating whether to open the curve (TRUE) or close the curve (FALSE).
arrowAngle	Numeric value of the angle for arrows. Smaller numbers create narrower arrows, and larger numbers produce wider arrows.
arrowLength	Numeric value of the length for arrows.
arrowUnits	Character value of the measurement unit for arrows.
arrowEnds	Character value indicating which end to draw arrows on lines. Must be one of "last", "first" or "both".
arrowType	Character value indicating if the arrow heads should be closed or open. Must be one of "open" or "closed".
units	Character value for the unit to use when specifying measurements.
...	Additional arguments passed to grid.curve.

Value

A grid.curve grob object.

See Also

drawSettings

Examples

```
library(draw)

# Set drawing settings
drawSettings(pageWidth = 5, pageHeight = 5, units = "inches")

# Create a new drawing page
drawPage()

# Draw a curved angle
drawCurve(x = c(1, 4),
          y = c(1, 2),
          angle = 90)
```

```
# Draw a curved angle with arrows
drawCurve(x = c(1, 4),
          y = c(2, 3.75),
          angle = 90, arrowLength = 0.1, arrowEnd = "both")

# Draw an inflected curve
drawCurve(x = c(1, 4),
          y = c(3, 4),
          angle = 90, inflect = TRUE)

# Export the drawing page to a PDF
drawExport("drawCurve.pdf")
```

`drawExport` *Export Current Drawing Page to a File*

Description

Export Current Drawing Page to a File

Usage

```
drawExport(f, width = .pkgenv$pageWidth, height = .pkgenv$pageHeight,
  ppi = .pkgenv$exportPPI, format = tools::file_ext(f),
  textSize = .pkgenv$textSize, units = .pkgenv$exportUnits, ...)
```

Arguments

`f`	Character value of the file path to save to. Must include file name and extension.
`width`	Numeric value of the image width.
`height`	Numeric value of the image height.
`ppi`	Numeric value of the image resolution quality in Pixels Per Inch (PPI).
`format`	Character value of the extension for file without a period ".".
`textSize`	Size of text (pt) in image.
`units`	Character value for the unit to use when specifying measurements. Can be one of the following: • "px", "pixels", "pixel", "pix" • "in", "inches", "inch" • "cm", "centimeters", "centimeter", "centimetre", "centimetres" • "mm", "millimeters", "millimeter", "millimetre", "millimetres"
`...`	Additional arguments passed to dev.copy.

Value

The name and number of the device, according to dev.copy, which has been copied to.

See Also

drawSettings

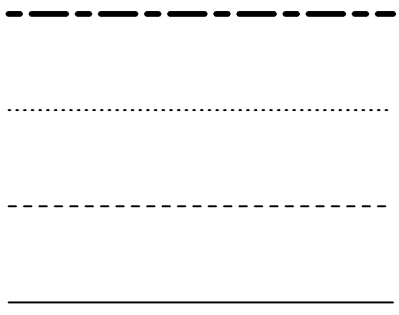
Examples

```
library(draw)

# Set drawing settings
drawSettings(pageWidth = 5, pageHeight = 5, units = "inches")

# Create a new drawing page
drawPage()

# Draw a square
drawBox(x = 1, y = 4, width = 2, height = 2)

# Export the drawing page to a PDF
drawExport("export.pdf")

# Export the drawing page to a PNG
drawExport("export.png", ppi=300)
```

`drawLine` *Draw a Line on the Page*

Description

Draws a line on the page given positioning, dimensions and styling.



altalt

Usage

```
drawLine(x, y, opacity = .pkgenv$lineOpacity, lineColor = .pkgenv$lineColor,
  lineWidth = .pkgenv$lineWidth, lineType = .pkgenv$lineType,
  arrowAngle = .pkgenv$arrowAngle, arrowLength = .pkgenv$arrowLength,
  arrowUnits = .pkgenv$arrowUnits, arrowEnds = .pkgenv$arrowEnds,
  arrowType = .pkgenv$arrowType, units = .pkgenv$units, ...)
```

