

Package ‘munsell’

January 2, 2012

Type Package

Title Munsell colour system

Version 0.3

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Description Functions for exploring and using the Munsell colour system

Suggests ggplot2

Imports colorspace

License MIT

Collate ‘alter.r’ ‘check.r’ ‘convert.r’ ‘munsell.r’ ‘plot.r’

Repository CRAN

Date/Publication 2011-09-02 18:26:04

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| | |
|--------------|--|
| chroma_slice | <i>Plot all colours with the same chroma</i> |
|--------------|--|

Description

Plots slices of the Munsell colour system where chroma is constant.

Usage

```
chroma_slice(chroma.name = seq(0, 38, by = 2), back.col =
"white")
```

Arguments

| | |
|-------------|---------------------------------------|
| chroma.name | integer vector of the desired values. |
| back.col | colour for the background |

Value

ggplot object

Examples

```
chroma_slice(2)
chroma_slice(18)
# Maybe want to delete text and add axis instead
p <- chroma_slice(18)
p$layers[[2]] <- NULL # remove text layer
p + opts(axis.text.x = theme_text(angle = 90, hjust = 1),
axis.text.y = theme_text())
# all values
## Not run: chroma_slice(seq(0, 38, by = 2))
```

| | |
|------------|--|
| complement | <i>Find the complement of a munsell colour</i> |
|------------|--|

Description

Finds the munsell colour with the same chroma and value but on the opposite side of the hue circle.

Usage

```
complement(col, ...)
```

Arguments

| | |
|-----|--|
| col | character vector of Munsell colours |
| ... | passed on to <code>in_gamut</code> . Use <code>fix = TRUE</code> to fix "bad" complement |

Value

character vector of Munsell colours

Examples

```
complement("5PB 2/4")
cols <- c("5PB 2/4", "5Y 7/8")
plot_mnsl(c(cols, complement(cols)))
```

| | |
|------------------|---|
| complement_slice | <i>A vertical slice through the Munsell space</i> |
|------------------|---|

Description

Plot a hue and its complement at all values and chromas

Usage

```
complement_slice(hue.name, back.col = "white")
```

Arguments

| | |
|----------|--------------------------------------|
| hue.name | character string of the desired hue. |
| back.col | colour for the background |

Value

ggplot object

Examples

```
complement_slice("5PB")  
complement_slice("5R")
```

| | |
|--------|-------------------------------------|
| darker | <i>Make a munsell colour darker</i> |
|--------|-------------------------------------|

Description

Decreases the value of the Munsell colour by 1.

Usage

```
darker(col)
```

Arguments

col character vector of Munsell colours

Value

character vector of Munsell colours

Examples

```
darker("5PB 2/4")  
cols <- c("5PB 2/4", "5Y 7/8")  
plot_mnsl(c(cols, darker(cols)))
```

| | |
|------------|---|
| desaturate | <i>Make a munsell colour less saturated</i> |
|------------|---|

Description

Decreases the chroma of the Munsell colour by one step (- 2).

Usage

```
desaturate(col)
```

Arguments

col character vector of Munsell colours

Value

character vector of Munsell colours

Examples

```
desaturate("5PB 2/4")
cols <- c("5PB 2/4", "5Y 7/8")
plot_mnsl(c(cols, desaturate(cols)))
```

| | |
|-----------|---|
| hue_slice | <i>Plot all colours with the same hue</i> |
|-----------|---|

Description

Plots slices of the Munsell colour system where hue is constant.

Usage

```
hue_slice(hue.name = "all", back.col = "white")
```

Arguments

| | |
|----------|--|
| hue.name | character vector of the desired hues. Or "all" for all hues. |
| back.col | colour for the background |

Value

ggplot object

Examples

```
hue_slice("5R")
hue_slice(c("5R", "5P"))
## Not run: hue_slice("all")
```

| | |
|----------|---|
| hvc2mnsl | <i>Converts a hue, chroma and value to a Munsell colour</i> |
|----------|---|

Description

Takes separate specifications of hue, value and chroma and returns the text specification of that colour.

Usage

```
hvc2mnsl(hue, value, chroma, ...)
```

Arguments

hue a character vector of Munsell hues
 value a numeric vector of values
 chroma a numeric vector of chromas
 ... passed on to [check_mnsl](#). Use `fix = TRUE` to fix "bad" colours

Details

Munsell colours are specified by hue, value and chroma. They take a form like "5PB 5/10" where the first characters represent the hue, followed by a space then the value and chroma separated by a "/". In this package value should be an integer in 0:10 and chroma an even number at most 24. Note that not all possible specifications result in representable colours. Regular recycling rules apply.

Value

a character string specification of a hex colour

See Also

[check_mnsl](#), [mnsl2hex](#)

Examples

```
hvc2mnsl("5PB", 5, 10)
# All values of 5PB with chroma 10
hvc2mnsl("5PB", 1:9, 10) # note some are undefined
plot_mnsl(hvc2mnsl("5PB", 1:9, 2))
```

lighter *Make a munsell colour lighter*

Description

Increases the value of the Munsell colour by 1.

Usage

```
lighter(col)
```

Arguments

col character vector of Munsell colours

Value

character vector of Munsell colours

Examples

```
lighter("5PB 2/4")
cols <- c("5PB 2/4", "5Y 7/8")
plot_mns1(c(cols, lighter(cols)))
```

mns1

Converts a Munsell colour to hex

Description

Take a character string representation of a Munsell colour and returns the hex specification of that colour

Usage

```
mns1(col, ...)
```

Arguments

`col` a character string representing a Munsell colour.
`...` passed on to [check_mns1](#). Use `fix = TRUE` to fix "bad" colours

Details

Munsell colours are specified by hue, value and chroma. They take a form like "5PB 5/10" where the first characters represent the hue, followed by a space then the value and chroma separated by a "/". In this package value should be an integer in 0:10 and chroma an even number at most 24. Note that not all possible specifications result in representable colours.