Arguments

x	Numeric vector for the x-axis positions of the control points.
y	Numeric vector for the y-axis positions of the control points.
opacity	Numeric value for the transparency with values ranging from 0 (transparent) to 1 (non-transparent).
lineColor	Character value for the color of the lines.
lineWidth	Numeric value for the width of the lines.
lineType	Character value for the line type. One of "blank", "solid", "dashed", "dotted", "dotdash", "longdash", or "twodash" (see "lty" in par).
arrowAngle	Numeric value of the angle for arrows. Smaller numbers create narrower arrows, and larger numbers produce wider arrows.
arrowLength	Numeric value of the length for arrows.
arrowUnits	Character value of the measurement unit for arrows.
arrowEnds	Character value indicating which end to draw arrows on lines. Must be one of "last", "first" or "both".
arrowType	Character value indicating if the arrow heads should be closed or open. Must be one of "open" or "closed".
units	Character value for the unit to use when specifying measurements.
...	Additional arguments passed to grid.lines.

Value

A grid.lines grob object.

See Also

drawSettings

Examples

```
library(draw)

# Set drawing settings
drawSettings(pageWidth = 5, pageHeight = 5, units = "inches")

# Create a new drawing page
drawPage()
```

```
# Draw a solid line
drawLine(x = c(1, 4),
         y = c(1 ,1))

# Draw a dashed line
drawLine(x = c(1, 4),
         y = c(2 ,2),
         lineType = "dashed")

# Draw a dotted line with ending arrow
drawLine(x = c(1, 4),
         y = c(3 ,3),
         lineType = "dotted", arrowEnds = "last")

# Draw thick two dash line with starting arrow
drawLine(x = c(1, 4),
         y = c(4, 4),
         lineWidth = 3, lineType = "twodash", arrowEnds = "first")

# Export the drawing page to a PDF
drawExport("drawLine.pdf")
```

`drawPage` *Create a New Drawing Page*

Description

Create a New Drawing Page

Usage

```
drawPage(width = .pkgenv$pageWidth, height = .pkgenv$pageHeight,
  units = .pkgenv$units, ...)
```

Arguments

`width`	Numeric value for the page width.
`height`	Numeric value for the page height.
`units`	Character value for the unit to use when specifying measurements.
`...`	Additional arguments to viewport.

Value

A viewport object.

See Also

drawSettings

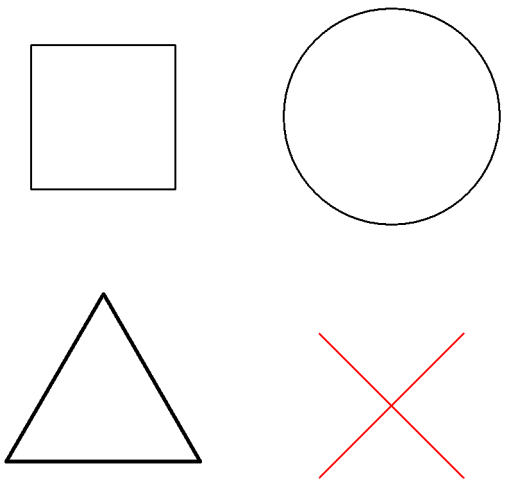
Examples

```
library(draw)

# Set drawing settings
drawSettings(pageWidth = 5, pageHeight = 5, units = "inches")

# Create a new drawing page
drawPage()
```

`drawPoint` *Draw a Point on the Page*

Description

Draws a point on the page given positioning, dimensions and styling.



altalt

Usage

```
drawPoint(x, y, pch = .pkgenv$pointPCH, size = .pkgenv$pointSize,
  fillColor = .pkgenv$pointFillColor, opacity = .pkgenv$pointOpacity,
  lineColor = .pkgenv$pointLineColor, lineWidth = .pkgenv$pointLineWidth,
  lineType = .pkgenv$pointLineType, units = .pkgenv$units, ...)
```

Arguments

x	Numeric value for the x-axis position of the center.
y	Numeric value for the y-axis position of the center.
pch	Numeric value indicating which plotting symbol to use (see points). Some examples include 0 for square, 1 for circle, 2 for triangle, and 4 for X.
size	Numeric value for the size of the point.
fillColor	Character value for the fill color.
opacity	Numeric value for the transparency with values ranging from 0 (transparent) to 1 (non-transparent).
lineColor	Character value for the color of the lines.
lineWidth	Numeric value for the width of the lines.
lineType	Character value for the line type. One of "blank", "solid", "dashed", "dotted", "dotdash", "longdash", or "twodash" (see "lty" in par).
units	Character value for the unit to use when specifying measurements.
...	Additional arguments passed to grid.points.