Value

a character string specification of a hex colour

See Also

[check_mns1](#), [hvc2mns1](#)

Examples

```
mns12hex("5PB 5/10")
# use a munsell colour in a plot
require("ggplot2")
ggplot(data.frame(x = 1:10)) + geom_point(aes(x = x, y = x),
  colour = mns12hex("5PB 5/10"))
```

mns1_hues

Munsell hues

Description

Returns a character vector of the Munsell hues in hue order starting at 2.5R and excluding grey ("N").

Value

a character vector containing the fixed colours.

Examples

```
mns1_hues()
```

munsell

Munsell colour system.

Description

This package makes it easy to access and manipulate the colours in the munsell colour system.

plot_closest

Plot closest Munsell colour to an RGB colour

Description

Take an RGB colour and plots it along with the closest Munsell colour (using [rgb2mns1](#) to find it)

Usage

```
plot_closest(R, G = NULL, B = NULL, back.col = "white")
```

Arguments

| | |
|----------|--|
| R | a numeric vector of red values or a 3 column matrix with the proportions R, G, B in the columns. |
| G | numeric vector of green values |
| B | numeric vector of blue values |
| back.col | colour for the background |

Value

ggplot object

See Also

[rgb2mns1](#)

Examples

```
plot_closest(0.1, 0.1, 0.3)
plot_closest(matrix(c(.1, .2, .4, .5, .6, .8), ncol = 3))
```

| | |
|----------|-------------------------|
| plot_hex | <i>Plot hex colours</i> |
|----------|-------------------------|

Description

Quick way to look at a set of hex colours.

Usage

```
plot_hex(hex.colour, back.col = "white")
```

Arguments

| | |
|------------|---|
| hex.colour | character vector specifying colours in hex form |
| back.col | specification of background colour of display |

Value

A ggplot object

Examples

```
plot_hex("#000000")
plot_hex(c("#000000", "#FFFFFF"))
```

plot_mns1 *Plot a munsell colour*

Description

Takes munsell text specifications and plots colour squares of them.

Usage

```
plot_mns1(cols, back.col = "white", ...)
```

Arguments

cols character vector specifying colours in Munsell form
back.col specification of background colour of display
... passed to [check_mns1](#). Add fix = TRUE to fix "bad" colours()

Value

A ggplot object

Examples

```
plot_mns1("5R 5/6")
plot_mns1("5R 5/6", back.col = "grey40")
p <- plot_mns1(c("5R 6/6", "5Y 6/6", "5G 6/6", "5B 6/6", "5P 6/6"),
back.col = "grey40")
p
# returned object is a ggplot object so we can alter the layout
summary(p)
p + facet_wrap(~ names, nrow = 1)
```

rgb2mns1 *Converts an RGB colour to Munsell*

Description

Finds the closest Munsell colour (in LUV space) to the specified RGB colour

Usage

```
rgb2mns1(R, G = NULL, B = NULL)
```

Arguments

| | |
|---|--|
| R | a numeric vector of red values or a 3 column matrix with the proportions R, G, B in the columns. |
| G | numeric vector of green values |
| B | numeric vector of blue values |

See Also

[plot_closest](#)

Examples

```
rgb2mns1(0.1, 0.1, 0.3)
rgb2mns1(matrix(c(.1, .2, .4, .5, .6, .8), ncol = 3))
plot_closest(matrix(c(.1, .2, .4, .5, .6, .8), ncol = 3))
```

saturate

Make a munsell colour more saturated

Description

Increases the chroma of the Munsell colour by one step (+ 2).

Usage

```
saturate(col)
```

Arguments

| | |
|-----|-------------------------------------|
| col | character vector of Munsell colours |
|-----|-------------------------------------|

Value

character vector of Munsell colours

Examples

```
saturate("5PB 2/4")
cols <- c("5PB 2/4", "5Y 7/8")
plot_mns1(c(cols, saturate(cols)))
```

| | |
|----------|---|
| seq_mnsl | <i>Generate a sequence of Munsell colours</i> |
|----------|---|

Description

Generates a sequence of Munsell colours. The sequence is generated by finding the closest munsell colours to a equidistant sequence of colours in #' LUV space.

Usage

```
seq_mnsl(from, to, n)
```

Arguments

| | |
|------|--|
| from | character string of first Munsell colour |
| to | character string of last Munsell colour |
| n | number of colours in sequence |

Value

character vector of Munsell colours

Examples

```
seq_mnsl("5R 2/4", "5R 5/16", 4)
plot_mnsl(seq_mnsl("5R 2/4", "5R 5/16", 4))
plot_mnsl(seq_mnsl("5R 2/4", complement("5R 2/4", fix = TRUE), 5))
```

| | |
|-------------|---|
| value_slice | <i>Plot all colours with the same value</i> |
|-------------|---|

Description

Plots slices of the Munsell colour system where value is constant.

Usage

```
value_slice(value.name = 1:10, back.col = "white")
```

Arguments

| | |
|------------|---------------------------------------|
| value.name | integer vector of the desired values. |
| back.col | colour for the background |

Value

ggplot object

Examples

```
value_slice(2)
value_slice(c(2, 4))
# all values
## Not run: value_slice(1:10)
```

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