Value

A grid.points grob object.

See Also

drawSettings

Examples

```
library(draw)

# Set drawing settings
drawSettings(pageWidth = 5, pageHeight = 5, units = "inches")

# Create a new drawing page
drawPage()

# Draw a square point
drawPoint(x = 1, y = 4, pch = 0)

# Draw a larger circle point
drawPoint(x = 4, y = 4, pch = 1, size = 1.5)

# Draw a triangle point
drawPoint(x = 1, y = 1, pch = 2, lineWidth = 2)

# Draw a red X point
drawPoint(x = 4, y = 1, pch = 4, lineColor = "red")

# Export the drawing page to a PDF
drawExport("drawPoint.pdf")
```

`drawSettings` *Modify Default Drawing Settings*

Description

Modify Default Drawing Settings

Usage

```
drawSettings(...)
```

Arguments

...	Default settings to modify draw package settings stored in an environment.

Details

The following parameters are available to change:

*

- **units** [default = "inches"]: Character value of default measurement unit for applicable draw function parameters (such as width, height, radius, x, y, etc).

arrow

- **arrowAngle** [default = 30]: Numeric value of the angle for arrows. Smaller numbers create narrower arrows, and larger numbers produce wider arrows.
- **arrowLength** [default = 0]: Numeric value of the length for arrows.
- **arrowUnits** [default = *units*]: Character value of the measurement unit for arrows. Default is the same as *units* parameter under *.
- **arrowEnds** [default = "last"]: Character value indicating which end to draw arrows on lines. Must be one of "last", "first" or "both".
- **arrowType** [default = "open"]: Character value indicating if the arrow heads should be closed or open. Must be one of "open" or "closed".

drawBox

- **boxWidth** [default = 1]: Numeric value of the width for boxes.
- **boxHeight** [default = 1]: Numeric value of the height for boxes.
- **boxRadius** [default = 0]: Numeric value of the radius for boxes to create rounded corners.
- **boxFillColor** [default = "transparent"]: Character value of the color to fill boxes with.
- **boxOpacity** [default = 1]: Numeric value of transparency for boxes ranging from 0 (transparent) to 1 (non-transparent).
- **boxLineWidth** [default = 1]: Numeric value of the width for the box lines.

- **boxLineType** [default = "solid"]: Character value of the type of line for the boxes. One of "blank", "solid", "dashed", "dotted", "dotdash", "longdash", or "twodash" (see "lty" in par).
- **boxLineColor** [default = "black"]: Character value of the color for the box lines.

drawCircle

- **circleRadius** [default = 0.5]: Numeric value of the radius for circles.
- **circleFillColor** [default = "transparent"]: Character value of the color to fill circles with.
- **circleOpacity** [default = 1]: Numeric value of the transparency for circles ranging from 0 (transparent) to 1 (non-transparent).
- **circleLineWidth** [default = 1]: Numeric value of the width for the circle lines.
- **circleLineType** [default = "solid"]: Character value of the type of line for the circles. One of "blank", "solid", "dashed", "dotted", "dotdash", "longdash", or "twodash" (see "lty" in par).
- **circleLineColor** [default = "black"]: Character value of the color for the circle lines.

drawCurve

- **curveCurvature** [default = 1]: Numeric value of the curvature for the curves. Values of 0 create a straight line, negative values create left-hand curves, and positive values create right-hand curves.
- **curveAngle** [default = 90]: Numeric value of the curve control point skewness ranging from 0 to 180. Values less than 90 skew towards the start point, and values more than 90 skew towards the end point.
- **curvePoints** [default = 1]: Numeric value of the number of control points for the curves, where higher values create smoother curves.
- **curveShape** [default = 0.5]: Numeric value of the shape for the curves ranging from -1 to 1 (See grid.xspline).
- **curveSquare** [default = TRUE]: Logical value indicating whether curve control points are created in a city-block or oblique way. It is recommended to set this to TRUE if *curvePoints* is 1 and *curveAngle* is 90, and FALSE otherwise (see grid.curve).
- **curveSquareShape** [default = 1]: Numeric value controlling curve behaviours relative to control points. Applies if *curveSquare* is TRUE.
- **curveOpacity** [default = 1]: Numeric value of the transparency for the curves ranging from 0 (transparent) to 1 (non-transparent).
- **curveLineColor** [default = "black"]: Character value of the color for the curve lines.
- **curveLineWidth** [default = 1]: Character value of the width for the curve lines.
- **curveLineType** [default = "solid"]: Character value of the type of line for the curves. One of "blank", "solid", "dashed", "dotted", "dotdash", "longdash", or "twodash" (see "lty" in par).
- **curveInflect** [default = FALSE]: Logical value indicating if curve should be cut in half and inverted (TRUE) or not (FALSE).
- **curveOpen** [default = TRUE]: Logical value indicating whether to open the curves (TRUE) or close the curves (FALSE).

drawExport

- **exportUnits** [default = *units*]: Character value of measurement unit for exporting. Default is the same as *units* parameter under *.
- **exportPPI** [default = 150]: Numeric value of the image quality measured in Pixels Per Inch (PPI).

drawLine

- **lineOpacity** [default = 1]: Numeric value of the transparency of the lines ranging from 0 (transparent) to 1 (non-transparent).
- **lineWidth** [default = 1]: Numeric value of the width of the lines.
- **lineType** [default = "solid"]: Character value of the type for the lines. One of "blank", "solid", "dashed", "dotted", "dotdash", "longdash", or "twodash" (see "lty" in par).
- **lineColor** [default = "black"]: Character value of the color of the lines.

drawPage

- **pageWidth** [default = 8.5]: Numeric value of the width of the drawing page.
- **pageHeight** [default = 11]: Numeric value of the height of the drawing page.

drawPoint

- **pointPCH** [default = 20]: Numeric value indicating which plotting symbol to use (see points). Some examples include 0 for square, 1 for circle, 2 for triangle, and 4 for X.
- **pointSize** [default = 1]: Numeric value of the point size.
- **pointFillColor** [default = "transparent"]: Character value of the color to fill each point.
- **pointOpacity** [default = 1]: Numeric value of the transparency for the points ranging from 0 (transparent) to 1 (non-transparent).
- **pointLineColor** [default = "black"]: Character value of the color of the points.
- **pointLineType** [default = "solid"]: Character value of the type for the lines. One of "blank", "solid", "dashed", "dotted", "dotdash", "longdash", or "twodash" (see "lty" in par).
- **pointLineWidth** [default = 1]: Numeric value of the width of the point lines.

drawText

- **text** [default = "text"]: Character value of the text to display at the defined position.
- **textJust** [default = "centre"]: Character value of the text justification. One of "left", "right", "centre", "center", "bottom", or "top".
- **textHjust** [default = NULL]: Numeric value of the horizontal justification.
- **textVjust** [default = NULL]: Numeric value of the vertical justification.
- **textAngle** [default = 0]: Numeric value of the angle to rotate text.
- **textOverlap** [default = FALSE]: Logical value indicating if overlapping text should be removed (TRUE) or not (FALSE).
- **textOpacity** [default = 1]: Numeric value of the transparency for text ranging from 0 (transparent) to 1 (non-transparent).
- **textColor** [default = "black"]: Character value of the color for text.

- **textSize** [default = 12]: Numeric value of the text font size in pt.
- **textFace** [default = "plain"]: Character value of the text font face. One of "plain", "bold", "italic", "oblique", and "bold.italic" (see *fontface* in gpar).
- **textFamily** [default = "sans"]: Character value of text font family to use (see *family* in par). Common values are "serif", "sans" and "mono".
- **textLineHeight** [default = 1.2]: Numeric value of text line height as a multiple of the size of the text.

Value

A list of the current draw settings with changes.

Examples

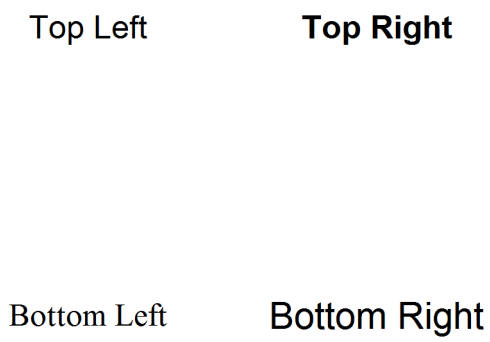
```
library(draw)

# Set page dimensions and units to inches
drawSettings(pageWidth = 5, pageHeight = 5, units = "inches")

# Set export resolution in Pixels Per Inch (PPI)
drawSettings(exportPPI = 300)

# Set default width and height for all boxes in inches
drawSettings(boxWidth = 1, boxHeight = 1)

# Create a new drawing page
drawPage()

# Draw default 1 by 1 inch boxes near the center
drawBox(x = 2, y = 2.5)
drawBox(x = 3, y = 2.5)

# Draw a non-default 2 by 2 inch box in the center
drawBox(x = 2.5, y = 2.5, width = 2, height = 2)

# Export the current drawing page
drawExport("drawSettingsExample.pdf")
```

---

drawText *Draw Text on the Page*

Description

Draws text on the page given positioning, dimensions and styling.



altalt

Usage

```
drawText(x, y, text = .pkgenv$text, just = .pkgenv$textJust,
  hjust = .pkgenv$textHjust, vjust = .pkgenv$textVjust,
  angle = .pkgenv$textAngle, overlap = .pkgenv$textOverlap,
  opacity = .pkgenv$textOpacity, color = .pkgenv$textColor,
  size = .pkgenv$textSize, face = .pkgenv$textFace,
  family = .pkgenv$textFamily, lineHeight = .pkgenv$textLineHeight,
  units = .pkgenv$units, ...)
```

Arguments

x	Numeric value for the x-axis position of the center.
y	Numeric value for the y-axis position of the center.
text	Character value of the text to display at *xy* position.
just	Character value of the text justification. One of "left", "right", "centre", "center", "bottom", or "top".
hjust	Numeric value of the horizontal justification.
vjust	Numeric value of the vertical justification.
angle	Numeric value of the angle to rotate text.
overlap	Logical value indicating if overlapping text should be removed (TRUE) or not (FALSE).
opacity	Numeric value of the transparency for text ranging from 0 (transparent) to 1 (non-transparent).
color	Character value of the color for text.
size	Numeric value of the text font size in pt.

face	Character value of the text font face. One of "plain", "bold", "italic", "oblique", and "bold.italic" (see *fontface* in gpar).
family	Character value of text font family to use (see *family* in par). Common values are "serif", "sans" and "mono".
lineHeight	Numeric value of text line height as a multiple of the size of the text.
units	Character value for the unit to use when specifying measurements.
...	Additional arguments passed to grid.text.

Value

A grid.text grob object.

See Also

drawSettings

Examples

```
library(draw)

# Set drawing settings
drawSettings(pageWidth = 5, pageHeight = 5, units = "inches")

# Create a new drawing page
drawPage()

# Draw text on top left corner
drawText(x = 1, y = 4, text = "Top Left")

# Draw bold text on top right corner
drawText(x = 4, y = 4, text = "Top Right", face = "bold")

# Draw serif text on bottom left corner
drawText(x = 1, y = 1, text = "Bottom Left", family = "serif")

# Draw larger text on bottom right corner
drawText(x = 4, y = 1, text = "Bottom Right", size = 14)

# Export the drawing page to a PDF
drawExport("drawText.pdf")
```

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